Museum Learners Club: Social Environments for Inclusive Learning

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The Museum Learners Club is a socially mediated learning environment that welcomes diverse learners. This thesis presents its philosophical and theoretical foundations and an ethnographic account of how I tested it with learners on the autism spectrum and their non-autistic peers. In theory and in practice, the Museum Learners Club demonstrates the efficacy of museums for inclusive learning and the significance of a secure museum-school partnership.

The idea of the Museum Learners Club originated from progressive learning theory that is a hallmark of the museum studies discourse. It was further developed through an examination of the personal and social nature of knowledge, the process of learning, and designs for learning from the fields of philosophy, cognitive psychology, and knowledge management.

Leading forces behind my thinking include Michael Polanyi's convictions of personal and tacit knowledge, Lev Vygotsky's social constructivism, and Etienne Wenger's learning theory known as "communities of practice". The Museum Learners Club was built on the principle that learning occurs as a result of building new understanding from a prior knowledge base through participation and expansion of identities. I describe the Club as a "constructivist community of practice".

The thesis also grapples with challenges of social inclusion and inclusive education. The Museum Learners Club embraces a democratic view of the validity of all learners. It makes provisions to serve a wide range of learning styles including autistic behaviors that can inhibit communication, social interaction and learning. My work complements autism research that values socially based interventions.

Success in the field indicated that the Museum Learners Club was a viable participatory framework and proved that learning in museums can enhance typical school education for a diversity of learners. It portends a larger impact for museums, schools and a multicultural world that require equitable learning solutions.

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Preface: On Reflexive Research

As a prologue to this museum studies thesis that involves learners on the autism spectrum, I disclose my personal commitments and circumstances. I come to this work with multiple roles. Where it concerns my doctoral course of study, I am an avid museum researcher; however, I bring additional insights and emotion as a university instructor who teaches courses in museum studies, museum trustee, and member of the constituency advisory board of the Florida State University Center for Autism and Related Disabilities (FSU/CARD).

Incidents that occur during these associations and perspectives that result from them are consequential to the construction of meaning throughout my research. For example, as a museum trustee I see museum professionals in their daily work striving to complete mundane tasks that take up time that could be devoted to theoretically sound program innovations. As volunteer for FSU/CARD, I am witness to a host of obstacles surmounted by families not the least of which is the anguish of parents who cannot find adequate educational services for their autistic children. As a teacher at a traditional university, I see students who buckle under the pressure of examinations that determine only rote learning proficiency.

These various roles have added value to my reflexivity as a researcher but none have influenced me as much as my role as mother to a child with autistic characteristics who is one of the research subjects written about in this thesis. My child learns in a manner that is perplexing to me and to teachers and classmates. On some days learning is

a burdensome process, on other days the process can be filled with brilliance and reward. Always, it is a mystery and always the trials that this child undergoes are a source of inspiration for me and my family.

Having a child who is different from most has affected the way I think and write about learning and schools. Because my child has difficulty learning in a conventional classroom I am interested in the investigation of alternative means of education. My close association with museums and museum studies led me to discover, firsthand, the value of museums as places of enlightenment for "different" children. These realizations engendered my attempt to create the Museum Learners Club, a museum-school relationship that will encourage learning and socialization for my child and others.

As a parent and strong supporter of all children who face unusual learning difficulties I believe in the value of inclusion and inclusive education. As onerous as it may be to undertake, these children deserve to interact alongside others who learn more easily. I first heard about inclusive education at a workshop at FSU/CARD. The speaker talked about how schools commonly separate those who learn differently and place them in special classes, away from those who are successful classroom learners. She called this exclusionary practice one of the only forms of discrimination left in our society and compared it to the discrimination of convicted criminals in prisons. I left the workshop understanding that exclusion is a disservice. It not only divides children, keeping them from developing parallel understandings about subject matter, but it also breaks down the environment that would encourage social relationships for those who are excluded. With these realizations, I am an advocate for inclusion.

I bring my knowledge of the autistic community and my feelings about museums, schools, and inclusion to this work and embrace the reflexive character of qualitative research that invites the researcher to supply parts of her "self" to the act of writing. My identity, values, and beliefs are intertwined with my research questions and have an effect on the product.[1]

Regardless of the influence of "self", the account of my research is a fair and realistic look at my discoveries and how we might build a better learning environment in museums for students on the autism spectrum. As a museum researcher, I am charged with building a body of knowledge that will further museum practice, and that is the primary motivation for this body of work.[2] My attempt at contributing to practice addresses a museum need for learning strategies that will affect one of the most vulnerable and largest growing school populations. One in 100 children is diagnosed with autism and countless others bear autism-like characteristics that hinder learning. These children are enrolled in every school and are part of every community. Learning institutions such as museums cannot ignore the unique challenges and opportunities they present. It is my fervent belief that museums can be places where these learners thrive as the participants in my research study proved.

When the research for this thesis began, I pondered questions that stayed with me throughout the period and remain today. Is there an effective learning framework for all students including those on the autism spectrum? If regular school classrooms are not always optimal places for learning, where can these students learn? How can museums contribute to successful learning for students on the autism spectrum? The questions

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[1] Denscombe, 2003: 89-90, 268.
[2] Silverman and Hirsch, 2000: 15.

linger; however, they are not as vexing as they once were. The introductory chapter will discuss them and other puzzles that surfaced during years of study and work in the field. Looking for answers to these questions and witnessing the learning successes of the Museum Learners Club not only sustained my work but gave me personal satisfaction and hope.

Silverman and Hirsch ask the museum researcher, "What moves you? When was the last time you recognized some influence, force or need that you could just not ignore—that . . . propelled you to act . . . ?"[3] I am moved by autistic learners who exert extraordinary effort as they try to understand things that "typical" learners find easy to comprehend. I am enthused by the scholarship that has made discoveries about how we know and learn and that works to find improved learning strategies for all of us, autistic and non-autistic. Museum Studies has propelled my interest in this scholarship and I have seen the power of museum learning as a positive force personally and academically. I have responded to these forces with the following thesis.

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[3] Ibid: 14.

Chapter 1   Introduction to the Research and Thesis

This thesis presents my study of the nature of knowledge, the process of learning and related participatory field research in museums that involves learners on the autism spectrum and their non-autistic peers. Learners on the autism spectrum represent a specific type of museum user about whom little research is discussed in the museum literature.

The set of core research questions deals with how museums can enable a favorable environment for learners with differing abilities. What are the peculiar challenges presented by the autistic learning community? How can these challenges be confronted under the aegis of museum learning? What steps can museums take to facilitate learning for those who may have learning challenges? My use of theoretical foundations, consideration of existing learning models and creation of a viable context for inclusive learning indicate that the museum can provide a learning environment that is a worthwhile alternative or enhancement to typical school education and can accommodate diverse types of learners.

There are significant issues interconnected with the core queries. They deal with ways learning theory can be manifested in practice, how museums and schools can collaborate for effective learning, and the many trials and triumphs of social inclusion. As I sought to find workable solutions in a local small-scale study, I devised a framework that could incorporate autism learning interventions and make an impact on the larger

world. I also initiated a dialogue about ways museums and museum studies can make further contributions to learning and autism research.

Central to my work is an investigation into philosophies of knowledge from an ontological position that asserts a social reality and an epistemology that affirms that knowledge arises from social interaction but also includes a personal (and cultural) coefficient. Thus, in my view, learning is a social (or sociocultural) process. Museum research corroborates this view as do organizational learning theory and some current autism interventions. Drawing from a rich theoretical base, I shaped a research framework for learning that resulted in the Museum Learners Club (MLC). The MLC was designed to connect schools and museums with inclusive groups of students. I tested the MLC over a four month period and it proved to be practicable and effectual.

This first chapter encapsulates my thesis by outlining the research questions and the avenues I took to address them. Each following chapter deals with the cluster of learning puzzles, intellectual and practical, for which I find solutions using the Museum Learners Club framework.

Museums and Learning Research

This thesis is bound to previous museum learning research that underpins and acts as a springboard for my studies and intentions. In Chapter 2, I recognize museum scholars who have faced research questions about museum learning over the course of the last few decades. Today they call for a rethinking of museums and a redesign of museum pedagogy.[1] One of the most poignant discoveries is that what is known about learning and what is accepted and practiced in educational settings, including museums, is often

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[1] Hooper-Greenhill, 2007:1

conflictual. In some cases with the museums described in this paper, learning theory and practice appear disjointed. Nevertheless, theories of knowledge and learning, along with concomitant practice, are being increasingly realized.[2] My use of theory as a guide for practice contributes to the growing awareness of the value of theory-based practice and answers a call for more work like this.

Although progress is being made in research utilizing advanced theories, nineteenth century traditions persist in schools and in museums. Though I do not employ concepts that are particularly new, they are in a sense revolutionary. Why is this? I think it is because of powerful forces of conservatism that refuse change and cling to modernist values.[3] Unfortunately, most interactions between museums and the public remain didactic.[4] My understanding of how learning takes place is much broader than that of modernist linear traditions in which learning results from the acquisition of facts. I view museums as ideal places for making meaning because they aren't restricted to the transmission-absorption type of learning so often found in schools. I tap into the common wisdom of museum research that understands learning as social in origin. Thus, this thesis builds upon "collective sense making" as Verna Allee describes it.

> When people propose new concepts, their usual approach is to note all the previous work in the field, point out apparent inadequacies, then suggest a 'new' theory or solution that supposedly works better. (They then staunchly defend their position to the end.) Too often such efforts are not made in the spirit of advancing the field or supporting inquiry. More often they are efforts to carve out a niche in thought leadership. This is particularly true in the western scientific tradition where we tend to see things in terms of right or wrong, true or untrue, and have idealized heroic leadership and individual achievement.

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[2] Falk, 2008: 64.
[3] Hooper-Greenhill, 2000: 162.
[4] Astor-Jack et al, 2007: 226.

Yet, new understanding emerges through a *social* process of collective sense-making. This process is communal, organic, and wonderfully self-organizing.[5]

My attempt to join other museum researchers in sense making addresses a museum need. The museum learning discourse is underdeveloped with concepts and terms not fully studied, shared or practiced.[6] We may know the rhetoric and applicable theories, but there is a need for greater understanding about the complexities of the social dimension of learning. Studies determining optimal environments for learning in museums are sparse. There is a call to employ scaffolding strategies and conceive of a social group as a unit of analysis.[7]

My research has also found that some museum-school collaborations are tenuous and not purposefully integrated with class curricula. An essential question for the field and for my work involves how learning activity in the museum can better connect to that of the classroom.[8] It is common to find museum field trips viewed as recreational "fillers" unrelated to curricular demands and typified by disorganized rambles.[9] We should draw schools and museums closer and think at the interface between the two learning systems to capture and integrate essential elements from both for a more productive collaboration.[10] "The lack of explicit connection to the curriculum results in many teachers and students failing to attend to the museum as a unique learning environment".[11] Museums and schools must not operate with a silo mentality. We should work to connect them in fundamental ways that will augment the school curriculum.

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[5] Allee, 1997: xii.
[6] Hooper-Greenhill, 2007: 33.
[7] Astor-Jack et al, 2007: 221-226.
[8] Ibid: 257.
[9] Leinhardt and Gregg, 2002: 142.
[10] Martin, 2007: 253.
[11] Leinhardt and Gregg, 2002: 142.

We also should reconsider how to approach assemblages of schoolchildren that are bussed to museums from their schools. Instead of considering students as an autonomous mass, we should view the school group as a collective of individuals and work to customize museum programs.[12] The Museum Learners Club, as a small participatory group satisfies this need. It provides a way to incorporate diverse learners in an environment that respects differences and allows each individual to excel.

It is especially worthwhile, as museums seek to increase visitorship, to include groups who traditionally have not frequented museums or who have atypical learning needs. The question about ethical and productive ways to do this is a tough one. There are not many museum programs tailored to learners on the autism spectrum or learners who present social and communicative difficulties. Yet, the museum could be a satisfying alternative learning environment for them.

Theory

One of the leading purposes of this thesis is to lay out a well-studied theoretical foundation that informs museum practice and that can lend insight into why social learning in museums works. While there is a growing collection of theoretically based research studies, there is limited use of theory and research in museum practice.[13] In the museum field we have become accustomed to replicating successes that we have seen and adopting practices without understanding underlying principles.[14] It behooves us to "look more deeply behind the successes and try to identify the principles of learning and

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[12] Shelnut, 2000: 141.
[13] Hooper-Greenhill, 2007: 5; Hooper-Greenhill, 1999: 4; and Falk et al, 2007: xv.
[14] Hooper-Greenhill, 1995: 9-10.

of engagement . . .".[15] The way I conceive of the theory-practice link follows Ken

Yellis's statement: "Theory doesn't just guide practice and color how we think and how

we do things – Theory *is* practice".[16]

Theory-based practice is critical for museums and especially for the ever-

changing field of museum learning. Etienne Wenger contends that when we use theory

properly, it does not precede practice but works in tandem with it. In turn, practice

transforms discourse and influences theory.[17] Viewing learning practice and theory as

equal partners, Wenger writes:

> Learning is traditionally viewed as a vertical process that involves a producer
> giving knowledge to a recipient. From the "vertical" perspective, theory is often
> considered a superior mode of learning. Practice then is a derivative of theory, an
> application that follows learning. But practice is making a comeback. Rather than
> a derivative of theory, practice is beginning to be considered an equal partner. The
> focus on practice does not mean that theory is dismissed or even devalued. It
> entails on the one hand that the production of theory is understood as a particular
> practice . . . and on the other that reflective practice is understood as a source of
> theorizing.[18]

As Wenger points out, the vertical view of learning is giving way to a horizontal view

that involves a process of negotiation among partners.[19] That is what this thesis contends,

and the notion of keeping practice and theory close together, as partners, has driven my

work. With each day in the field, I drew upon my theoretical foundations and used theory

in a practical way.

Along with assuring a theory-based practice, I incorporated interdisciplinary

research in the solving of my museum learning problem and, like Peter Drucker, believe

the following:

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[15] Ibid.
[16] Yellis, 2000: 183.
[17] Wenger, 2006: 9.
[18] Ibid: 28-29.
[19] Ibid: 29.

> The most probable assumption is that every single one of the old demarcations, disciplines, and faculties is going to become obsolete and a barrier to learning as well as to understanding. The fact that we are shifting rapidly from a Cartesian view of the universe, in which the accent has been on parts and elements, to a configuration view, with the emphasis on wholes and patterns, challenges every single dividing line between areas of study and knowledge.[20]

Confronting the challenges of museum learning for autistic students, my synergistic approach involved a combination of academic disciplines including the philosophy of knowing, cognitive psychology, learning theory in general, learning theory derived from knowledge management, and a range of theoretical approaches from the realm of museum studies. I am indebted to Michael Polanyi's philosophy of personal knowledge, Lev Vygotsky's developmental psychology, and Etienne Wenger's theory of learning among others.

Chapter 3 sets forth my theoretical mélange. I confront museum learning research with an in-depth look at how knowledge is conceived and learning theorized. I consider questions about the paradoxical nature of personal and social knowledge and how these separate notions of knowledge relate and inexorably connect during the learning process. I look to Michael Polanyi's philosophy of personal knowledge to understand that knowing is personal and that what one learns depends upon what one knows. Polanyi also explains that understanding is gained through social means—that what we know may be personal but what we learn is social. Grasping Polanyi's tenets, I turn to theorists such as Lev Vygotsky, Jean Lave, and Etienne Wenger who have written about optimal social learning processes. I understand that how we make meaning of the facts, objects, ideas, and events to which we are exposed is contingent upon building upon prior knowledge within a social context to construct new knowledge. Having gained a sense of what

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[20] Drucker, 2000: 350.

knowledge and learning are, I was able to apply these concepts to create a system for learning in museums.

Etienne Wenger's extensive work on communities of practice and his subsequent educational design prompted my plan for such a system. Fundamentally, this thesis is a study of how I developed a community of practice and the legitimate peripheral participation that took place within it.

Rounding out my theoretical base is a discussion of constructivist principles that are so familiar to museum learning theory and provide a solid pedagogical base for the practice I developed. Constructivist thought in general and Vygotsky's social constructivism in particular have profoundly inspired me. The fact that we learn by building knowledge on, into and from what we already know in a social milieu refers back to the nucleus of Polanyi's philosophy of personal knowledge as well as to the origins of sociocultural learning theory.

The interdisciplinary use of theory in the Museum Learners Club field study makes a convincing argument that autistic and non-autistic, able and differently abled learners can make meaning together by participating and sharing.

Museums and Autism

Not only does my work contribute to the need for theory, it attempts to introduce sound educational practice that can benefit a wide range of museum users including those on the autism spectrum. Chapter 4 identifies the peculiar learning challenges associated with autism with the hope that museums can provide learning environments that address the sensory and attention issues, social differences, and communicative failures that often

mark the autistic learner. There is little information about conscious efforts by museums to provide appropriate environments or programs for learners with special needs or differences.[21]

How can museums serve autistic learners? What kinds of steps can they take to facilitate learning for those who may have social and communicative challenges? Learning choices for students on the autistic spectrum are usually found in schools that decontextualize learning in classrooms and smaller special education rooms. Giving these students the option to learn with others in an inclusive, more authentic environment in museums encourages the type of naturalistic learning processes that are endorsed by recent autism research. Learning programs and interventions for those on the autism spectrum are moving away from behavioral drills and are focusing on social skills. A learning environment like the Museum Learners Club is flexible enough to incorporate new strategies coming to light. It could act as the linchpin for museum programs that reach out to include the great diversity of learners, enabling museums to forge strong and successful connections with schools, promote inclusion and serve additional populations.

The demand for inclusion in the museum world is paramount. Museums must understand differentiated audiences and their needs.[22] Museums can be viewed as neutral territory where common ground can be found and differences can dissipate.[23] We can take hold of this aspect of museums, their neutrality and their role as community space, to introduce inclusive learning programs like the one I have expounded upon in this thesis.

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[21] Cotton, 2003: 23. Though Cotton found no evidence of museums making efforts for children with special needs in 2003, there has been some interest more recently as indicated by the May 2009 American Association of Museums conference session on "Autism Access".
[22] Hooper-Greenhill, 2000: 3.
[23] Speers et al, 2000.

Framing a Practice

John Dewey "preached that ideas are incomplete until they are applied and tested by being used in actual situations . . .".[24] We may read about a subject and think we know it; however, until we assimilate our thoughts and design a frame in which to test what we think we know, we have not fully understood it. In order to use my ideas about social learning and inclusion in museums and museum-school collaborations, I had to create a matrix of my theoretical bases upon which to build a functional unit of analysis. Chapter 5 discusses how I designed the Museum Learners Club as a framework for learning. The discussion starts with original models for learning from knowledge management and focuses upon the community of practice model I found best-suited for my purposes. It continues with how I used the community of practice for school children: one that is situated between the school and the museum and that incorporates constructivist pedagogy.

I came to the study of museum learning through my exploration of knowledge management and the concept of learning organizations in the business world. Organizational theorists have acknowledged that the intellectual capital of individual workers (their tacit and explicit knowledge) is deployed through a process of knowledge conversion that activates new knowledge. To facilitate this process, which is analogous to learning, many business organizations are cultivating communities of practice. These communities are horizontally positioned groups that capitalize on social interaction to stimulate knowledge creation and innovation. Innovation arises from processes of learning in the communities not because workers are being managed in a hierarchy but

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[24] Hein, 2004b: 413.

because they are allowed to participate in a more natural social context that generates new ideas from the existing personal and tacit knowledge of community members.

The theorist who fully developed the concept of communities of practice for business, Etienne Wenger, also proposed a community of practice design for educational purposes. I have taken both Wenger's general theory of learning and his more specific application for education to devise the Museum Learners Club framework. I have also relied upon the ideas of knowledge conversion by Japanese business theorists Nonaka and Takeuchi that are dependent upon the notion of tacit knowledge. Other antecedents to my work include Brown and Collins's apprenticeship-like frameworks and Rogoff and Matusov's learning communities. These social learning systems, along with principles of constructivism comprise the composite ground upon which I cultivated the Museum Learners Club, a "constructivist community of practice".

Teasing out the intricate Wengerian components to make the Learners Club comprehensible was a long process. It shaped a museum learning practice that values learning over teaching, derives meaning from participation more than from reification, broadens horizons of learning and transforms identities. On paper, the Club is a densely-packed theoretical design; however, once it was organized and carefully stewarded in real-life situations, it operated easily and naturally as socially mediated learning systems tend to do.

The natural character of the real-life Museum Learners Club made it a good candidate for qualitative research. The qualitative methods I used as ethnographer and reflexive researcher are also outlined in Chapter 5. I located ethnography in a theoretical

context and, in turn, located theory within my ethnography as I used a combination of participant observation, analysis and interpretive description.

Chapter 6 is an account of my theoretical and practical application in the field. I tell the tale of the Museum Learners Club and how it operated in an inclusive manner with six young learners. Results from the qualitative research are written in ethnographic form with accompanying discussions about outcomes derived from responses to the theoretical framework.

Impact

The first thing a researcher asks herself is why she does it: what is the purpose, what are the implications for now and the future, the local and the global? Uncovering new knowledge or insights built upon existing knowledge is a fundamental reason but it is not enough. Using knowledge in fruitful application to make positive change is the overarching purpose of my research. "All one can say today is that application has become the center of knowledge, of knowledge effort, and of the organized search for knowledge. As a result, knowledge has become the very foundation of modern economy and modern society and the very principle of social action".[25]

Along with museum practice, museum research has taken on the mantle of social agency as evidenced by recent studies by Sandell and Janes, for example.[26] This thesis joins the effort that demonstrates that museums have an exceptional capacity to reach out to existing and potential users and stimulate worthwhile transformations. It addresses a significant population that has been marginalized and many times excluded with a

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[25] Drucker, 2000: 371.
[26] See Sandell, 2007 and 2002a; Janes, 2007; and Janes and Conaty, 2005.

framework that invites them to learn with others in motivating museum environments. It promotes inclusion and expands audiences.

I also imagine that the Museum Learners Club can have a positive impact on the autism community and for all learners who have varying abilities. It presents an alternative to school-based learning, flexible enough to work with social and educational interventions developed by autism research. When I asked the father of one of my research subjects, "Do you think your child's social difficulties impede learning?" he answered:

> Yes, because I think [social difficulties are] always [part of learning]. I don't think you can separate them. If a child is feeling that she is alone or if she is preoccupied with trying to figure out how to fit in or when to speak or if she's putting people off because she is speaking inappropriately or whatever it is . . . then you don't know how that's going to play on the way other children and teachers and other professionals relate to the child. You know, how it's liable to get in the way. I think anything that happens in the school affects learning. There is not a Chinese wall. There is not a great wall between these things. It's a permeable member. . . .

To be able to facilitate social communication for students on the autism spectrum could be the key not only for learning but for a better quality of life. That is justification enough for the Museum Learners Club.

The MLC study also indicates that valuable and accessible learning resources lie outside the classroom. They can be utilized in a more liberal conception of education than we are used to hearing about—one that includes ingestion of facts *along with* acquisition of skills, development of judgment, and formation of values and new relationships.[27] This new conception also regards the trajectory of identity as a defining factor of learning. The MLC community of practice recognizes identity transformation as a marker of learning and thus joins emerging trends in learning research.

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[27] Hooper-Greenhill, 2004b: 156.

Exploring environments outside school and forming novel associations, students become members of multiple communities of practice that expand identities and offer new possibilities. Going beyond traditional boundaries in this way, community membership can be applied to higher purposes that contribute solutions to problems on a global scale.

Chapter 2   Museum Learning

The field of museum studies has given rise to a group of researchers and their interdisciplinary studies that confirm the value and relevance of museums and envision an elevated role for learning in museums. Museum authors from academic and professional arenas are producing a body of literature that guides a discipline increasingly more important to the daily lives of people throughout the world. Their work has charted and contributed to a major paradigm shift that positions the museum as a democratic, educational institution dedicated to public service, one that has loosened the control of authoritative didacticism to enable personal and sociocultural interpretation. As museums reassess what counts as knowledge and learning, they are becoming known as centers for learning that reach out to involve multifold communities.

This chapter focuses on the causes and consequences of museum transformations, advancements in the profession of museum education, and research about how we learn in museums.[1] Much of the research has centered on the emergence of sociocultural theory and constructivist principles as they pertain to museum learning. This work and related investigations into the role of personal knowledge and identity have been particularly important for the formation and study of the Museum Learners Club.

Museum curators and educators have begun to employ practice that posits museums as democratic, visitor-centered institutions. As a collective body they advocate for programs that are accessible and inclusive. They recognize visitors' interpretive

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[1] Some see a transformation in museums that has evolved throughout the twentieth century and into the current century; however, this paper concentrates on the past three decades of research that has theorized museums.

communities as critical constituents.[2] They have fashioned exhibitions, interpretation, services and programs with objectives to include and better serve broader and more varied audiences. Perhaps the most obvious outcome of the recent movement is the museum's greatly enhanced role as an innovative educational institution that incorporates progressive learning theory and practice.[3]

Learning has become a high priority for museums. Museum education departments are growing in size and scope. Practitioners responsible for learning are more entrenched in museum decision-making processes. They are infusing their principles and values into institution-wide mission, strategies and policies. They join curators and designers in team efforts to create exhibitions and programs. Within these teams, it is the museum education professional that is the link to the audience and advocates for visitor needs and desires. Education departments also have new responsibilities in the areas of evaluation and visitor studies. They are called upon to use visitor research and adopt communication methods that ensure comprehensibility.

Along with the growth of museum education departments has come an increased understanding of learning theory and what it portends for the professional arena. Although theory may not be universally used on an every day basis, practitioners have become familiar with innovative strategies arising from museum research, combining them with existing strategies to serve wider audiences. Certainly, they are conceiving of

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[2] See Fish, 1980 for theory behind interpretive communities and Hooper-Greenhill, 2000: 119-123 and [1994] 1999: 13-15, for use of interpretive communities in museum theory.
[3] Hein, 1998: 16; Hooper-Greenhill, 1999: 20; Davis, 2005: 2. While I believe that the statements here are true for many institutions, I also witnessed during my fieldwork that not all museums have embraced progressive learning theory in practice and when they do, it is with uneven or inappropriate application. The strongest endorsement for theory-based practice comes from museum theorists and well-versed practitioners. I suspect that there are a number of museums in the U.S. (small institutions facing precarious financial times) that may not incorporate advanced learning methodology as advocated by museum scholars and enlightened authors from the field. This supports theorists' pleas for more study and research that can be readily translated into practice.

museum education in broader terms that encompass the richness of experience that visitors find in museums.[4]

The expanded conception of museum education focuses on what visitors can contribute to the learning process. Museums are moving beyond a primary dependence upon a transmission model of learning to a more effective kind of learning that is based, in many cases, on constructivist theories or other theories related to constructivism and its sociocultural proclivity.[5] Museum theorists know that individual learning styles are differentiated and personal.[6] They understand that how and what one learns is influenced by identity-related needs.[7] They recognize that learning is a process in which knowledge is constructed from interactions in a participatory, social environment.[8] My work is situated among the efforts of these theorists who strive to validate the broader and encompassing significance of museums for learning.

The Increasing Importance of Museum Learning[9]

The learning value of museums has become paramount during the past three decades and plays a large role in the great paradigmatic shift or "revolution" in the

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[4] Hooper-Greenhill, 1994: 142.
[5] Hooper-Greenhill, 1999: x; Hooper-Greenhill, 2000: 6; Leinhardt and Knutson, 2004: 51.
[6] Hooper-Greenhill, 2000: x-6 and 1999: xii; Falk and Dierking, 1992: 101.
[7] Falk, 2008: 64.
[8] Hooper-Greenhill, 1994: 142; Leinhardt and Knutson, 2004: 2
[9] A note about terminology is necessary. Many write about "museum education," but I refer to museum *learning* as a way to differentiate what occurs when we make meaning and gain understanding in the museum environment as opposed to the way we are educated in typical classrooms. The word education may connote a traditional view of teachers imparting information and students ingesting it. My view is different, and learning is a more appropriate word to describe the processes I have studied in museums. Though the terms "museum educator" and "museum education" are familiar within the museum studies lexicon, I only occasionally employ these terms and do so usually when referring to another author's work or a designated "educational program". Stephen Weil acknowledged that "education" is a "remarkably spacious concept. It includes both the notion of teaching or imparting knowledge (as in 'to educate') and the not always reciprocal notion of receiving or acquiring knowledge (as in 'to be educated')". See Weil, 2003: 43. Hooper-Greenhill acknowledges that "in Britain there has been a major shift from the expression 'museum education' to the expression 'museum learning.'" (Hooper-Greenhill, 2007a: 4.)

relationship between the museum and its publics.[10] Museums have moved from being institutions primarily attendant to internal functions to institutions that focus on and communicate with constituencies and matters outside the organization. Today, the museum is ". . . not limited to its own walls, but moves as a set of processes into the spaces, the concerns and the ambitions of communities".[11] The communities museums now strive to serve are diverse and do not always represent Western traditions. Museums are shifting from a powerful Euro-centric stance to a rebirth as an innovative technology of learning for the global audience.[12]

This change is marked by external pressures and internal responses and falls into line with other societal changes that indicate a transition from modernism to a period of late or post-modernism. It is a time when the Enlightenment notion of universal truths is under siege, especially considering those to whom the grand narratives of truth insult, abuse or make no sense.[13] As former truths are debunked, hierarchies weaken, canons break apart, and binary divisions of "we" and "them" blur, museums are opening up to shared authority. They are more accepting of the fact that visitors' cultures, identities and agendas will guide meaningful learning. Although previously considered as "outsiders," museum visitors are now active constituents of the institution. Interpreting what they see according to their cultural and societal dispositions, they assume the "power of the particular, and hence [challenge] the Enlightenment ideal of the universal".[14] They relate

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[10] Weil, 2002: 195. See also Weil, 1990: 57-65, Stapp, 2000 and Hooper-Greenhill, 1992: 1 for reference to the paradigmatic shift.
[11] Hooper-Greenhill, 2000: 153.
[12] Ibid: 151-153.
[13] Hooper-Greenhill, 2004: 558-559. See also Hooper-Greenhill, 2007b.
[14] Appleby et al, 1996: 13. Appleby and fellow writers discuss the impact of cultural anthropologists Boas, Mead and Benedict on postmodern thought.

to museum objects in their own ways and supply multiple interpretations of museum narratives thus expanding the dialogue between institution and audience.

It is worthwhile to see the paradigmatic transformation of the museum from the viewpoint of museum theorist Eilean Hooper-Greenhill, a leading voice over the past two decades. From early theorizing that involved Foucault's effective history to her conception of the post-museum and current comprehensive overview of museum education and its value, Hooper-Greenhill describes an institution that has broken away from nineteenth-century strictures.[15] Where museum history once told the story of collection, confinement, classification and authority, the more recent past is marked by a different conception. With the emergence of human sciences and sociology, we now look at museums in a sociological light to see how people relate together within the realm of museums.[16] We no longer consider the modernist museum—an establishment distinguished by a deep cleft between the institution itself and its visitors— as the norm.[17] Instead, we see an institution that Hooper-Greenhill terms the post-museum.

Emerging in the late decades of the twentieth century and continuing today, the post-museum is a place that respects and includes the many identities and voices of visitors and communities, brings to light hidden histories, and challenges master narratives.[18] It strives to be accessible and inclusive in a global society characterized by an upsurge in the amount of information and easily facilitated communication. This new museum model re-imagines the museum-audience relationship and stretches beyond mere

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[15] See Hooper-Greenhill, 1992 for how she employs Foucault's effective history; see Hooper-Greenhill, 2000 for the introduction of the idea of the post-museum; see Hooper-Greenhill, 2007a for a thorough discussion of museum education, its underlying theory and the practical use of the system of Generic Learning Outcomes to evaluate museum learning.
[16] Hooper-Greenhill, 1992: 192, 197.
[17] Ibid: 7, 200-211.
[18] Hooper-Greenhill, 2000: 140, 144-145, 150.

acceptance of multiple viewpoints to support a range of different perspectives and produce "socially inclusive environments for life-long learning".[19]

A changing attitude toward the museum object and curatorial activity also marks the post-museum and its value for learning. Traditionally, curators did their utmost to care for and preserve collections, craft exhibitions, and create accompanying programs that, from their authoritative viewpoints, served their constituencies. Their authoritativeness has given way to more equitable circumstances as the museum has been "dethroned from the sovereign position".[20] Today, curators are changing the way they develop collections, exhibitions and programs to include visitors' voices, expectations, and desires. Curators are moving away from the view that they are sole dispensers of knowledge to "see themselves as facilitators for learning".[21] Ultimately, value is not inherently found in objects, but in the *use* of objects and the ideas derived from them. Relevance is not realized in well-designed displays, but in displays that speak to diverse audiences, and the worthiness of programs is not measured by their function, competence and numbers but by their purpose and how they benefit individuals and communities. These changes enable museums to fulfill and capitalize on their educational purposes, because it is through learning that museums will make the most favorable differences for their constituents. We can surmise that the collecting functions of museums have ceded primacy to the learning functions of museums and that museums are ideal places for participatory, experiential, multi-sensory and intergenerational learning and content and team-based problem solving.[22]

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[19] Ibid: 1.
[20] Weil, 2002: 200.
[21] Hooper-Greenhill, 1992: 200.
[22] Skramstad, 1999: 117-119. See also Hooper-Greenhill, 2007: 2-5 and Falk and Dierking, 1992: xiii.

In any discussion of the paradigmatic shift and museum learning, economic issues demand attention. Decreases in and loss of formerly dependable funding sources and the vast growth of new museums and expansion of existing museums has caused keen competition for financial support. Therefore, museum education departments have had to develop programs that are collaborative (especially with schools), innovative, more effective, and attractive to broader audiences. These programs are supported by learning theory and measured with solid evaluation methods. They help to define new institutions that are more sophisticated and dedicated to the needs of their audiences.

To make their case for support in a climate of financial instability and greater demand for public service, museums have altered the way they assess their worthiness. Program excellence is not enough. In today's competitive market museums must create programs that go beyond expounding facts and information to ones that answer specific requests from visitors and address social needs of existing and potential audiences. Furthermore, these programs must show positive differences for those they serve. It is the ends, not the means, that museums must assess.[23] Following the lead of other organizations in the nonprofit sector, museums are justifying their worth by employing outcome-based performance measures. Like health and human service organizations, museums must demonstrate their impact not by outputs but by outcomes.[24] This need to demonstrate viable outcomes presages museum measurement schemes such as the

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[23] Weil, 1990: xvi.

[24] For the differences between outputs and outcomes see Weil, 1995: 23. Stephen Weil singles out two events that accelerated the need for accountability and accurate performance measures for nonprofits: Gregory Dees's social enterprise model developed in the 1990s and the United Way of America's outcome-based evaluation methods used to assess the effectiveness of their constituent social agencies. See Weil, 2002: 36-40.

Generic Learning Outcomes developed by the Research Centre for Museums and Galleries (RCMG).[25]

This section has discussed the emergence of the visitor's voice and shared authority, a new focus on the *use* rather than accumulation of objects, economic and social pressures and associated forces. These factors have influenced each other in a dynamic interplay that has generated research and theorizing, greater professionalization of museum practice, and more attention to audience needs. They have also brought about more fully developed business aspects for the museum organization such as marketing, visitor services and evaluation departments. Most importantly they have amplified the power of museum learning. Significant learning outcomes are now readily demonstrated and museum education is at the forefront of museum activity.[26]

Professional Mandates

National and international professional initiatives have played a part in heightening awareness and elevating the stature of museum learning. Catalysts such as societal demands, research and its concomitant use in the field, and a call from within the ranks of museum professionals have resulted in professional reports, policy statements, standards and best practices to guide and reinforce museum learning. For museums in the United States, the American Association of Museums (AAM) and its standing professional committee on education, EdCom, formed in 1976, are standard bearers for museum learning.

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[25] See the centre's Web page at http://www.le.ac.uk/museumstudies/research/rcmg.html and the method with which museums in the UK use Generic Learning Outcomes at the Museums, Libraries and Archives Council Web site, "Inspiring Learning for All," http://www.inspiringlearningforall.gov.uk/default.aspx.
[26] See Hooper-Greenhill, 1992: 1-2 and Hooper-Greenhill, 1995b: 1-5 for views on the significance of museum education in a climate of decreased support and need for justifiable outcomes.

The most influential AAM learning initiatives began in the 1970s when EdCom was established and continued through the 1980s as AAM's Commission on Museums for a New Century issued a report that viewed museums as educational institutions and education as their primary purpose. In 1991, AAM convened a task force on museum education to make recommendations to strengthen and expand the educational role of museums. The task force's report, *Excellence and Equity: Education and the Public Dimension of Museums*, became a policy statement that defined museums as institutions of public service and education. As stated in the report, "Museums perform their most fruitful public service by providing an educational experience in the broadest sense: by fostering the ability to live productively in a pluralistic society and to contribute to the resolution of the challenges we face as global citizens".[27] The AAM initiatives were powerful and influential, not only in the United States but in Great Britain as well.[28]

Since its publication in 1992, *Excellence and Equity*, remains a crucial delineator of museums as places for learning. Its policies call for education to permeate all museum activities and missions to "state unequivocally that there is an educational purpose in every museum activity".[29] Reaching beyond education, *Excellence and Equity* sets a mandate for inclusiveness that states museums need to reflect diversity in education, interpretation, and in the make-up of staff and other constituencies. Furthermore, museums need to identify constituents with special needs and guarantee them accessibility; know and use learning theory and recognize different learning styles.[30] Finally, the document directs museums to "buttress their station" as critical places of

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[27] AAM, 1992: 6.
[28] Hooper-Greenhill, 2007a: 5.
[29] AAM, 1992: 3.
[30] Ibid: 16-17.

learning vital to a broad educational system and to provide the necessary leadership and resources to ensure the educational and public service roles of museums.

Excellence and Equity ushered in a new era for museum policy and practice in the U.S. and laid groundwork for programs like the Museum Learners Club. Museums now need to affect broader, diversified audiences that include neglected or misrepresented communities, in particular the special needs audiences that heretofore have been "estranged communities".[31] The Museum Learners Club was designed to integrate diverse learners and reach out to those whom museums may have neglected in the past.

The movement in museum education that brought about *Excellence and Equity* has endured, affecting virtually all subsequent AAM initiatives and reports. It also made a considerable difference in the AAM museum assessment and accreditation program. When established in 1971, the program primarily considered collections care and facility maintenance. Assessments looked at institutional operations, collections management and governance. After the publication of *Excellence and Equity*, a new Public Dimension Assessment was established and accreditation guidelines now require that museums accentuate their public service role, place education at the center of that role and define their core purpose as educational. By these efforts, learning and the use of learning theory in museums is soundly supported not only by research and practice but by professional mandate.

Granting institutions have also issued directives concerning effective learning. A case in point is the Institute of Museum and Library Services (IMLS), the federal funding agency that has delivered the most compelling affirmation about the importance of new research on museum learning. In recent conference papers, the institute has prioritized

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[31] Shelnut, 2000: 141.

research, learner's needs, collaboration, innovation, and capacity building through learning programs. Recognizing that there have been profound changes in how we view education and learning, the IMLS fosters a broad view of learning whereby a range of settings and skills is instrumental to success. Museums play a role in what the agency construes as a "new learning eco-system".[32] The IMLS claims that schools are not keeping pace with current research and innovative practice especially in the area of core skills needed in the 21st century. These skills, that are separate from core subject areas, are information and communication skills, thinking and problem solving skills, and interpersonal and self-directional skills.[33] The IMLS points out the "power of learning academic content through real world examples, applications and experiences, both inside and outside of schools".[34] This constitutes a validation for learning in museums and for school-museum partnerships in learning.

Great Britain's government agency, the Museums, Libraries and Archives Council (MLA), also values current research and views museum learning as a priority. The MLA works with museums, libraries and archives to enrich learning potential and ensure social inclusion through a supportive framework called "Inspiring Learning".[35] As with the IMLS in the United States, the MLA maintains that education is central to the role of museums.[36] Both agree on fundamental issues, but there are differences between the two governmental agencies and countries. Museums in Britain are viewed as adjuncts to national curriculum. In the U.S. there is no formal connection on a national basis between museums and schools.

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[32] Institute of Museum and Library Services, 2005: 5-6.
[33] Ibid. See also http://www.21stcenturyskills.org/ (accessed 29 July 2009).
[34] Ibid: 6.
[35] See http://www.inspiringlearningforall.gov.uk/ (accessed 7 April 2010).
[36] Hooper-Greenhill, 2007: 2.

Following dictates from both agencies, the Museum Learners Club attempted and succeeded to use the museum both as an adjunct to school curriculum and also in a broader way that proves the effectiveness of the current ways research has described learning. The MLC fits with national and international tendencies that heighten the role of museum learning, view audiences as an active constituent of the institution and call for more inclusive practice.

Museums and Schools

Part of museums' drive to be relevant rests on a more meaningful connection between museums and schools. The museum-school connection has a long history. In the early twentieth century, progressive educationalists followed John Dewey's philosophy that encouraged field trips to museums. They found themselves engaged with their students in a "rapid race through the exhibition halls".[37] These sometimes chaotic trips continue today. By the 1970s, with more developed museum education programs that depended on interactivity and Dewey's emphasis on experiential learning, museums were offering richer and more rewarding experiences for school children. Even so, these programs were viewed as "add-ons"—that is, merely supplemental, to their more organized classroom curriculum. In many cases, field trips were seen and conducted as recreational entertainment. There was no systemic support for a fully developed museum-school relationship.[38]

Since the 1990s, museums and schools have renewed their collaborative efforts by working together to craft solutions to educational challenges. Many museum programs

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[37] Frankel, 1996: 10.
[38] Ibid: 11.

are being viewed as essential to the school curriculum.[39] This works in some places and forges stronger bonds between museums and schools; however, the former way of viewing museum field trips as days away from serious study still sometimes remains. In my study, I witnessed this ambivalence. Initially, the participants of the Museum Learners Club viewed a trip to the museum as an outing divorced from learning where they might learn incidentally but not purposefully. The classroom teacher corroborated this view. "When I schedule a trip to the museum, I consider it a break from school, a time to have fun. Some museums provide pre-visit and post-visit materials but I rarely look at them and never use them in class".

With our broader conceptions of what learning is, we now know that students do actually learn while they are having fun at the museum; however, an ideal collaboration would make better use of museum resources. A strong museum-school connection works well in curricula that allow long-term flexible projects. The Museum Learners Club participants went to a school that fostered themed projects and was a perfect match for museum collaboration. Soon after the MLC came together for the first time, the students realized that museums were rich environments for learning.

Theorizing Museum Learning: A Postmodern Approach

The upsurge in the interest in museum learning and its practice in the field is rooted in an evolving foundation of theory. Although the academic discipline of museum studies is young, it is rapidly producing solid theory-based research that expounds its interdisciplinary character. New theoretical syntheses that include constructivist and sociocultural theories are emerging as traditions of authoritarianism, didacticism and

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[39] Ibid: 12.

linear communication recede. Reliance on unilateral methods of behaviorism and transmission-absorption styles of teaching is diminishing. Theorists accept that knowledge is multi-dimensional; it is tacit and explicit, personal and social. Learners utilize existing knowledge to build new meaning and form new identities. Knowledge is also dependent upon cultural contexts that influence how and what is learned and understood. "In sociocultural theories, individuals' cognitive development is regarded as inherently involved with the sociocultural activities in which they engage with others in cultural practices and institutions, in a mutually constituting relationship".[40]

The illustration in Fig. 2.1 attempts to make sense of the trend in museum learning theory that is motivated by a constructivist and/or sociocultural approach.

The Learner
Cultural background & identity
Social situation
Personal and prior knowledge
Tacit knowledge

The Museum
Authentic experiences
Engagement/Participation
Opportunity to reveal tacit knowledge

Learning
Construction of new or changed explicit and tacit knowledge
Forming new or changed identity
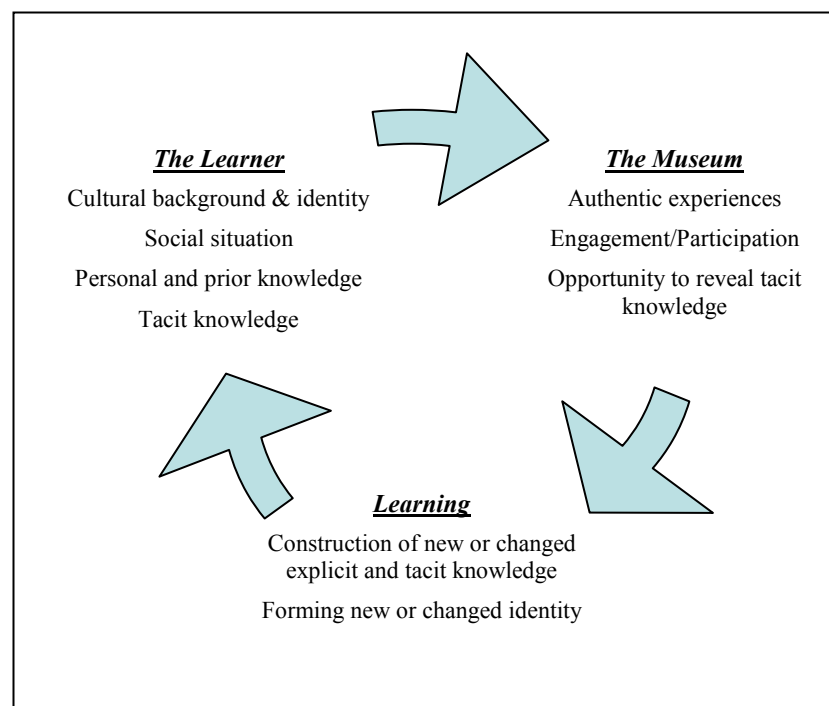
Fig. 2.1 Sociocultural museum learning research

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[40] Rogoff quoted in Hein, 1998: 89.

It depicts three groups of factors: the learner and what he or she brings to the situation; the museum and what the learner encounters there; and the resulting process of learning. Once new knowledge and identities are formed, the process continues along the same path in a circular manner. In general terms, this takes into consideration what museum researchers are now investigating. It is a new way of theorizing that rejects historical notions of objective knowledge and linear communication and interjects a broader way of conceiving learning.[41]

This broader conception marks an epistemological shift and rejects Enlightenment viewpoints that trust empirical observation and the use of reason. We have become skeptical about absolute truths and see that what we count as fact is inextricably bound to our discursive practices.[42] We now accept a context-based definition that considers knowledge as not objective but socially constructed and shaped by the interests and values of the knower.[43] As Hooper-Greenhill states, "Museum educators, with their concern for audience, diversity, and multiple meanings, have been at the forefront of this shift in museums".[44]

There are countless examples that demonstrate the need for a broader definition of knowledge and concern for potential multiple meanings. For instance, what does an exhibited nineteenth century firearm mean to a Native American descendant? It could represent the bravery of American frontiersmen to some; however, at the same time it stands for the shameful and bloody conquest of native peoples.[45] Today, museums need

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[41] For the traditional view of communication as linear and content-centered see Hooper-Greenhill, 2000: 125-134. See also Hooper-Greenhill, 2000 and 2004 for views on communication theory and how it pertains to learning and pedagogy.
[42] Fish, 2008a.
[43] Roberts, 2000: 96
[44] Ibid: 95
[45] Ibid, 91-95.

to allow both or more interpretations. They need to take into account the personal, cultural and social forces that the learner may bring to the museum experience.

The new way of theorizing learning has come about during a time of social, disciplinary and critical ferment that many call the postmodern period. It is a time in which canons are being broken, master narratives dethroned and Eurocentric masculinist perspectives challenged. Postmodern knowledge is understood as being not universal but perspectival, not stable but fluid. In the postmodern paradigm, the museum becomes a place with many voices, repositioned in relation to its audiences.[46] This repositioned museum rethinks previous practice dependent upon a linear approach to learning.[47]

Communities of Learners

Narrow and prescriptive ways of teaching are being replaced by approaches that are learner-centered, participatory, and communal.[48] One such example is the "Community of Learners" conceived by Matusov and Rogoff. Described as socioculturally mediated education based on mutual participation and shared engagement and influenced by Vygotsky and Lave and Wenger, the Community of Learners is based on the same foundations as the Museum Learners Club.[49] It incorporates Wenger's view that an increase in learning is proportionate to the degree of participation. Learning is thus assessed by analyzing changing roles of the participants. Success is "demonstrating increasing mastery of managing learning in collaboration with other people".[50]

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[46] Hooper-Greenhill, 2000: 144-145, 150 and 2007b: 370-371. For remarks on the museum tradition of the transmission-absorption approach see Falk and Dierking, 2000: 9 and Hooper-Greenhill, 2000: xi, 132-138.
[47] Hooper-Greenhill, 1999: 9 and Hooper-Greenhill, 2007a: 39-43.
[48] Hooper-Greenhill, 2007a: 4.
[49] Matusov and Rogoff, 1995: 100. See also Rogoff and Lave, 1984 and Rogoff et al, 1998.
[50] Matusov and Rogoff, 1995: 102.

Matusov and Rogoff view the museum as a site for such communities and as a bridge that links different communities. The museum in this sense is a "crossroad of practices and communities".[51] This type of thinking, written about fifteen years ago, illustrates the waning influence of linear and one-sided approaches to learning in the museum. "Knowledge is no longer seen as a body of facts that may be transmitted without change from one person to the next".[52] Researchers continue to adopt open-ended ways of considering learning that go "well beyond equating learning with the acquisition of information".[53]

Since the work of Matusov and Rogoff on participatory learning research, the largest body of research in museums is based on sociocultural theory.[54] Learning is now viewed as a social and cultural phenomenon; it is socially mediated and culturally inflected. It is a collaborative process of transformation of participation.[55] We do not learn through linear ways; knowledge is not built up in a hierarchical manner. Rather, learning involves access to a sociocultural network, a community.[56]

Knowledge is Personal and Social and Cultural

Today, museum theorists examine and investigate the web of personal, social and cultural elements of knowledge and how they shape learning. Knowledge is determined and understood by the learner (the museum visitor) not the teacher (the museum); therefore, knowledge is personal. Where it concerns making meaning, it is social.[57]

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[51] Ibid.
[52] Hooper-Greenhill, 2007a: 35.
[53] Ibid: 41.
[54] Rennie and Johnson, 2007: 58.
[55] Olson and Torrance, 1998: 388.
[56] Hein, 1998: 82-89.
[57] Hooper-Greenhill, 1999: 4-5.

"Personal interpretations are forged through social and cultural environments, through local communities and through location in social structures. Although none of these elements are immutable, personal meanings and interpretations do have social dimensions".[58] The purpose of the Museum Learners Club is to provide a framework for a community of learners wherein aspects of the personal, social and cultural triad flourish and build upon each other—a place where each learner, through participation, can be "his or her own interpreter".[59]

There is a pressing move toward a cultural theory of learning.[60] We are all tied to our cultural circumstances and how we learn is a result of these circumstances. Therefore it is reasonable to conceive of learning as being intertwined with culture and how it is reflected in social interaction. "All people have a culture, creating meaning is a central function of social existence".[61] As Jerome Bruner puts it in his cultural view of education, ". . . culture shapes mind . . . it provides us with the toolkit by which we construct not only our worlds but our very conception of our selves and our powers".[62] "Learning, remembering, talking, imagining: all of them are made possible by participating in a culture".[63]

Museum theorists and practitioners are finding it imperative to consider how culture inheres in their visitors. To be successful at learning, museums must allow and promote multiple and flexible ways to learn in order to be relevant to multicultural audiences. Considering how culture forms our existence and determines what we learn,

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[58] Ibid: 5.
[59] Silverman, 2000: 234.
[60] Hooper-Greenhill, 2007a: 7.
[61] Appleby et al, 1996: 13.
[62] Bruner, 1996: x.
[63] Ibid: xi.

we could almost equate cultural reality with the social construction of reality. As Bruner asserts:

> . . . mind could not exist save for culture. For the evolution of the hominid mind is linked to the development of a way of life where "reality" is represented by a symbolism shared by members of a cultural community in which a technical-social way of life is both organized and construed in terms of that symbolism. This symbolic mode is not only shared by a community, but conserved, elaborated, and passed on to succeeding generations who, by virtue of this transmission, continue to maintain the culture's identity and way of life.[64]

Understanding that knowledge is both personal and sociocultural, Hooper-Greenhill makes a significant contribution to current research.[65] She maintains, "The meanings made by museum visitors . . . are a product of individual and social interpretive processes and are complex and unpredictable".[66] To work out the complexity, Hooper-Greenhill uses hermeneutics to understand personal knowledge and Stanley Fish's theory of interpretive communities to understand the social and cultural nature of knowledge.

Basically, hermeneutics is the philosophy behind the processes of interpretation.[67] By employing hermeneutic philosophy, one can see that individuals have their own knowledge depending on prior experience, that they process information in their own ways with individual learning styles, and that there is no knowledge outside the learner. Hooper-Greenhill writes:

> Knowledge itself (facts and information) does not result in understanding until it has been linked by the learner to what he or she already knows and understands. Understanding is personal, individual, and developed by learners to explain to themselves how things work. Understanding is always on the learner's terms.[68]

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[64] Ibid: 3.
[65] Hooper-Greenhill, 2000: 118-119.
[66] Ibid: 124.
[67] Hooper-Greenhill, 1999: 3-5 and Hooper-Greenhill, 2000: 116-119.
[68] Hooper-Greenhill, 2007a: 53.

The premises of interpretive communities include the notion that meaning is culturally constructed and historically situated. When people learn, they do so from negotiating information within their own social and cultural frameworks. As Fish argues: ". . . what we know of that world follows from what we can say about it rather than from any unmediated encounter with it in and of itself".[69] As Hooper-Greenhill corroborates: "Individual meaning-making is forged and tested in relation to communities of meaning-making, which establish frameworks of intelligibility within which individual subjects negotiate, refine and develop personal constructs".[70] That is, learning occurs at the nexus of the personal, the cultural and the social.

Hooper-Greenhill's use of hermeneutics and interpretive communities is an example of theoretical synthesis that epitomizes the interdisciplinary nature of museum studies research and the dependence on personal and sociocultural approaches. The Museum Learners Club incorporates a similar theoretical blend that will be explained in Chapter 3.

In addition to theories of hermeneutics and interpretive communities, Hooper-Greenhill also counts constructivism as an important element in her work. Constructivism is an umbrella term for a cluster of learning theories that focus on how individuals construct new knowledge from prior knowledge. Most current sociocultural work on learning in museums has been based on or has found its point of departure from the study and practice of constructivist principles. As a learner-centered theory and pedagogy, the popularity of constructivism arose as museums realized the central role of the visitor/learner. It remains an important part of museum theory and practice.

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[69] Fish, 2008
[70] Hooper-Greenhill, 2000: 119.

Understanding Constructivism

Valuing the learner and the learner's prior knowledge and cultural inclination within an interactive environment, constructivist thought and pedagogy incorporates the personal and sociocultural aspects of knowledge and learning. Leading museum writers have used constructivism as their base.[71] Constructivist pedagogy plays an important role in Hooper-Greenhill's theoretical constructs. Constructivist theory provides the foundations for John Falk and Lynn Dierking's early Interactive Experience Model and later Contextual Model of Learning and a number of museum writers have looked to such constructivists as Lev Vygotsky, Ernst von Glaserfeld and Jerome Bruner for guidance.[72] My work with the Museum Learners Club has followed the social constructivism of Vygotsky, especially with regard to his theory of the zone of proximal development.

George Hein has been a leading advocate for learning theory in museums, especially constructivist learning theory. He makes a strong case for the use of a comprehensive "educational theory" with three fundamental complements: a theory of knowledge (epistemology), a theory of learning, and a theory of teaching (pedagogy).[73] By fully developing figurative continua that outline the range of thought, Hein explains the differences among epistemologies and learning theories. His epistemology continuum places realism (the belief that knowledge is external to the human mind) at one end and idealism (the belief that knowledge is in the mind) at the other. Thus, the realistic knower acquires truth from the outside while the idealist knower constructs knowledge in personal ways (mitigated by social and cultural forces). The theory continuum represents

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[71] See Hooper-Greenhill, 1999, 2000, 2002 and 2004 and Falk and Dierking, 1992 and 2000.
[72] Falk and Dierking, 2007: 218; Falk and Dierking, 2002: 50; Hein, 1998: 17, 149; Hooper-Greenhill, 1994: 68.
[73] Hein, 1998: 14-40. See also Hein, 2006: 345.

a range of learning theory with transmission-absorption on one end with a passive learner and constructivism on the other with an active learner. The passive learner is one whose mind receives information while the active learner gains knowledge through participation.

Hein juxtaposes the two continua orthogonally to create four domains or families of educational theories. On one side reside two domains of education that emphasize teaching. These are didactic, expository approaches and behaviorist training that are traditionally found in schools. On the other side lie two domains that emphasize learning over teaching: discovery learning and constructivism.

Realism: Knowledge exists outside the learner

Didactic, Expository

Discovery

Passive learner

Active learner

Behaviorist

Constructivist

Idealism: Knowledge exists in the mind
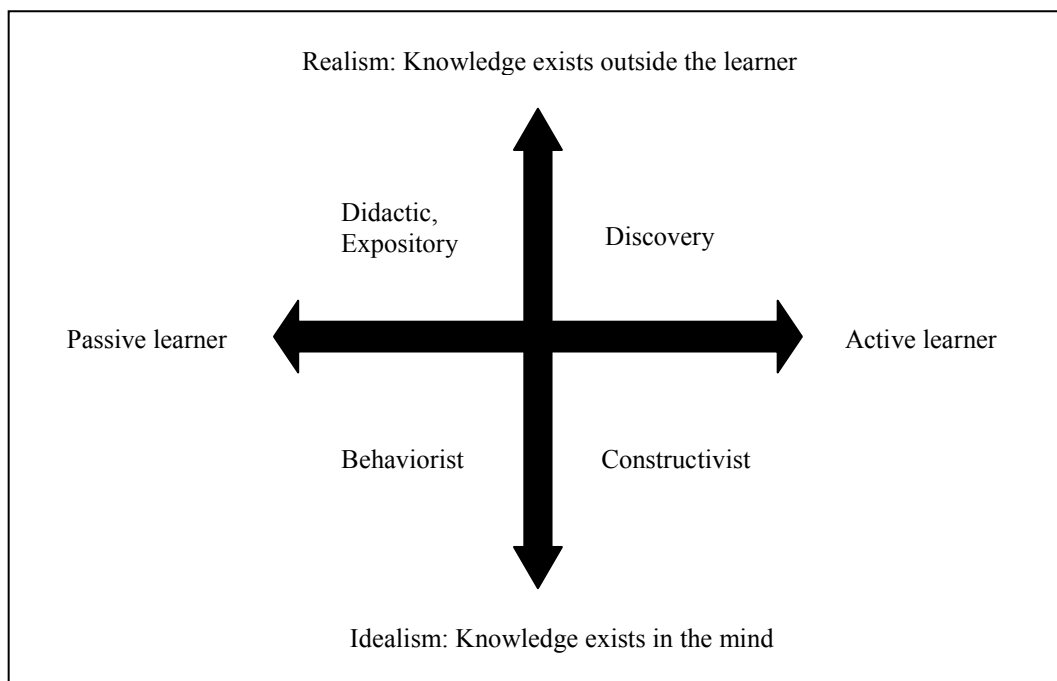
Fig. 2.2 Domains of education theory from Hein[74]

By using Hein's model, museums can situate themselves in a certain domain that represents the styles with which museum educators involve their visitors in teaching and

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[74] Hein, 1998: 25 and Hein and Alexander, 1998: 33.

learning processes. The Museum Learners Club experienced all four domains of learning during visits to various museums; however, the community of practice which the Club cultivated sat squarely in the constructivist quadrant. This is where the most successful learning took place.

The constructivist quadrant represents an approach to learning in which learners actively participate in the construction of their own personal knowledge, building upon pre-existing knowledge. Constructivism opposes behaviorism and didactic/expository learning. It embraces the ideas that culture is part of each person's nature, and learning depends upon social experience. Known as a social constructivist, Vygotsky insists that higher psychological functions are fundamentally mediated by society and culture. Vygotsky's fundamental hypothesis about higher mental functions, such as learning, declares that they are "socially formed and culturally transmitted".[75]

Hein professes that constructivism is inevitable and that we should redefine education as a "meaningful experience" rather than "defined content outcome".[76] "If we accept modern theories of learning, then we inevitably need to accept the constructivist position on theory of knowledge at least to some degree. That people make their own meaning out of experience appears to be a phenomenon of nature (not just a theoretical construction)".[77] What people bring to any learning situation is paramount; ". . . learning proceeds primarily from prior knowledge and only secondarily from the presented materials".[78]

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[75] Vygotsky, [1962]1978: 126, see also 5-7.
[76] Hein, 2006: 348.
[77] Hein, 1998: 34.
[78] Roschelle, 1995: 37.

Since the constructivist approach focuses on visitors' personal experiences and sociocultural aspects, when it comes to employing constructivist pedagogy, museums should provide experiences that are stimulating and challenging and demonstrate a concern for the schema and ideas already present in learners' minds. Museums should ask themselves whether or not they present an environment conducive to making connections to pre-existing knowledge.[79] Hein goes further to set specific conditions for a "constructivist museum" that include explicit recognition that knowledge is constructed in the visitor's mind; opportunity for active engagement; and provision for physical, social and intellectual accessibility.[80]

Hein's constructivist museum is a place that serves a wide range of learning styles with connections to the familiar, comfort and ease of access, and conditions for social interaction. These are optimal learning circumstances for the Museum Learners Club and they fit well with the community of practice format that the MLC adopts. Where they did not occur naturally in the museums we visited, as community coordinator, I fostered them using Hein's parameters as a guide. This link between the community of practice and constructivism constitutes a principal part of the pedagogy employed by the MLC. The way constructivist ideas were used is explained in detail in Chapter 5.

Most researchers recognize the value of constructivism for museum learning. Some actively use it in their work. Others have taken the constructivist model and built upon it, incorporating new syntheses that further reveal the cultural nature of learning. Still others have replaced constructivism with other similar theories. Regardless of how it has been used, the main tenets that distinguish constructivist thought—learner-centered

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[79] Hein, 1998: 38.
[80] Ibid: 155-179.

theory and pedagogy, the interplay of the personal and social—remain hallmarks of museum learning research. The views that are in vogue now retain the personal and social aspects of constructivism whether they are termed constructivist or sociocultural.

Sociocultural Research and the Museum Learning Collaborative

Funded by a combination of federal agencies including the Institute of Museum and Library Services, the Museum Learning Collaborative was founded in 1997 and continued its work through 2003.[81] Principle researchers Leinhardt, Knutson and Crowley consider the work of Falk and Dierking, Hein and Gardner and give increasing credence to social learning as expressed by Wertsch and Vygotsky. The collaborative appreciated the ways constructivism has been applied to learning in the museum but moved onward to view learning as a system of participatory competences and activities.[82] In this sociocultural approach, individual construction of knowledge is not as important as active participation. Emphasizing engagement and social interaction within a group was not only at the core of the Museum Learning Collaborative but was also the mainstay of the Museum Learners Club.

The Museum Learning Collaborative considered conversations as the process and outcome of museum learning. The conversations that visitors had as they experienced the museum reflected a complex mingling of social and cultural processes. The intertwining of the social and cultural is "a primary activity of knowledge co-construction and appropriation".[83]

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[81] For an overview of the Museum Learning Collaborative, its philosophy and history see http://mlc.lrdc.pitt.edu/ (accessed 14 November 2009).
[82] Leinhardt and Knutson, 2004: 3-6.
[83] Leinhardt et al, 2002:x.

Rather than explore individual achievement and rely on responses from singular subjects, the Museum Learning Collaborative looked at results from a group perspective. Within the groups, they witnessed ideas brought forth and shared that built upon prior knowledge, shifting identities, and various degrees of engagement. The collaborative studied learning as "conversational elaboration" and created a multidimensional framework of three interconnecting themes to study museum conversations. The framework consisted of elements located *within* the visitors—the nature of the visitors' identity; elements *in the interface* between the museum and the visiting group—the degree of explanatory engagement; and the structure of the museum learning environment—the setting and stage that encompasses asynchronous and curatorial messages.[84]

In a sense the Museum Learning Collaborative's framework parallels the learning models of John Falk and Lynn Dierking that conceive of learning as situated within three overlapping contexts, the personal, the sociocultural, and the physical.[85] The Learning Collaborative considers identity, motivation and interest which can be construed as part of a personal context for learning. It explores how a group interprets and makes meaning together which mirrors a social context for learning. And, it considers the design for learning in the museum which corresponds to a physical context for learning.

The Collaborative's focus on the actions of collective groups relates closely to the way Wenger conceives of a community of practice—that, as a collective entity, it is the unit of analysis. This was also the way the Museum Learners Club was conceived and

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[84] Leinhardt et al, 2002: 167.
[85] Falk and Dierking's Contextual Model of Learning is explained in Falk and Dierking, 2000. This model reforms an earlier conception, the Interactive Experience Model, explained in Falk and Dierking, 1992. both are derivatives of constructivist thought and other sociocultural learning theories.

analyzed. The work of the Collaborative is consistent with learning trends identified by Wenger. These trends indicate that identity is the harbinger of learning and that learning is "organized as a horizontal process of mutual negotiation, as opposed to the more traditional view as a vertical relationship between a producer and a recipient of knowledge".[86]

Conclusion

This chapter has discussed the escalation of theory and practice in museum learning in the context of the transformation in the field. Museums have changed and are still changing from institutions imbued with nineteenth century values to ones that reflect postmodern ideals. Museum education, or as many prefer to call it, museum *learning*, plays a pivotal role in the evolution of the profession with its advocacy for serving the visitor and with the evolving base of theory that reinforces sociocultural and constructivist standpoints.

A cadre of museum researchers has advanced learning theory and practice. Though their approaches may differ, they hold in common a view that diverges from linear approaches to learning—such as behaviorism and transmission-absorption—that depend on objective knowledge. They look to a new view of learning as a dynamic process that depends on cultural and social situatedness, participation, expansion of existing knowledge and changing identities.

Recent studies of learning theory by those in the museum field motivated my investigation into knowledge and learning and stimulated the development of the Museum Learners Club. The constructivist concern for the strength of the individual's

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[86] Wenger, 2006: 28.

prior knowledge and the contention of sociocultural theory that environment, background

and participation are factors for learning are basic to my philosophical underpinnings.

The next chapter explains the foundation for my work.

Chapter 3   Knowing and Learning: The Intellectual Framework

To substantiate the effectiveness of learning in museums for those with varying abilities, I developed a framework based upon the postmodern epistemology of Michael Polanyi and a set of social learning theories and principles including situated learning, apprenticeships and communities of practice, and constructivism. Essentially, the framework is a constructivist community of practice. It consists of an interwoven complex of underlying philosophy and theory, but is also a practical method that can be adapted to various museum learning enterprises.

I cultivated the constructivist community of practice in authentic learning situations at museums with students, aged 10-12, from a multi-age fourth and fifth grade classroom. Although I initially called the learning framework a "Museum Learning Community," my young research subjects renamed the enterprise the Museum Learners Club and referred to it as the MLC. The MLC provides an active participatory social milieu for museum learning. Characterized by dynamism, flexibility, inclusiveness and interaction, the community demonstrates that knowledge and understanding arise from social processes.

I relied on Michael Polanyi's philosophy of knowledge and my theoretical construct throughout the research period. Seven major factors guided my work: a conviction of personal knowledge over objective fact; evidence that tacit knowledge is effectively released in social interaction; the notion that knowledge and learning are influenced by social and cultural forces; the situated character of learning; the value of apprenticeship learning; a belief that communities of practice can be cultivated to

facilitate learning; and the recognition that constructivist learning theory can be utilized within communities of practice to create optimal learning environments. The field study based on the constructivist community of practice model demonstrated a successful inclusive learning process with positive outcomes for both autistic and non-autistic learners.

The Museum Learners Club and its Underlying Philosophies

The work of this thesis emanates from the belief that most of what we see and do is grounded in our social reality. "It is social constructions of reality, not reality, that we encounter when we speak and act".[1] Things function in a certain way because human beings understand them to be so. We make meaning according to the socially and culturally designated functions of things, not their physical properties. A belief in the ascendancy of social reality supports the notion that collective intentionality supersedes individual intentionality. "What is special about culture is the manifestation of collective intentionality".[2]

Concepts of sociological knowledge, the philosophy of Michael Polanyi and constructivist learning theory ground my work in a reality that includes both individual and collective dimensions. John Searle expresses this bilateral reality by explaining "the individual intentionality that each person has is derived *from* the collective intentionality that they share".[3] Although both intentionalities exist, it is collective intentionality that is the most fundamental of human activities and irreducible to individual intentionalities. Thus, what we do and how we learn depends on more than one person. "The crucial

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[1] Appleby et al, 1996: 18.
[2] Searle, 1995: 228.
[3] Ibid: 25.

element in collective intentionality is a sense of doing (wanting, believing, etc.) something together".[4]

The Museum Learners Club is comprised of individuals who were accustomed to being assessed according to their individual academic strengths in their rather traditional classroom. As I worked with these individuals using the MLC as a unit of analysis, I was able to see how they excelled when they worked with collective intentions. Their individual achievements existed in but could not be extricated from the communal environment. Rarely, if at all, do these students experience a sustained community of practice like the one we constructed.

In an epistemological sense, it follows that knowledge has both social and personal dimensions. Personal and social aspects of knowledge are integrated in the learning process. The learning process is distinguished by an expansion or transformation of personal and prior knowledge into new knowledge as participants interact. Hein describes it as an interplay between individuals in social contexts—the site where all complex forms of thinking first appear.[5] We all grow in a social medium and build up our knowledge through social intercourse; no mind is an isolated possession of the self.[6] These central ontological and epistemological beliefs created the foundation of the Museum Learners Club.

Michael Polanyi: Personal and Tacit Knowledge

Though the Museum Learners Club depends on both individual and collective knowledge, individual knowledge is not lost in social interplay. Convincing arguments

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[4] Ibid: 24-25.
[5] Hein, 1998: 149.
[6] Dewey, 1916: Chap. 22, Sec. 2.

about the place and power of individual knowledge are set out in Michael Polanyi's ideas about personal knowledge, most fully expounded in his 1958 work, *Personal Knowledge: Towards a Post-Critical Philosophy*. It is useful to understand Polanyi's philosophical base in order to sort out the differences between individual and social knowledge and how the two are inextricably linked. Both are valued components in the Museum Learners Club framework and contribute to the creation of new knowledge and meaning.

At his roots, Michael Polanyi was a scientist. He began his professional career as a physician and continued as a physical chemist. He later became a professor of economics; however, he is best known for his achievements in philosophy to which he turned as an afterthought to his scientific career.[7] Polanyi conceived his philosophy during a period marked by Soviet totalitarianism that imposed intellectual control and denied the pursuit of pure science and intrinsic power to thinking.[8] He believed oppressive ideologies and their ideals of completely detached thought were conduits of objectivism and opposed the objectivist urge to depersonalize our intelligent mental processes. Polanyi also saw the contradictory nature of free society where theoretically there could be unrestricted range to thought, but in reality there remained a commitment to objective detachment—a refusal of all knowledge that was not absolutely impersonal.[9] He rejected detached objectivity on the basis that it was responsible for what he termed the morbidity of the modern mind.[10] For Polanyi, objectivity disrespects our mental processes and caused the loss of personal rights and freedom. It was Polanyi's goal to "re-equip men with the faculties which centuries of critical thought have taught them to

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[7] Polany, [1966] 1983: 3.
[8] Polanyi, [1966] 1983: 3-4 and [1958] 1964: 213-214.
[9] Polanyi, [1958] 1964: 214.
[10] Prosch, 1986: 49-50.

distrust," and to ". . . realize the crippling mutilations imposed by an objectivist framework . . .".[11]

Even as a practicing scientist, Polanyi did not acknowledge the accepted norms of positivism in his work. He disagreed with the contemporary philosophic view that authentic knowledge comes only from positive affirmation through strict scientific method. When he observed scientists during their work, he saw the influence of personal elements. Beliefs and commitments held by individual scientists affected their inquiries. Scientists were not detached nor were they perfectly objective. In fact, the very lack of detachment was what led to scientific discovery. For Polanyi, features of scientific knowing were anathema to objectivism and positivistic epistemology that dominated scientific philosophy of the time.[12] He saw the same thing with mathematicians who solve problems by alternating between intuition and computation. "The ideal of an impersonally detached truth must be abridged to allow for the inherently personal character of the act by which truth is declared".[13] We anticipate solutions as we depend on what we know in a personal way.

Polanyi contended that, ". . . we must inevitably see the universe from a centre lying within ourselves and speak about it in terms of a human language shaped by the exigencies of human intercourse".[14] As he turned from science to pursue philosophy, Polanyi's search led to what he termed a novel idea of human knowledge that incorporates a harmonious view of thought and existence.[15] This novel idea is Polanyi's theory of personal knowledge—knowledge that is neither wholly objective nor wholly

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[11] Polanyi, [1958] 1964: 381, see also 252-257.
[12] Prosch, 1986: 28-29; 50-51.
[13] Polanyi, 1957: 103.
[14] Polanyi, [1958] 1964: 3.
[15] Polanyi, [1966] 1983: 4.

subjective but *personal* and integral to human intercourse. We dwell in our personal

knowledge and we see the world according to ourselves.[16] As Polanyi writes, ". . . into

every act of knowing there enters a passionate contribution of the person knowing what is

being known, and that this coefficient is not mere imperfection but a vital component of

his knowledge".[17] Instead of having to make a choice between subjectivism and

objectivism, Polanyi's epistemology enables an analysis of perception and cognition in

terms of a combination of subsidiary and focal awareness and in so doing incorporates

the person into the process.[18]

The power of personal knowledge can be demonstrated by what we know when

we perform a skill. Polanyi uses the example of bicycle riding. The bike rider knows how

to ride a bike because of personal knowledge, not because he or she knows the physics of

balance. Personal knowledge keeps the rider on the bicycle without falling off. As

Polanyi puts it, ". . . *the aim of a skilful* [sic] *performance is achieved by the observance*

of a set of rules which are not known as such to the person following them".[19]

The bike riding example points out the significance of tacit knowledge. Polanyi's

epistemology of personal knowledge underscores the magnitude of tacit knowledge. He

refers to it as the axis or fulcrum for all knowledge. As he explains:

> . . . things of which we are focally aware can be explicitly identified; but no
> knowledge can be made *wholly explicit*. . . . Hence, tacit knowing is more
> fundamental than explicit knowing: *we can know more than we can tell and we*
> *can tell nothing without relying on our awareness of things we may not be able to*
> *tell*".[20]

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[16] Polanyi, [1958] 1964: 3.
[17] Polanyi, [1958] 1964: xiv.
[18] Polanyi, [1958] 1964: 17, 65, 300 and Prosch 1986: 237-238; 272-273.
[19] Ibid: 49.
[20] Polanyi, 1964: ix.

The dictum, "we can know more than we can tell," has been widely used to explain the tacit dimension of knowledge; however, to understand what Polanyi meant by tacit, we must delve deeper.

At a basic level, tacit knowledge is understood by defining explicit knowledge. The explicit is that which we can articulate while the tacit is that which cannot be expressed explicitly. We possess an immense body of tacit knowledge, skills and manners that are "inarticulate manifestations of intelligence by which we know things in a purely personal manner".[21]

A closer study of its underlying structure explains why Polanyi understands the tacit to be the fulcrum of all knowledge. The structure of tacit knowledge is distinguished by two types of awareness: the subsidiary and the focal. As the knower dwells in his or her personal knowledge, he or she subordinates clues and tools (the particulars of personal knowledge) simultaneously with attending to something focally (the focal object).[22] This "from-to" act is the tacit process, and it depends upon personal participation. Each thing that the knower knows is comprised of parts known in a subsidiary way and an integrated whole that is made from the parts in a focal way.[23] Knowing and understanding are aspects of the act of extending our person into the subsidiary awareness of parts that make up a focal whole.[24]

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[21] Polanyi, [1958] 1964: 62-64.
[22] Polanyi calls this practice "indwelling" which he describes as recognizing the whole by interiorizing its parts "so as to attend from them to their joint meaning". See Polanyi, 1969b.
[23] Polanyi, [1966] 1983: 10, 34; Prosch, 1986: 230-231. The "from-to" component of Polanyi's philosophy is linked to Gestalt psychology; however, whereas the psychological view assumes spontaneous equilibration of particulars, Polanyi sees Gestalt as "an active shaping of experience performed in the pursuit of knowledge". "This shaping or integrating," he writes, "I hold to be the great and indispensable tacit power by which all knowledge is discovered and, once discovered, is held to be true". See Polanyi, [1966] 1983: 6-7.
[24] Polanyi, [1958] 1964: 65.

Polanyi uses the example of two stereoscopic images that form one focal image to explain the phenomenal transformation of the "from-to" structure of knowledge. We attend from the parts to the whole, that is, the proximal particulars to the focal object. Thus, ". . . meaning is always attained when a "from-to" function exists in our awareness".[25] The "from-to" movement of attending cannot be reversed, one cannot focus on personal particulars in order to see the whole. If we switch our attention to the particulars, the function of the particulars would change; they would become focal elements. With this understanding, Polanyi contended that we cannot reduce our world to its parts in order to understand it—a strong argument against scientific reductionism.

A pertinent explanation of tacit knowledge is offered by Nonaka and Takeuchi who agree with Polanyi regarding the primacy of tacit knowledge:

> In traditional epistemology, knowledge derives from the separation of the subject and the object of perception; human beings as the subject of perception acquire knowledge by analyzing external objects. In contrast, Polanyi contends that human beings create knowledge by involving themselves with objects, that is, through self-involvement and commitment, or what Polanyi called 'indwelling.' To know something is to create its image or pattern by tacitly integrating particulars. In order to understand the pattern as a meaningful whole, it is necessary to integrate one's body with the particulars. Thus indwelling breaks the traditional dichotomies between mind and body, reason and emotion, subject and object, and knower and known. Therefore, scientific objectivity is not a sole source of knowledge. Much of knowledge is the fruit of our own purposeful endeavors in dealing with the world.[26]

In Nonaka and Takeuchi's work on organizational knowledge creation, the two theorists aim to demonstrate how Japanese philosophical views can complement Western thought that has pursued the difference between the knowing subject and the known object. Considering tacit knowledge as the source for new knowledge, Nonaka and Takeuchi have put forth a theory that shows how tacit knowledge is converted into

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[25] Prosch, 1986: 68.
[26] Nonaka and Takeuchi, 1995: 60.

explicit knowledge through communities of interaction.[27] This knowledge conversion, or *learning*, is what fuels the process of innovation in business; however, it is the same process that occurs in quotidian learning. The conversion from tacit to explicit was present in the Museum Learners Club as young learners interacted and made meaning in museums for, as Nonaka and Takeuchi explain, ". . . knowledge creation includes not only innovation but also learning that can shape and develop approaches to daily work".[28]

The tacit coefficient of knowledge is omnipresent. According to Polanyi, even in the case of deductive reasoning, the tacit appears and affects the outcomes. He argues that the passionate force of the tacit "actuates discovery, inflames controversy, and sustains the student's efforts to understand what he is being taught".[29] Comparing deductive reasoning with computer operations, he rejects the idea that personal participation is eliminated and clearly delineates the role of the tacit knowledge of the logician. There is, he argues, "an irreducible residue of mental operations, on which the operations of the formalized system itself will continue to rely".[30]

What does the conviction of personal knowledge mean for learning? As Polanyi points out, it means that the "whole process of discovery and confirmation ultimately relies on our own accrediting of our own vision of reality".[31] What we perceive is not only an anatomic function but also a function of what we already know—what has already been established in our mind. Within our mind we possess not only articulate powers but also "mute abilities" and ". . . our mute abilities keep growing in the very

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[27] Ibid, 1995: 59.
[28] Ibid.
[29] Polanyi, [1958] 1964: 257.
[30] Ibid: 258.
[31] Polanyi, 1957: 101.

exercise of our articulate powers".[32] This revelation validates and is expounded in constructivist learning theory with its emphasis on prior knowledge. In addition, as I turn to the discussion of learning for those on the autism spectrum in Chapter 4, it is these mute abilities—tacit knowledge and skills—that may play an obvious role for autistic people who cannot easily articulate what they know because of communicative difficulties. Within the Museum Learners Club I saw striking evidence of mute abilities and value in personal and tacit knowledge.

The Social Component of Learning

Michael Polanyi's work did not culminate with his theory of personal knowledge. Learners bring their personal knowledge and tacit dimensions to any given situation but these intrinsic elements make up only one component of the learning process. "Though our experience of knowing is individual, knowledge is not".[33] In order to learn, individual knowledge must undergo some sort of transformation in a social milieu. A simple schema indicates the principle components of learning in Fig. 3.1.

Individual learner	Social Encounter	Result
Personal knowledge →	Knowledge of others →	New knowledge
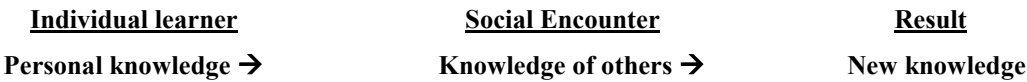
Fig. 3.1 Components of learning

As the individual learner brings personal knowledge to a social encounter, that knowledge can be transformed by social interaction resulting in new knowledge. This is a basic description of the transformation of prior knowledge and is not intended to indicate that learning evolves in a linear fashion. In real sociocultural settings where learning

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[32] Polanyi, [1958] 1964: 70.
[33] Wenger et al, 2002: 10.

takes place, advancement toward new knowledge is less linear, more random and is

affected by a range of social interactions and exchanges of information. John Dewey

commented on the social dimension of knowledge in *Democracy and Education*:

> As matter of fact every individual has grown up, and always must grow up, in a
> social medium. His responses grow intelligent, or gain meaning, simply because
> he lives and acts in a medium of accepted meanings and values. Through social
> intercourse, through sharing in the activities embodying beliefs, he gradually
> acquires a mind of his own. The conception of mind as a purely isolated
> possession of the self is at the very antipodes of the truth. The self achieves mind
> in the degree in which knowledge of things is incarnate in the life about him; the
> self is not a separate mind building up knowledge anew on its own account.[34]

Dewey understood that social contexts shape knowledge. The social component

of knowledge was quite evident in the Museum Learners Club. Polanyi was also keenly

aware of how learning is socially situated. He wrote about the ways tacit knowledge

kindles learning in situations such as apprenticeships, connoisseurship and the scientific

tradition.[35] He introduced the notion of communities of practice—a group of learners

who share common goals—as he studied scientists working together to validate

discoveries, forge a common language and endorse a community of practitioners that

advanced the scientific discipline. Polanyi endorsed the view that people involved with

any type of practice bring to the community of that practice personal knowledge that

exists prior to the person's entry.

Central to my thesis, is the integrated relationship of the personal or individual

and the social or communal ways in which individuals learn and work. Etienne Wenger

describes the relationship in the following remarks:

> Indeed, in everyday life it is difficult—and, I would argue, largely unnecessary—
> to tell exactly where the sphere of the individual ends and the sphere of the
> collective begins. Each act of participation or reification, from the most public to

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[34] Dewey, 1916: Chapter 22, Section 2.
[35] Polanyi, [1958] 1964: 53-55. See also Frade, 2003.

the most private, reflects the mutual constitution between individuals and collectivities. Our practices, our languages, our artifacts, and our world views all reflect our social relations. Even our most private thoughts make use of concepts, images, and perspectives that we understand through our participation in social communities.[36]

As people participate with others within a social community, their personal and tacit knowledge is released and contributes to new knowledge and understanding reified by the community. This dynamic process is what we know as learning and was evident in the Museum Learners Club field study where young learners created a community of practice. As participants interacted, they gained greater understanding of the museum learning environment and how to learn within it. They gained new expertise in the disciplines of history and art. They reflected upon the practice in written and verbal form. The MLC acronym became part of their language and they frequently described their MLC activities as distinct from their typical classroom experience. They worked together to produce an extraordinary project that reified or made palpable what they had discovered together.

The tacit dimension of personal knowledge—the inarticulate manifestation of personal intelligence—is released through communities of social interaction. The proximity of and activity between people determines the transfer of tacit knowledge. A person may extend subsidiary awareness into a social situation. Another person may adopt new subsidiary knowledge (when gaining a skill, for instance) when he or she works with the first person. Consider a similar diagram in Fig. 3.2 that deals with the trajectory of tacit knowledge.

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[36] Wenger, 1998: 146.

Individual learner	Proximity & Activity	Result
Tacit dimension →	Outward expression →	New knowledge
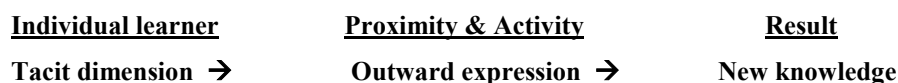
Fig. 3.2 Trajectory of tacit knowledge

This fundamental schema indicates what occurs in a community of practice as co-learners interact and tacit knowledge is released. Here we shift the focus from viewing learning as acquisition of information to learning "as a changing experience of participation . . . that locates learning capability in the relationship between *individual identities and social systems*".[37] Throughout the field research period with the Museum Learners Club, it was obvious that the participants were releasing tacit knowledge through their unspoken expertise in museum visiting, with the way individuals acted as group leaders and assistants to those who needed aid, and during the collective construction of the final project. Regardless of their respective cognitive differences, all gained new knowledge and understanding through community participation.

In addition to social and communal aspects, Polanyi was aware of the historical and cultural forces that shape personal knowledge and learning. He understood that meaning is something created by the individual learner immersed in a cultural setting. As cultural forces have become stronger in the last few thousand years our range of comprehension has expanded because of the way the powers of our tacit knowledge have been equipped with "cultural machinery".[38] Polanyi describes the forces that formed him in a text he wrote on the personal mode of meaning:

> If, then, it is not words that have meaning, but the speaker or listener who means something by them, let me declare accordingly my true position as the author of what I have written so far, as well as of what is still to follow. I must admit now that I did not start the present reconsideration of my beliefs with a clean slate of

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[37] Wenger, 2006: 2.
[38] Polanyi, [1966] 1983: 91.

unbelief. Far from it. I started as a person intellectually fashioned by a particular idiom, acquired through my affiliation to a civilization that prevailed in the places where I had grown up, at this particular period of history. This has been the matrix of all my intellectual efforts. Within it I was to find my problem and seek the terms for its solution. All my amendments to these original terms will remain embedded in the system of my previous beliefs.[39]

Polanyi's views here presage those of museum theorists who are using postmodern and sociocultural means to determine who makes meaning in museums and how it is accomplished. They also reflect how learning is culturally embedded, socially determined and dependent upon prior (and personal) knowledge. They might readily agree with anthropologist Ruth Benedict, writing in 1934: "No man ever looks at the world with pristine eyes. He sees it edited by a definite set of customs and institutions and ways of thinking".[40] Furthermore, Polanyi's words suggest a powerful identity that guides what and how he knows. And, it is the conception of identity that Wenger centers on as he construes learning to be the trajectory of identities, discussed later in this thesis.

Situated Learning and the Cognitive Apprenticeship

The concept of situated learning adds the notion of learning by participating in everyday activities to the theoretical foundation of my work. Principles of situated learning echo Polanyi and stipulate that knowing and doing are inseparable and that the mind and body operate together. Instead of reflecting the Cartesian view, "I think therefore I am," situated learning is based upon a revised dictum crafted by John Seely Brown: "We participate and therefore we are".[41] Learning and cognition cannot be

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[39] Polanyi, [1958] 1964: 252.
[40] Benedict in Appleby et al, [1934] 1996: 282.
[41] Brown, 2001. For a discussion on the Cartesian split between the subject (knower) and the object (the known) and how it has been challenged by recent thought, see Nonaka and Takeuchi, 1995: 20-27. Eric

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divorced from the activity in which they are forged or, as Lave and Wenger would put it, learning is located squarely in the processes of coparticipation.[42] It is socially and culturally constructed. Cognitive psychologist Jerome Bruner adds, "Meaning making involves situating encounters with the world in their appropriate cultural contexts in order to know 'what they are about.'"[43]

To illustrate situated learning and its effectiveness, consider the ease with which we learn words through the context of conversation, storytelling and other types of everyday communication. We learn words much more easily, quickly and effectively through our daily discourse than by reading dictionaries for definitions. Similar to any method that teaches abstract concepts, reading a dictionary does not consider how knowledge and meaning is built through continual situated use.[44] General decontextualized knowledge is meaningless until it is made specific to a certain situation.[45] The activity and authentic situations of our lives are integral to real learning.

As we progressively develop language, we progressively develop concepts and understandings within the physical, social and cultural contexts in which we act. New knowledge is built upon previous knowledge and gains depth and texture with every new situation and activity. It is always under construction. Learning is a continuous, lifelong process resulting from acting in situations.[46]

Sotto also discusses the Descartes dictum that, in his opinion, gives thinking a preeminence it lacks. For Sotto, feeling and experiencing have more value than rational judgment. See Sotto, 1994: 83-84.
[42] Lave and Wenger, 1991: 13.
[43] Bruner, 1996: 3. Bruner is known as a leader in the establishment of cognitive psychology as an alternative to behaviorist theories of psychology. His work is closely associated with constructivism. Bruner's psycho-cultural approach to education has made important contributions to education reform.
[44] Brown et al, 1989: 32-33.
[45] Lave and Wenger, 1991: 33-34.
[46] Ibid: 33.

These situations or contexts are cultural communities within which we live and act. They are the communities of practitioners Polanyi referenced as he thought about the collegiality of scientists. They are family groups, social circles, and co-workers. They are any groups in which understanding arises by social interaction and in which intelligence is extended and shared.[47] Brown, Collins and Duguid considered these groups to be the loci of learning.[48]

In order to learn, one must enter the culture of the community. Thus, contends Brown and partners, learning is a process of enculturation. The process of enculturation can be compared to apprenticeship learning as a novice becomes more expert during authentic activity of the communal experience.

In working toward their conception of situated learning that relies on enculturation and authentic activity, Brown, Collins and Duguid developed a learning model in contradistinction to existing educational custom. Prevalent school practice, they contend, consists of ersatz activity devoid of experiences in real world contexts. A more beneficial method of learning is one based on apprenticeships.

Brown and his co-researchers point out that apprenticeships existed as a natural way to learn throughout pre-modern history.[49] Today, however, most apprenticeships have been replaced by formal schooling. Schools may be successful in organizing and conveying concepts and facts, but standard pedagogies "render key aspects of expertise invisible to students".[50] Schools do not provide enough attention to complex problem solving or real life tasks.

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[47] Bruner, 1996: 154.
[48] Brown et al, 1989.
[49] Collins et al, 1991.
[50] Ibid.

Brown, Collins and Duguid call their instructional paradigm a "Cognitive Apprenticeship".[51] Similar to craft apprenticeships, the cognitive apprenticeship is collaborative learning that stresses the encultured, context-dependent, situated nature of learning. The word *apprenticeship* anchors the notion that participatory activity is requisite for learning. It begins with coaching and modeling in situ and continues with a scaffolding process. The word *cognitive* emphasizes that the apprenticeship techniques go beyond physical skills to cognitive skills.

The cognitive apprenticeship is not only a method for unlocking the technical aspects of tacit knowledge as in developing personal skills or crafts, but also for gaining understanding of the cognitive dimension of tacit knowledge made up of beliefs, ideals values, schemata and mental models. As Polanyi would have agreed, it is the difficult-to-articulate cognitive dimension that shapes the way we perceive the world.[52] Whereas, in schooling, the processes of thinking are often invisible to both the students and the teacher, cognitive apprenticeships strive to make the processes of thinking visible.[53] They bring tacit knowledge out into the open.

The cognitive apprenticeship model uses a progressive methodology of demonstrating tacit knowledge for students, supporting their efforts and finally, empowering them to be independent demonstrators in their own right. This method follows that of traditional apprenticeships. As students gain confidence, they "move into a more autonomous phase of collaborative learning, where they begin to participate

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[51] Brown et al, 1989 and Collins et al, 1991.
[52] Nonaka and Konno, 1998: 42 and Nonaka and Takeuchi, 1995: 8.
[53] Collins et al, 1991.

consciously . . .".[54] Learners progress from being active in situated participation to internalizing general principles of the culture.

When the creators sum up the cognitive apprenticeship, they describe the "sociology of the learning environment".[55] It relies on a social design that emphasizes situated learning, a community of practice, intrinsic motivation and cooperation. In the situated learning environment, students understand the purposes and uses of the knowledge they gain and, furthermore, they learn how to apply their understanding. They learn by actively using knowledge not by passively receiving it. If gained in this way, their knowledge can be applied in other contexts. By fostering a community of practice, students are active in a domain of expertise in which they are personally invested. A sense of belonging prevails. Both situated learning and communities of practice can engender intrinsic motivation by setting forth coherent and interesting goals in authentic settings. Rather than working for extrinsic reasons such as achieving a good grade or pleasing the teacher, students are bound within a learning community in which they intrinsically want to learn. Finally, the stress on cooperation and working in pairs or groups is a powerful motivating tactic and mechanism for problem solving and expanding understanding.[56]

The Museum Learners Club, like the cognitive apprenticeship, is designed to connect school curriculum within an alternative pedagogical framework. Taking on apprenticeship characteristics, it enables situated learning as a flexible framework that uses authentic, everyday activity. Participants act in familiar contexts away from the classroom in museums. Prior knowledge and tacit knowledge are the building blocks

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[54] Brown et al, 1989: 39.
[55] Collins et al, 1991.
[56] Ibid.

upon which new knowledge is created through participation. The community coordinator assumes the role of the apprenticeship master who models and scaffolds expert activity, tapping personal and tacit knowledge as new knowledge develops. Overall goals and agenda are clearly explained and open to suggestion from all participants and learning is built upon cooperative problem solving.

Apprenticeships and Legitimate Peripheral Participation

The work of Jean Lave and Etienne Wenger on legitimate peripheral participation and communities of practice corroborates Polanyi's philosophy of personal and tacit knowledge, ideas about communities of practitioners, situated learning and cognitive apprenticeships. Lave and Wenger believe that learning does not result from delivering information to individuals. Instead, it relies on and is intrinsic to activity and social engagement—in an authentic situation, similar to what occurs in the cognitive apprenticeship model or in apprenticeships in general. Through their research on apprenticeships, they identified "legitimate peripheral participation" as the key learning process during which the learner participates in the actual practice of an expert.[57]

Legitimate peripheral participation is the way of gaining access to understanding through growing involvement.[58] Using it to understand the dynamics of apprenticeships is a more profound way to understand the social processes of learning. Peripherality does not merely consist of observation and imitation, but crucially involves participation whereby the learner is "absorbing and being absorbed in the 'culture of practice.'"[59] The learner does not acquire a discrete body of facts. Rather, the learner acquires the skill to

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[57] Lave and Wenger, 1991.
[58] Ibid.: 29.
[59] Ibid.: 95.

perform by actually engaging in the learning process. In the initial stages of legitimate

peripheral participation, the newcomer's tasks are short and simple and responsibility is

minimal. As the newcomer moves toward full participation there is increased sense of

belonging and motivation for learning. With full participation comes expertise and

knowledge of the practice. Learning is thus conceived as a process of becoming a full

participant in a sociocultural practice.[60] The principal point here is that *participation*

enables learning and, in turn, learning can be measured by degrees of participation.

Learners engaged in legitimate peripheral participation are increasingly becoming

full participants in the sociocultural practice of their community. The whole person is

acting in the world and gaining understanding of a broader system, not just the limited

world of a decontextualized setting such as a classroom.[61] From this viewpoint, learning

"essentially involves becoming an 'insider.' Learners do not receive or even construct

abstract, 'objective,' individual knowledge; rather, they learn to function in a community

. . .".[62] Legitimate peripheral participation is the fundamental activity of communities of

practitioners.

Lave and Wenger's research reveals critical differences between what is learned

in an apprenticeship and what is learned in a typical classroom where a teacher delivers

explanations in a verbal manner. Within apprenticeship structures there is very little

teaching going on—the more basic phenomenon is learning.[63] In a school setting,

teaching takes over. It is difficult to learn in a classroom where students are divorced

from authentic situations and thrust into hybrid activity framed by the school's culture.

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[60] Lave and Wenger, 1991: 13-14; 18; 29; 35; 37; 95; 110-111.
[61] Ibid: 33, 52-53.
[62] Brown and Duguid, 1991.
[63] Lave and Wenger, 1991: 61-84, 92.

School activity is a transmutation of authentic activity and produces knowledge that often cannot be transferred elsewhere. Being in an authentic situation with access to a practice apart from classroom teaching, allows for less abstraction and more concrete problem solving because problems are not taken out of context.

Lave and Wenger's study of legitimate peripheral participation in apprenticeships led them to develop their learning theory, "communities of practice". For them, learning means actively participating and gaining meaning and identity in a practice that always involves a community.[64] Their work on communities of practice brings together social theory and learning theory—conjoining the personal and the social in "mutual elaboration".[65]

Social theory looks at the relative positions of social structure and agency. Theorists usually prioritize one or the other. "Some assert that social structures—societies, cultures, history—are primary and individual actions are merely a reflection of membership in these structures. Others assert that social structures are but the emergent property of an aggregate of individual actions".[66] Many theorists now recognize and stress the mutual importance of both structure and agency in social interplay. Looking at it in this way, the community of practice is a place where structure and agency come together in close interaction through learning. Wenger calls the community of practice a "linchpin concept for both learning and social theory".[67] The Museum Learners Club embodies both social structure and agency. Structure is represented as a cultivated community of practice, and engagement in that practice denotes personal (and collective)

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[64] Lave and Wenger, 1991: 51-53.
[65] Wenger, 2006: 14.
[66] Ibid.
[67] Ibid. Wenger refers to Anthony Giddens and "structuration theory" that sees social structures and social agency constituting each other through human actions.

agency. The community of practice and its integral components will be explicated later in this chapter.

Vygotsky and the Social Perspective

The apprenticeship approach and legitimate peripheral participation are similar concepts in the constellation of social learning theory. In both, learners are engaged in a progressive movement toward full understanding by participating with someone who is more knowledgeable. During the 1920s and '30s as he studied cognitive development, Soviet psychologist Lev Vygotsky was developing his treatises on an analogous concept he called the zone of proximal development.

Theories of cognitive development are considered according to how they view the role of social forces in the ontogenesis of individuals. Vygotsky and psychologists since his time have increasingly written about the formative role that culture and society play in cognitive development over and above individual mental development.[68] Many who study human cognition look to Lev Vygotsky and his followers as primary advocates of the social perspective. Vygotsky's student, Alexander Luria, sums up the Vygotskian position in the following passage:

> In order to explain the highly complex forms of human consciousness one must go beyond the human organism. One must seek the origins of conscious activity and 'categorical' behavior not in the recesses of the human brain or in the depths of the spirit, but in the external conditions of life. Above all, this means that one must seek these origins in the external processes of social life, in the social and historical forms of human existence.[69]

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[68] Rogoff, 1984: 1. In the preface to the 1978 edition of *Mind in Society*, the editors contend that Vygotsky is considered the first modern psychologist to suggest that each person's nature is culturally shaped (see Cole et al, 1978: 6).

[69] Luria quoted in Wertsch et al, 1984: 153.

Vygotsky firmly believed that cognitive development is fundamentally embedded in social context. All higher functions including the formation of concepts originate in social relations. He stipulated, "Every function in the child's cultural development appears twice: first on the social level, and later, on the individual level; first *between* people (*interpsychological*), and then *inside* the child (*intrapsychological*)".[70] First, our sociocultural background gives us the tools for cognitive activity and practices that enable problem solving. Second, the immediate social situation structures individual cognition. Or as Rogoff puts it, ". . . the development of the child is guided by social interaction to adapt to the intellectual tools and skills of the culture".[71]

To adhere to Vygotsky's view, study and analysis must focus on the social unit of activity—the learning enterprise that occurs between more than one person—rather than on the individual.[72] It is the social unit that determines success in learning.

Today the Vygotskian ideal is most readily evident in learning situations where a learner develops skills through cooperative activity in a scaffolding process.[73] The scaffolding process, which has its roots in apprenticeships and is akin to legitimate peripheral participation, is closely related to the major component of Lev Vygotsky's social constructivism, the "zone of proximal development," or ZPD, that depends on collaborative learning over individual effort.[74] The ZPD is a precinct that lies between what a child cannot do alone and what he or she can do with others. It is an area in which the learner can participate in cultural practices slightly above existing capabilities and acquire new knowledge. Thus, a child working alone may not demonstrate full capability

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[70] Vygotsky, [1962]1978: 57.
[71] Rogoff, 1984: 4.
[72] Ibid.: 5.
[73] Greenfield, 1984: 117.
[74] Vygotsky, [1962]1978: 86, 87, 90.

but a child working with a more knowledgeable partner enters the zone of proximal

development and gradually progresses toward gaining more responsibility in the social

unit. "*It is the distance between the actual developmental level as determined by*

independent problem solving and the level of potential development as determined

through problem solving under adult guidance or in collaboration with more capable

peers".[75]

Vygotsky further explains his ideas about development and learning and how they

differ from the way schools measure intelligence.

> Most of the psychological investigations concerned with school learning
> measured the level of mental development of the child by making him solve
> certain standardised problems. The problems he was able to solve by himself were
> supposed to indicate the level of his mental development at the particular time ...
> We tried a different approach. Having found that the mental age of two children
> was, let us say eight, we gave each of them harder problems than he could
> manage on his own and provided slight assistance . . . .We discovered that one
> child could, in cooperation, solve problems designed for twelve year olds, while
> the other could not go beyond problems intended for nine year olds. The
> discrepancy between a child's mental age [indicated by the static test] and the
> level he reaches in solving problems with assistance is the zone of his proximal
> development.[76]

Vygotsky asks us not to categorize learners according to their chronological or

mental age without taking into consideration what they can accomplish when working

with others. The Museum Learners Club study abided by the notion that all learners, even

those with social difficulties, can do more together than individually and that what they

do together is an indication of individual success for all. Learners who were more expert

at certain tasks helped others who were not. Learners who did not grasp concepts as

easily and quickly as some were guided by more knowledgeable participants and were

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[75] Ibid.: 86.
[76] Vygotsky, [1934]1986: 186-187.

not disadvantaged or left out of activities as could have happened had they been learning in a classroom.

Vygotsky identifies ways learning can be facilitated by more knowledgeable partners through scaffolding, cognitive modeling and negotiation of meanings. Scaffolding provides a means to manage the complexity of a task for the learner; cognitive modeling involves acting out or verbalizing a reasoning process (like imitation in an apprenticeship); negotiation of meaning provides ways to extend the learner's ability to talk about his or her understanding relative to another's.[77] The Museum Learners Club succeeded in great part because of the reliance upon Vygotsky's understanding of how we learn socially within the zone of proximal development via scaffolding, modeling and periods of reflection in which we negotiated meaning.

Vygotsky also wrote about students with mental differences who exhibited difficulty recognizing and grasping abstract concepts—a common factor with learners on the autism spectrum. Schools, Vygotsky advocated, should make every effort to use pedagogies that aim to develop elaborated forms of abstract thought and bring out what is intrinsically lacking.[78] He also remarked that rather than isolate different learners from their peers, they should be brought together through dialogue because learning for all is a profoundly social process. The Museum Learners Club did not espouse a concrete, "look-and-do" way of guiding the participants with autism spectrum disorder. Rather, these participants were included in authentic activity just as all other participants were. Their level of understanding may have differed, and at times one or two of them may have needed more modeling or scaffolding than others, but they were all equally involved. In

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[77] Roschelle, 1995: 46.
[78] Vygotsky, [1962] 1978: 89.

addition, methods of reflexivity and reflection used in the Museum Learners Club strove to bring out abstract ideas.

Communities of Practice

Michael Polanyi believed that we learn from being connected socially and culturally. He wrote:

> Tacit assent and intellectual passions, the shaping of an idiom and of a cultural heritage, affiliation to a likeminded community: such are the impulses which shape our vision of the nature of things on which we rely for our mastery of things. No intelligence, however critical or original, can operate outside such a fiduciary framework.[79]

In the years after Polanyi's work, Etienne Wenger, Jean Lave and other social learning theorists took up the notions of social and cultural connectedness and tacit knowledge as areas of study. For the Museum Learners Club, the work of Wenger and colleagues on communities of practice has been particularly valuable. The community of practice framework incorporates concepts of personal and social knowledge and procedures of apprenticeships into a workable system for learning.

Wenger explains communities of practice as "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis".[80] Most communities of practice arise naturally, some need a catalyst to form, and some are purposefully cultivated.[81] In my case, I purposefully developed the Museum Learners Club as a group experiment in museum learning for school children on the autistic spectrum and their non-autistic peers. The study has resulted in an understanding of how personal and tacit

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[79] Polanyi, [1958] 1964: 266.
[80] Wenger et al, 2000: 10.
[81] Kelly et al, 2006: 222.

knowledge becomes reconceptualized as new knowledge for an inclusive group of learners in an environment that encourages learning as a social process.

Most traditional schools do not accommodate social learning processes. As Wenger puts it:

> Our institutions, to the extent that they address issues of learning explicitly, are largely based on the assumption that learning is an individual process, that it has a beginning and an end, that it is best separated from the rest of our activities, and that it is the result of teaching. Hence we arrange classrooms where students—free from the distractions of their participation in the outside world—can pay attention to a teacher or focus on exercises.[82]

Wenger advocates for a different perspective that places "learning in the context of our lived experience of participation in the world".[83] Learning involves our evolving identities as we engage with others. This echoes the sentiment of Brown when he composed his maxim, "We participate and therefore we are". Learning is a social phenomenon and thrives in the natural social and cultural contexts in which we live. That is, learning occurs from participating in and belonging to a community of practice. The community of practice provides fertile ground for learning, a key to transformation of identities and a context for the negotiation of meaning.

Learning theory involved with communities of practice is explicated in Wenger's 1998 book, *Communities of Practice: Learning, Meaning, and Identity*. Here Wenger discusses the principles for understanding and enabling learning along with a conceptual scheme for implementation. A community of practice involves four primary components that characterize the learning process: practice and meaning, community and identity. Additionally, as a community is activated, there are three modes of learning that set in motion a richer learning context: engagement, imagination and alignment.

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[82] Wenger, 1998: 3.
[83] Ibid.

Wenger has extensively studied communities of practice within business organizations; however, much of his work can be applied to generic learning situations, including those in schools and museums. He also specifically addresses learning communities and learning architecture. The Museum Learners Club utilizes Wenger's four components and three modes along with elements from Wenger's learning community model. These various mechanisms will be discussed here with a more complete argument on their relevance to the Museum Learners Club in Chapter 5 on the research framework.

The Concepts of Practice, Meaning, Community, and Identity

Practice is what we *do*, physically and mentally in a social and historical context. It is the process by which people experience the world and derive meaning.[84] "The concept of practice connotes doing, but not just doing in and of itself. It is doing in a historical and social context that gives structure and meaning to what we do. In this sense, practice is always social practice".[85] Practice includes the *explicit*—things such as tools, documents, images, roles, criteria, procedures—and the *tacit*—things such as conventions, relations, cues, assumptions, common sense.

Wenger argues that the negotiation of *meaning* "is the level of discourse at which the concept of practice should be understood". Within a practice, the negotiation of meaning arises from a dual process of participation and reification.[86] Participation is engaging in social enterprises. For instance, the Museum Learners Club participated in visiting museums and becoming involved with history and art, object identification and

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[84] Ibid: 45-50.
[85] Ibid: 47.
[86] Ibid: 51-71.

interpretation, and hands-on experiences. Reification is the process of giving form to experience and produces objects and reflections of practice. My research subjects reified their experiences in the Museum Learners Club by naming the enterprise and consistently using the name, recounting knowledge derived from museum experiences in discussions, writing and drawing, and creating a final theme project. The interplay of participation and reification represents the dual character of practice and creates *meaning*; it makes people and things what they are.

The linked components of practice and meaning provide necessary groundwork for a community of practice. The second part of the groundwork lies in associating practice with community.[87] *Community* cannot be divorced from practice. A community coheres and is defined by the mutual engagement, joint enterprise and shared repertoire of the practice.[88] Mutual engagement sustains a community; joint enterprise offers mutual accountability and a feeling of ownership; and a shared repertoire provides the routines, words, tools, concepts and style that delineate the practice. The practice is ultimately shaped by the community. The Museum Learners Club consists of the community and practice of student social scientists at the museum. These students came together to fully engage in group activity that centered on a joint project and shared ideas.

Identity is the final integral component of Wenger's social theory of learning and narrows the focus to the individual, although from a social perspective.[89] Building an identity consists of negotiating meanings from our membership in social communities. Wenger sees learning as a "social becoming, the ongoing negotiation of an identity that we develop in the context of participation (and non-participation) in communities and

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[87] Wenger, 1998: 72.
[88] Ibid: 72-85.
[89] Ibid: 145-163.

their practices".[90] In the context of social theory, Wenger defines identity as "*a learned experience of agency*".[91] Identity is the foundation for his learning theory. Wenger writes, "I argue that when it comes to the production of meaningfulness, learning is subsumed under identity and that social learning systems provide the context for this process".[92]

"The concept of identity serves as a pivot between the social and the individual, so that each can be talked about in terms of the other".[93] When people form a community of practice they negotiate *identities* for themselves. They define who they are by the ways they experience themselves through participation and reification.[94] They achieve identity according to their individual predispositions coupled with the manner in which they enculturate. This does not deny a person individuality but considers "the very definition of individuality as something that is part of the practices of specific communities".[95] It is the mutual constitution of the individual and community that makes up the unit of analysis by which Wenger and I examine learning.[96]

Identity is vital to learning and is "one of the most critical aspects of education for the kind of world we live in".[97] In Wenger's view, learning is not marked by accumulating information but by expanding and transforming one's identity. Learning is limited only by the scope of our identities. "This is especially true in a world where it is clearly impossible to know all there is to know, but where identity involves choosing what to know and becoming a person for whom such knowledge is meaningful".[98] A

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[90] Wenger, 2006: 12.
[91] Ibid: 19.
[92] Ibid: 15.
[93] Wenger, 1998: 145.
[94] Ibid: 149.
[95] Ibid: 146.
[96] Ibid.
[97] Ibid: 275.
[98] Ibid: 273.

design for learning should capitalize on identity transformation through engagement in different practices and other modes of belonging, discussed later in this chapter, that enhance the learner's ability to make meaning in the larger world. The Museum Learners Club offers learners a novel practice, one that is connected to their school community but distinct in significant ways. Importantly, the Museum Learners Club enables its participants to identify with a museum visiting agenda that is part of a broader learning process.

Wenger's view of learning corresponds to the fundamental principle of situated learning, but stresses the power of identity. In a way similar to John Seely Brown's contention that learning is participating, Wenger writes, ". . . information by itself, removed from forms of participation is not knowledge".[99] To the notion that learning is participating, he adds that learning is an experience of identity. Learning transforms who we are and what we do, therefore it is a process of ongoing identification or becoming a certain person. He writes:

> What makes information knowledge—what makes it empowering—is the way in which it can be integrated within an identity of participation. When information does not build up to an identity of participation, it remains alien, literal, fragmented, unnegotiable. It is not just that it is disconnected from other pieces of relevant information, but that it fails to translate into a way of being in the world coherent enough to be enacted in practice. Therefore, to know in practice is to have a certain identity so that information gains the coherence of a form of participation.[100]

The participants of the Museum Learners Club retained their identities as individuals and as students in a class of fourth and fifth graders. To these established identities they assumed an identity related to their membership in the Club. They became full active members who proudly identified with the group, its work and with learning in

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[99] Ibid: 220.
[100] Ibid.

a unique way outside of the classroom. As the process of learning took place in the community of practice, their identities underwent transformations. The MLC participants fully demonstrated Wenger's contention that education "concerns the opening of identities—exploring new ways of being that lie beyond our current state".[101]

Modes of Belonging

Wenger describes three modes of belonging that define the character of a community of practice and extend its effect beyond its boundaries.[102] A combination of modes makes a richer context for immediate and future learning. They are important to the discussion of underlying theory for the Museum Learners Club because they not only indicate ways the students carried what they learned into different environments but also ways in which this research may have an impact on the future of school-museum collaborations and successful learning programs.

The first mode of belonging that should define every community of practice is the mode of engagement. Engagement is the characteristic mutual negotiation of meaning that occurs when people work together in practice. Engagement is primary; however, there is a broader world that calls for additional modes of belonging that connect community members to a larger context and counteract the narrowness of engagement. Wenger designates these modes as imagination and alignment.

Wenger points out that when community members use their imagination, they are expanding their knowledge and understanding to areas outside the local community of practice. They are connecting to the world beyond, moving back to look at their

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[101] Ibid: 263.
[102] Ibid: 173-187. See also Wenger, 2000: 227-228 for discussion on modes of belonging.

engagement through the eyes of an outsider, having an image of their place in the world and exploring that perspective. The Museum Learners Club enabled participants to reach beyond familiar modes of engagement and imagine a world outside the boundaries of their school. They were able to "reach beyond," as Greene (and Dewey) describe in the following passage:

> Imagination is the capacity to reach beyond where we are, to open towards possibility. It is the consciousness of possibility—perhaps the shared consciousness—that moves people, to reach towards what should be, what might be, if an acceptable choice or action were to be found. Dewey, commenting on the mean, the "repellent" nature of brute facts, said that imagination was needed if intellectual possibility were to be pursued.[103]

Alignment goes farther than imagination to connect and magnify the effects of our actions in a broader enterprise. Alignment concerns directing and controlling energy and defining a common purpose: "It is a condition for the possibility of socially organized action".[104] Alignment assures that our local activities are aligned with other more widely spread processes in such a way as to make what we do effective beyond our personal involvement.

The three modes of belonging—engagement, imagination and alignment—usually coexist to some extent within learning communities. The Museum Learners Club demonstrated all of them. Participants were vigorously engaged in the practice at hand, and used what they learned outside the immediate community. The work of the community was aligned in a broad context that included a continuing program of research, its purposes of social inclusion, inclusive education, and advocacy for these things.

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[103] Greene, 2007b.
[104] Wenger, 1998: 180.
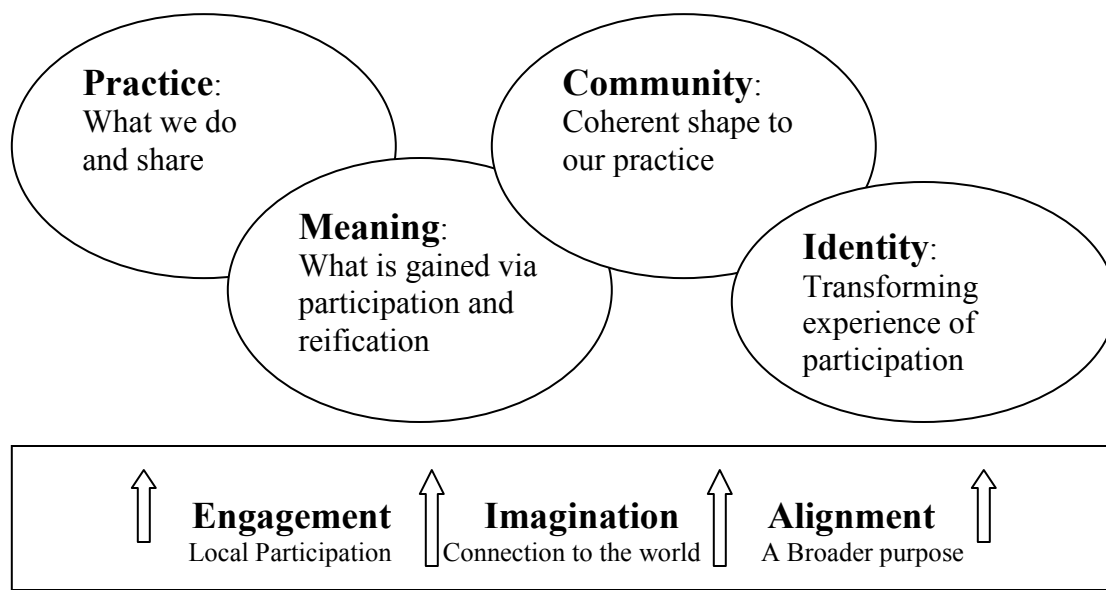
Fig. 3.3 Community of Practice: components and modes of belonging

As a visual summary, Fig. 3.3 illustrates the four components and three modes of belonging of a community of practice. During the organizing phase of the Museum Learners Club all of these parts were considered and when the Club became active, most were fully expressed.

Participation in a community of practice is vital to learning. It connotes movement, a "becoming" like Polanyi's "from-to" structure of knowledge. Active participation of members of the community brings about change for each individual member. That change distinguishes what happens to prior knowledge as it is exposed to the forces of the community and a process ensues to bring about new knowledge. Over time the community of practice engenders learning when transformations occur and as members of the community assumed greater responsibility for an activity and subsequently gain new identities.[105] This comprises the process of learning.

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[105] Ibid: 226-228.

The learning process presents a confounding duality. It is a complex interplay between the individual and the community, identity and learning system, that produces knowledge that is personal and collective. "On the one hand, learning is subsumed under identity, which becomes the crucible in which our bodily, emotional, cognitive, and social existence produces an experience of agency".[106] On the other hand, learning is also a property of social systems at various levels of scale, from our local communities to the entire world. These evolving systems provide material for constructing identities, and at the same time derive their learning capability from the identities they enable.

Principles of Constructivism

According to Wenger's learning theory, individuals bring their predispositions and identities to the community of practice. Polanyi also believed in personal and prior knowledge that he called foreknowledge. "Can we concentrate our attention on something we don't' know?" he asked.[107] "We should recognize that this foreknowledge biases our guesses in the right direction . . .".[108] In a similar vein, constructivist thought relies on prior knowledge as a basis for new knowledge that can be gained through social means.

The final component of my theoretical base is constructivism—that compendium of learning principles widely championed by museum theorists and practitioners and explained in Chapter 2. In the constructivist perspective, knowledge is constructed by the individual in an active, participatory way in which existing knowledge is conjoined with

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[106] Wenger, 2006: 27.
[107] Polanyi , 1957: 98.
[108] Ibid: 100.

new information within a social context. Knowledge is elementarily personal, active and contextual; learning is the result of a resolution of these three elements.

Like Wenger's perspectives, constructivist theories have produced an approach for teaching and learning that represents a break from traditional transmission-absorption styles of classroom education that have been a longstanding trait of American education.[109] Rather than conceiving of the learner as being a passive empty vessel expected to ingest and reproduce information that comes from authoritative sources, the constructivist paradigm considers learners to be active participants who contribute personal knowledge to the learning process.

Constructivist pedagogical methods call for organizing a learning environment with four basic criteria—a focus on learners; social context; innovative instruction and a role for teachers that posits them not as instructors but as guides or facilitators. Constructivist practice comprises an emphasis on guided participation that builds bridges from prior knowledge to new knowledge in an active sociocultural environment to achieve shared understanding and solve problems.[110] In this way, a constructivist environment can echo an apprenticeship and relate to Wenger's community of practice. Chapter 5 on research framework will delve deeper into how these parallel theories and perspectives contributed to my research.

Conclusion

Museum Learners Club research depends on a philosophical base underpinned by the thought of Michael Polanyi and extended by sociocultural learning theory that finds a

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[109] Murphy, 1997; Davis, 2005: 22, 100.
[110] See Rogoff, 1990 for ideas of guided participation and the tacit in a Vygotskian framework.

coherent form in the concept of communities of practice. Constructivism derived from Vygotsky and museum research also plays a significant role in the pedagogical foundation.

Polanyi's major contribution deals with the non-objective and personal character of knowledge—knowledge in which the knowing subject is not divorced from the perceived object. Furthermore, his belief in the importance of tacit knowledge brings to light the inevitable social and cultural nature of learning. Inarticulate knowledge can only materialize during social and cultural engagement. Ideas of situated and apprenticeship learning build upon the notion that tacit knowledge is unlocked in social settings.

Learning occurs in collective domains of interest—in the zone of proximal development and in communities of practice where social processes shape understanding. Wenger lays out a complex learning scheme which gives shape and detail to social learning theory, emphasizing its communal and participatory nature and the dynamic process of identity transformation which he feels is the crux of learning. The community of practice fleshes out social learning theory with an inherent method of application that was used to cultivate the Museum Learners Club.

Club participants, whether they were autistic or non-autistic, benefited from the principles inherent to social learning systems. Autism researchers have also considered theorists such as Vygotsky and Rogoff in the development of social learning interventions. These will be explored in the next chapter on autism and learning.

Chapter 4   Learning and the Autism Spectrum

My study includes autistic subjects who present complex differences in social and communicative abilities and other autistic behaviors. Some have difficulty learning in typical school environments. Museums can be successful learning environments for these learners but there is scant evidence of museum efforts to reach and serve this population through learning programs. My investigation has produced a museum-school partnership model that enables learners on the autism spectrum and their non-autistic peers to learn outside the classroom in museums, archives and libraries. This chapter provides an overview of autism and how it relates to learning.

Inclusion and Terminology

A primary goal of my pursuit to cultivate a museum learning environment for those on the autism spectrum is to foster and maintain an inclusive approach and attitude. Inclusion is based on a moral position that values every individual and welcomes diversity as an enhancement to learning.[1] Being surrounded by diverse people enables autistic learners to develop functional communication skills and meaningful relationships that isolation in clinics or special education classes inhibits.[2] As multifold social and cultural communities demand to have a voice and be counted as equal and valid, so do populations of those of us with differences—differences in intellectual, cognitive, physical and emotional makeup. A portion of these people make up an autistic culture

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[1] Booth and Ainscow, 2002: 6.

[2] Bove, 2008. See also Alderson and Goodey, 1999, for a study of a segregated learning environment that projected and enforced limiting behaviors.

and as such should be regarded as any other population.[3] Museums are taking proactive

stances to correct past abuses of exclusivity, discrimination and prejudice, and all

organizations dedicated to learning should be seeking to be inclusive.

As John Dewey points out, intellectual stimulation and subsequent increase in

knowledge come from equitable intercourse. "Diversity of stimulation means novelty and

novelty means challenge to thought".[4] If we seek inclusion, which can be equated with

democracy in education, we need to seek "a mode of associated living, of conjoint

communicated experience".[5] As Dewey continues to discuss an equitable society, he

writes:

> A society which makes provision for participation in its good of all its members
> on equal terms and which secures flexible readjustment of its institutions through
> interaction of the different forms of associated life is insofar democratic. Such a
> society must have a type of education which gives individuals a personal interest
> in social relationships and control . . . .[6]

> Such social divisions as interfere with free and full intercourse react to make the
> intelligence and knowing of members of the separated classes one-sided.[7]

World human rights organizations call for inclusion.[8] People on the autism

spectrum are part of more than 600 million people who have been labeled as disabled.

This represents about one tenth of the world population. As the United Nations

Commission on Human Rights states, "While their living conditions vary, they are united

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[3] For some ideas on what has been termed "disability culture" see Charlton, 1988. For the notion of "autistic culture" as termed by TEACCH, see http://www.teacch.com/whatis.html (accessed 10 November 2009).
[4] Dewey, 1916: 98.
[5] Ibid: 101.
[6] Ibid: 115.
[7] Ibid: 400-401.
[8] A list of international disability and human rights organizations can be found at http://www.law.syr.edu/lawlibrary/electronic/humanrights.aspx?pid=17&pf=1.8 (accessed 14 February 2009).

in one common experience—being exposed to various forms of discrimination and social

exclusion".[9]

Autism groups such as the Autism National Committee and the Autism Self

Advocacy Network encourage full educational inclusion. The position statement on

education from the National Autism Committee includes the following salient precepts

among the many for which they advocate:

- The inclusion of all students is a right and not a privilege to be earned.
- We believe that inclusive education is a matter of social justice and not clinical debate.
- We believe that every child (even those with the most severe reputations) can contribute to the real life of the school.
- Every child, even "the most difficult," can be included and served, if the educational practices are sound.
- Full inclusion is the true option with all necessary supports and training to insure appropriate and meaningful education.
- We believe that heterogeneous classroom groupings can occur along natural proportions without sacrificing individualized education.
- We encourage schools in their acceptance of all students and in the celebration of differences.[10]

In addition to educational inclusion, there is advocacy for community based

participatory research that involves people on the autism spectrum as equal research

partners. This type of research brings together the academic community, autism services

providers and the autistic community in a synergistic research matrix.[11] A similar

paradigm, emancipatory research, has also played a part in the advocacy of inclusion by

viewing and confronting the treatment of "disability" as social oppression. Emancipatory

research places research control firmly in the hands of the researched, not the researcher.

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[9] Statement of the United Nations on Human Rights and Disabilities,
http://www.unhchr.ch/disability/index.htm, (accessed 14 February 2009).
[10] See the position paper and other documents of The National Autism Committee at
http://www.autcom.org (accessed 17 July 2009) and resources and publications offered by the Autism Self
Advocacy Network at http://www.autismadvocacy.org (accessed 17 July 2009).
[11] An example is the Academic Autistic Spectrum Partnership in Research and Education,
http://www.aaspireproject.org (accessed 3 February 2009).

It deals with a social model of disability that critically looks at the ways society is organized to disable people.[12]

In the postmodern world, barriers between people are falling away and coexisting with others like and unlike ourselves is commonplace and valuable. More diversity leads to better and stronger connections. Inclusion benefits everyone as "there cannot be a single standard of humanness or attainment or propriety when it comes to taking a perspective on the world. There can only be an ongoing, collaborative decoding of many texts. There can only be a conversation drawing in voices . . . involving more and more living persons".[13] Autistic voices should be heard. The Museum Learners Club format encourages and allows time and space for the articulation of thoughts and opinions of all participants.

Along with being heard, those on the autism spectrum deserve fair and respectful characterization. Terms can hurt. As a believer in social justice, researcher and mother, I agree with the parent who disdains labeling and wants her child "to be seen as a child with special rights who sometimes needs special support".[14] Labels that draw attention to perceived deficits can negate a child's "full personhood". They "emphasize 'deficiencies' and focus perception and action on remediation of the perceived deficits".[15]

My advocacy includes trying to use terms that respect my research subjects, the autistic population in general, and all learners who have been labeled as "disabled". This paper recognizes and describes distinctive characteristics of those on the autism spectrum; however, these distinctions do not mark individuals as less than equal to their

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[12] The social model of disability was developed by Mike Oliver, a founder of disability studies. See Hollins, 2007.

[13] Greene, 1993: 212-213. See also O'Brien, 2006.

[14] O'Brien, 2006.

[15] Ibid.

non-autistic peers. Thus, I prefer the term difference instead of deficit or impairment; challenge instead of problem; learning style instead of learning disability; and adaptation instead of accommodation. Working directly with learners on the autism spectrum, I found these respectful terms better described my research and diminished learning disparities among participants.[16]

Using what can be deemed as less offensive terminology is in part based on the discourse of disability studies that views autism as a difference not a disability or disease that can be dealt with solely through medical or remediation services. Instead of being branded a negative condition, autism can be viewed as a sociocultural construct and examined in terms equal to other culturally constructed experiences in society. This helps destigmatize autism, lifts the negative emphasis and shows more concern for individuals.[17] The Center on Human Policy, Law, and Disability Studies at Syracuse University expresses it succinctly:

> Disability Studies refers generally to the examination of disability as a social, cultural, and political phenomenon. In contrast to clinical, medical, or therapeutic perspectives on disability, Disability Studies focuses on how disability is defined and represented in society. From this perspective, disability is not a characteristic that exists in the person so defined, but a construct that finds its meaning in social and cultural context.[18]

Rethinking the way disability is understood not only benefits individuals with differences but also has significant implications for teaching and learning approaches. Traditional education methodologies based on objectively identifiable disabilities may be

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[16] Terms such as disability, impairment, and deficit are widely used in diagnoses, clinical assessments and applications for research funding as it seems funding agencies prefer them. They are also commonly found in much of the literature used in my research.

[17] See guidelines for disability studies programs at http://www.disstudies.org/guidelines_for_disability_stuides_programs (accessed 19 January 2009). For more along these lines see Gallagher, 2004.

[18] Taylor et al, 2003.

misinformed and might actually contribute to further disabling of students.[19] Sequestering and preventing students from full-class participation may do more harm than good. To counteract misguided practices, Museum Learners Club participants are not positioned as children "with special needs" or deficits. They are labeled as MLC participants and as such they are allowed to actively engage in their own learning with others like and unlike them. At the end of the MLC research study, I happily discovered that all research subjects, autistic and non-autistic, learned easily together. What was good for autistic learners was good for all learners.

I have also looked to autistic people themselves to inform my views on terminology and inclusion. Favored terms differ from one individual to the next; however, there is consensus regarding inclusion.[20] The hurdles that schools have built—those selective and competitive procedures that prevent some learners who are different from fully participating—are exactly the things that disable them.[21] One example imposed by standard tests can be seen in the case of Donna Williams who at age 26 scored a mere 70 on an IQ test. The result prompted her to write, "I was genius level for some things, quite 'retarded' for others and the end result was a score that would put me in the mildly mentally retarded range and not eligible to participate . . .".[22] Despite her low tests scores, Williams has become a recognized author of nine books and numerous articles.

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[19] Gallagher, 2004.
[20] Prince-Hughes, 2002: xii.
[21] Rieser, 2002.
[22] Williams, n.d.

Prevalence and Need for Research and Learning Strategies

The recorded incidence of autism has increased tenfold in the last decade. This could be due to a broadening of the diagnostic criteria coupled with diagnostic substitution, or it could reflect a stark reality that autism is rapidly growing.[23] As reported in 2007 by the U.S Centers for Disease Control and Prevention (CDC), one in 150 eight-year-old children was affected by autism.[24] On 5 October 2009, the CDC issued a statement that it would update its prevalence report based on data released in the October 2009 journal *Pediatrics* that finds approximately one percent of children affected by an autism spectrum disorder.

The Centers for Disease Control consider autism a national public health crisis whose cause and cure remain unknown. As such, much research is targeted to identifying origins and developing remedies. The state of research is changing, however, as more study is focusing on quality of life issues including ways of integrating those on the autism spectrum. "Instead of trying to create a world in which autistics do not exist, try to create a world in which autistics exist comfortably," requests Ari Ne'eman, President of the Autistic Self Advocacy Network.[25] The Museum Learners Club is one study that creates such an environment.

Although new research trends are developing, there are still serious gaps including the need for more study of moderately affected people with autism spectrum

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[23] For a study that concludes the prevalence of autism is due to a change in diagnostic criteria see Shattuck, 2006; for evidence that autism is actually growing in incidence, see Herz-Picciotto and Delwiche, 2009.
[24] The incidence of autism was measured in multiple areas of the United States. More on the prevalence can be found at http://www.cdc.gov/ncbddd/autism/ (accessed 5 October 2009). See also http://www.cdc.gov, www.autismspeaks.org, and www.autismtoday.com. In the U.K., the National Autistic Society reports a prevalence of one in 100, see http://www.nas.org.uk/ (accessed 2 February 2009).
[25] Ne'eman, 2009.

disorders, older children and adults, social environments, inclusion and social therapies.[26]

These needs are verified in the United States by the Interagency Autism Coordinating

Committee of the Department of Health and Human Services (IACC). As set out in 2004,

the committee has identified eight research categories, most dealing with causation,

prevention, identification, and ways to medically and behaviorally treat core symptoms.

Only one research category—"school and community intervention"—covers learning

research and, one can surmise, increased comfortable living.[27] Within the school and

community intervention category, the committee deemed it necessary to find strategies to

improve "real-world" functioning of school-aged children that can exist in diverse

community settings.[28] Unfortunately, by 2007, research had not advanced significantly in

the school and community category.[29]

The 2007 IACC report depicts a body of research designed to address early

intervention and diagnosis, behavior and pharmacological treatments, brain anatomy and

development, genetics, prevalence, and cost of autism to society. My study presented in

this paper diverges from these types of research to address ways in which learners on the

autism spectrum might be helped by an inclusive learning environment. This research is

learning-based and museum-related and aspires to support similar studies of those who

are more directly involved in the field of autism theory and research.

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[26] Shore, 2008b: 127-128. See also Department of Health and Human Services, 2006. For U.K. research priorities see the work of Research Autism and the Autism Research Centre at http://www.researchautism.net/pages/research/priorities and http://www.autismresearchcentre.com/research/current.asp (accessed 14 September 2009).

[27] Department of Health and Human Services, 2004. The entire list of research aspects includes: characterization of autism and genetics; epidemiological studies including comprehensive diagnostic evaluations and prevalence; early intervention for pre-school children; specific treatments to ameliorate core symptoms especially medical, pharmacological and behavioral; neuroscience that looks at brain systems; screening and early detection; role of the environment in causation and influences; and school and community interventions.

[28] Ibid.

[29] Department of Health and Human Services, 2008.

Autism Spectrum Disorder: Definitions and Characteristics that Affect Learning

Learning research and strategies for the autistic population are sorely needed. The percentage of children receiving special education and related services because of autism has steadily risen.[30] Many if not most of those on the autism spectrum are marked by unusual learning styles and behaviors. On the positive side, researchers have found that autism is treatable and that autistic people have potential for learning given an environment that addresses their strengths.

Before creating the appropriate environment, we must gain an understanding of this unique population. Brain research indicates that people with autism have trouble integrating certain brain processes that can affect cognitive and motor functions. Magnetic Resonance Imaging (MRI) scans indicate that neural processing centers of the autistic brain do not work together in a fluid manner to form integrated communication networks. Researchers refer to this as a lack of "neural collaborativity" or "network underconnectivity".[31] Someone whose neural networks are not integrated may experience challenges in perceiving and responding to information from another person. For example, as one person communicates with another, the typical brain simultaneously processes facial expressions, gestures and postures along with linguistic and contextual information. This wholly integrated process does not occur in the autistic brain that is under-connected.[32]

The lack of typical brain connectivity causes a constellation of individual conditions that span a wide-ranging continuum. Autism is therefore known as a spectrum

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[30] United States Department of Education, 2006: 45, 76.
[31] Gutstein, 2009: 4.
[32] Ibid: 9.

disorder. The autism spectrum includes such diagnoses as autistic disorder, Asperger's

Syndrome, Pervasive Developmental Disorder, and Pervasive Developmental

Disorder/Not Otherwise Specified.[33] Each person who displays characteristics that fall on

the spectrum does so in uniquely individual ways. A uniting factor for those on the

spectrum is that they endure debilitating neurologically based information processing

difficulties that can result in mild to severe learning differences.

Autism terminology has existed for just 65 years and research on the subject is

evolving.[34] Formal definitions vary. Autistic researcher Stephen Shore proposes the

following definition:

> Autism is a neurobiological condition affecting the functioning of the brain
> resulting in challenges in the social interaction, communication, sensory-motor,
> along with restricted interests and repetitive movements as well as a lack of
> proper body to environmental awareness.[35]

Greenspan and Wieder describe the developmental aspect:

> Autism is a complex developmental disorder with delays in social interaction,
> language, range of emotional, cognitive, motor and sensory abilities.[36]

The U.S. Centers for Disease Control provides a detailed summary:

> Autism is one of a group of disorders known as autism spectrum disorders
> (ASDs). ASDs are developmental disabilities that cause substantial impairments
> in social interaction and communication and the presence of unusual behaviors
> and interests. Many people with ASDs also have unusual ways of learning, paying
> attention, and reacting to different sensations. The thinking and learning abilities
> of people with ASDs can vary—from gifted to severely challenged.[37]

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[33] Definitions and a guide to diagnosis for autism in the United States are delineated in the *Diagnostic and Statistical Manual of Mental Disorders*, published by the American Psychiatric Association, http://www.psych.org. Other countries follow similar guidelines but may include a somewhat different list of disorders on the autism spectrum.

[34] Regular usage of the word autism began with Leo Kanner's 1943 paper, "Autistic Disturbances of Affective Contact".

[35] Shore, 2008b: 88. Stephen Shore, author of three books on autism, has Asperger's Syndrome. See http://www.autismasperger.net/.

[36] Greenspan and Wieder, 2006: 3.

[37] http://www.cdc.gov/ncbddd/autism/ (accessed 3 February 2009).

Regardless of the variety of these and other definitions and descriptions, autism spectrum disorder encompasses difficulties in the development of social-communicative abilities and social relationships.[38] These social and communicative challenges are often exacerbated by cognitive setbacks, acute sensitivities and atypical behaviors that can include unusual responses to people or objects, inflexibility, repetitive body movement, aloofness and aggression. The autistic child faces the world with a unique physiological and psychological makeup. Life for those on the autism spectrum can be a "state of perpetual confusion".[39]

Autistic characteristics reveal themselves differently in each individual and result from challenges on three levels that coexist and mutually influence one another. The primary level includes innate differences with brain processing that cause such things as physical weakness, lack of sensory integration, distractions, perseveration, arousal regulation, perceptual inconsistency and slow processing speed. Secondary level challenges arise as the autistic person attempts to accommodate the underlying innate differences. They encompass inconsistency with social relationships, restricted interests, repetitive behavior, sensory and motor issues, cognitive differences and emotional vulnerability. Tertiary differences are inabilities to accommodate primary deficits and result in extraordinary responses such as tantrums.[40] Members of the Museum Learners Club study exhibited a number of differences, mostly on the primary and secondary levels.

Autistic characteristics result in barriers to learning and hinder typical activity in a traditional classroom setting. Autistic students may find it difficult to relate to teachers

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[38] Prizant et al, 2006a: 9.
[39] Gutstein, 2009: i.
[40] Siegel, 2003: 43-68; Shore, 2008: 38-39; Greenspan and Wieder, 2006: 229; and Moore and Overstreet.

and classmates. They may not be able to follow or elaborate on what they are taught.

They may be both distractible and distracting. Even autistic learners who are considered "high functioning" and master curricular subjects can remain "socially rigid and emotionally isolated".[41] Greenspan and Wieder encapsulate three areas of challenge that aptly indicate the myriad classroom challenges faced by learners on the autism spectrum: relating, communicating and thinking. This is set forth in the figure below and may help the reader sort out the characteristics of autism that can encumber learning.

Foundations necessary for relating, communicating, thinking in the Classroom	Indications of Autism Spectrum Disorder	Associated Symptoms
Attention, engagement, emotional interactions: Ability to pleasurably relate to another person	Fleeting, intermittent or no engagement or interaction	Aimless, random or self-stimulatory behaviors; self-absorption or withdrawal
Continuous purposeful social communication: Ability to negotiate, play, and read emotional intentions of others	Limited or no interaction; little initiative taken toward relating	Impulsive or repetitive behaviors (perseveration)
Creative and logical use of ideas: Ability to express needs, intentions, desires, feelings in meaningful conversation and connect ideas logically	Inability to use ideas in meaningful way; using ideas without logical connections	Illogical use of ideas, echolalia, repeating scripted language
Abstract and reflective thinking: Ability to use high level thinking skills; make inferences	Concrete thinking that is rigid, lacking subtlety	Exaggerated reactions or avoidance of social situations

Fig. 4.1 Learning challenges in school-aged and older learners on the autism spectrum, adapted from Greenspan and Wieder[42]

Faced with inabilities to make social connections and abstract meaning, autistic learners seem to live in a world different from that of their typical peers. Their world is dominated by awkward perception and literal information that remains disjointed and not

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[41] Greenspan and Wieder, 2006: 7.
[42] Ibid: 34.

synthesized into meaningful analyses.[43] Without meaningful analysis, autistic learners

can often prefer repetition to novelty and predictability to new situations. Related to this

is the notion that the autistic learner may not easily connect his or her prior knowledge

with new experiences. As one researcher puts it, "autistic learning is of a disconnected

kind and therefore pupils with autism need to be shown what connections *are* as well as

what the specific connections are within the particular learning experience with which

they are engaged".[44] Thus, going into the Museum Learners Club field study I faced a

challenge by employing a constructivist framework for learning that emphasizes prior

knowledge. As I set out my plan, I wondered, would autistic learners be able to tap their

prior knowledge? Can they learn in a social setting that is dependent upon prior

knowledge?

Further questions arose about autistic learners and Polanyi's notion of the tacit

dimension of personal knowledge. Do processing and communicative difficulties indicate

that autistic learners may not be able to merge awareness of particulars (subsidiary

awareness) into a focal awareness of the whole?[45] Could nonsocial behavior of autistic

learners such as attention deficits and perseveration indicate that autistic learners have a

preponderance of subsidiary awareness and thus difficulty with focal awareness? Polanyi

offers the example of what occurs when a person attends to particulars and the condition

known as "stage fright" results.

> The kind of clumsiness which is due to the fact that focal attention is directed to
> the subsidiary elements of an action is commonly known as self-consciousness. A
> serious and sometimes incurable form of it is 'stage-fright', which seems to
> consist in the anxious riveting of one's attention to the next word—or note or

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[43] Peters, 2000: 16 and Powell, 2000: 3.

[44] Powell, 2000: 3.

[45] Recent brain research indicates that people with autism have a tendency to focus on details and miss the big picture. See Wallis, 2006.

gesture—that one has to find or remember. This destroys one's sense of the context which alone can smoothly evoke the proper sequence of words, notes, or gestures. Stage fright is eliminated and fluency recovered if we succeed in casting our mind forward and let it operate with a clear view to the comprehensive activity in which we are primarily interested.[46]

Could one surmise that people on the autism spectrum have inordinate difficulty with realizing and rousing personal knowledge?

Autism in the Traditional Classroom

The questions raised here contribute to the vexing puzzle of how autistic people learn and what learning environments are optimal for them. In schools, students who have been deemed to have "special needs" are frequently pulled out of their regular classes and subjected to an intense prescription of objectivist teaching. As Gallagher points out:

> Students who have experienced failure in general education settings dominated by traditional teaching methods are assumed to need even more tightly controlled, incremental or disjointed instruction. The idea is, break it down even more. Rather than challenging the view of knowledge pervasive in traditional teaching as contributing to their problems, it is assumed that they can be 'remediated' (fixed or made more like everyone else) by applying the same . . . only more.[47]

These students are often isolated with special education teachers in therapeutic settings with the hopes that they will "catch up" to their peers. As many as 40 percent of students on the autism spectrum are outside the classroom for more than 60 percent of the school day.[48] Lying behind this notion is a singular paradigm for learning that does not take into consideration multiple learning styles and leaves "special needs" students feeling excluded and actually held back from realizing their potential.

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[46] Polanyi, [1958] 1964: 56.
[47] Gallagher, 2004.
[48] U.S. Department of Education, 2006: 54.

Similar exclusion occurs in the U.K. regardless of the promise of inclusion incorporated into the government's 2004 report, *Removing Barriers to Achievement* and goals of a classroom system termed "differentiation". In theory, differentiation allows effective provision for a range of abilities in one classroom by using different teaching methods and allowing students to work at their own pace. In practice, differentiation is difficult to achieve. Although there are successes, individual pupils are often separated into exclusive subgroups for learning.[49] Moreover, to achieve differentiation teachers detect a need for curricular breadth that requires resources that are not available.[50]

Although this type of "special education" has good intentions, it really equates to isolationism for students who are not typical. In the U.S., special education has become an institution increasingly separate from general education with separate training courses for teachers and separate approaches to students. It can hinder the integration of students into general classes and, by extension, into society at large.[51] In the U.K., Special Education Needs (SEN) have been overcome to some degree through differentiation but inequity still remains.

Aside from pull-outs and remedial isolation, a broad range of accommodations is available for students on the autism spectrum and over ninety percent of secondary students (ages 10-17) who are diagnosed with autism take advantage of them. These include additional time for test taking, alternative or modified tests, slower paced instruction, shorter or different assignments, and modified grading standards.[52] Thus, even though these students may sit among their non-autistic peers, they are not fully

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[49] Simpson and Ure, 1994.
[50] Ibid: 7.
[51] Connor and Ferri, 2007.
[52] Ibid: 88.

included. The only type of true inclusion offered by the schools in the United States is "geographical".[53] Even though people with differences are brought together in public settings such as school, geographically-oriented inclusion remains exclusionary.[54] "Simply allowing students to be present and visible is not the same as promoting interaction or integration. Anything short of full and meaningful participation, which will require fundamental changes in general education, violates the principles of inclusion".[55]

Even students on the autism spectrum who are high achievers on tests and other academic assessments are often ignored because they do not have the faculties for social relationships or communication. "Teachers didn't quite know how to teach me and so they didn't," claims Stephen Shore.[56] During the Museum Learners Club field study, a classroom teacher admitted that, without deleterious intent, she just did not have the time to attend to learning differences. She viewed her class of 26 students as a whole, a mass of undifferentiated learners. Her responsibilities were directed at the whole class, not the individuals that comprised it. She expressed concern that some of the well-behaved and seemingly achieving students were actually being disserved. Ignoring them increased inattention and passivity.

The overall attitude in most U.S. public schools is to rely on special education classes and avoid inclusive learning. This attitude promotes the medical perspective over the sociocultural way to view the autistic population. The medical model focuses on impairments rather than needs. As Rieser states:

> 'Medical model' thinking . . . predominates in schools where 'special educational needs' are thought of as resulting from the individual who is seen as different,

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[53] Shore, 2008a.
[54] Milner and Kelly, 2009.
[55] Connor, 2007.
[56] Shore, 2008a.

faulty and needing to be assessed and made as normal as possible. If people were to start from the point of view of all children's right to belong and be valued in their local school we would start by looking at 'what is wrong' with the school and looking at the strengths of the child.[57]

There is increasing support for the view that encourages schools to adapt to pupils and their difference, not the other way around. We should be willing to see communication failures as mutual and not merely as an effect of autism. This could result in innovative ways of communicating, not only for autistic learners but for all learners.[58] Disability theory has moved away from traditional medical perspectives to view disability "as a socially created experience of discrimination, inequality and segregation".[59]

This paper advocates the view that inclusion is a basic human right. Research presented here indicates that children on the autistic spectrum can learn in an inclusive setting. As the U.N. High Commission on Human Rights decries:

> In the past, persons with disabilities suffered from a relative "invisibility", and tended to be viewed as "objects" of protection, treatment and assistance rather than subjects of rights. As a result of this approach, persons with disabilities were excluded from mainstream society, and provided with special schools, sheltered workshops, and separate housing and transportation on the assumption that they were incapable of coping with either society at large or all or most major life activities. They were denied equal access to those basic rights and fundamental freedoms (e.g. health care, employment, education, vote, participation in cultural activities) that most people take for granted.[60]

Considering limitations and differences in a rights-based perspective, past conduct is undergoing a transformation as the United Nations recognizes:

> A dramatic shift in perspective has been taking place over the past two decades, and persons with disabilities have started to be viewed as holders of rights. This

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[57] Rieser, 2002.
[58] Alderson and Goodey, 1999.
[59] Kelly, 2005: 261. See also Connor, 2007.
[60] http://www.unhchr.ch/disability/index.htm (accessed 14 February 2009).

process is slow and uneven, but it is taking place in all economic and social systems.[61]

The Museum Learners Club plays a small but meaningful part in including a diversity of students so they can learn together.

Interventions and Learning Strategies: Behaviorism

There are numerous interventions and therapy methods that deal with development, speech, biomedical issues, and unusual behavioral characteristics of the autism community, but this paper focuses on strategies that are educationally based or that effect learning for school-aged learners. This work is not looking to mollify the condition of autism but to see how we can offer the most effective environment for learning. Learning strategies usually fall into two orientations, behavioral and developmental, although some have aspects of both. This paper will describe several well-known and currently used strategies.

Over the six decades since autism was first identified, there has been an emphasis on remedial behaviorist learning approaches. Many behavioral interventions have been developed for children with autism, and they mostly fall under the category of Applied Behavioral Analysis (ABA). This approach generally involves therapists or educational specialists who work intensely, one-on-one in a distraction-free environment to alter autistic behaviors through instructional control. The format, sometimes called the Lovaas Method or Discrete Trials, consists of an authoritative figure (teacher or therapist) providing a stimulus to the learner who, in turn, reacts to the stimulus with a response. High levels of direct reinforcement, ignoring undesirable behavior, and prompting are

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[61] Ibid.

included to develop the desired response. This results in operant conditioning of specific

behaviors and includes memorizing scripted phrases and ways of doing things, repetitive

exercises, and making eye contact. Appropriate behavior is rewarded many times with

food and praise and sometimes with aversive comments.[62] ABA and discrete trials

endure; however, there is recent interest in using more natural environments in an effort

to encourage generalization of skills to every day life.[63]

The goal of ABA is to induce socially acceptable and school-appropriate

behaviors for autistic students. This goal may be realized; however, there is growing

criticism about its limitations as a learning method. The behavioral approach is a

prescriptive, superficial system that aims to correct symptoms rather than address the

core differences that underlie unusual behaviors. It is learned behavior that is very

difficult to generalize in other situations. It rewards correct answers, teaching "right" and

"wrong," while ignoring subtle, reflective, more advanced ways of thinking. The teaching

of what is right and what is wrong may result in a disservice to the student on the autism

spectrum by discouraging flexibility and polarizing thinking.[64] Dwelling on concrete

thinking and ignoring abstract nuance reinforces the challenges of autistic learners.[65]

Furthermore, behaviorism dehumanizes individuals. Based on Skinner's work with rats

and Pavlov's with dogs, it is a mechanical process that ignores any real meaning.[66]

Michael Polanyi decries behaviorism as "trick learning" that produces contrived skills.[67]

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[62] For more on behaviorist approaches, see Jarvis et al, 2004: 24-31 and Greenspan and Wieder, 2006: 275. For instructional control, see Siegel, 2003: 436. A discrete trial is defined as a set of acts that includes a stimulus or antecedent, a behavior, and a consequence, see National Research Council, 2001: 133.
[63] National Research Council, 2001: 148, 164.
[64] Greenspan and Wieder, 2006: 118-120.
[65] This notion can be compared to Vygotsky's views on those with learning differences, see Vygotsky, [1962] 1978: 89.
[66] Sotto, 1994: 34-36.
[67] Polanyi, [1958] 1964: 71-76. See also, Sotto, 1994: 31-32.

Behaviorism is generally used in an unnatural setting and with an authority figure that focuses on individual behaviors, not relationships or creative social interaction. Students undergoing behavioral sessions are viewed as "isolated things, encapsulated in a bag of skin".[68] Even though these approaches are ubiquitous in autism treatment, research on behaviorist methods is inconclusive. They may help some but not others. Furthermore, there are indications that they are not as successful as originally alleged with only modest educational gains and little or no social and emotional benefits.[69]

Behaviorist approaches focus on the work of the "static brain" or "static intelligence" at the expense of "dynamic intelligence".[70] That is, behaviorist methods focus on static abilities such as memorizing and deductive reasoning over more flexible thinking processes that help us to confront our everyday lives such as inferencing, reflecting and synthesizing.[71] As Steven Gutstein states:

> Scores, if not hundreds, of research studies have demonstrated statistically significant outcomes gained by employing discrete learning methods and programs. However, not a single study has demonstrated whether, after thousands of hours and years of this type of intervention, [autistic] individuals are more able to obtain and keep meaningful employment, live independently, develop authentic friendships, or solve problems in a more flexible, adaptive manner.[72]

Moreover, behaviorism tends to deny the sociability of the learner. There is rarely a "suggestion that humans are social creatures, profoundly dependent on, and affected by their social environment".[73] Can this approach help children overcome challenges due to autism and learn the skills they need? If one believes that the mandate of schools is "to help children relate to others in a meaningful way, use language and ideas creatively, and

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[68] Sotto, 1994: 65.
[69] Carey, 2004 and Greenspan and Wider, 2006: 36. This conclusion has been disputed by those who defend ABA and behavioral strategies.
[70] Gutstein, 2009: 15-34.
[71] For an expanded list of static and dynamic abilities, see Gutstein, 2009: 17.
[72] Gutstein, 2009: 52.
[73] Ibid: 65. See also Greenspan and Wieder, 2006: 275.

become abstract and reflective thinkers, as well as master academic subjects," then the answer is no.[74] Considering school as a place for socially derived relating and creative thinking represents a new way of thinking that diverges from the strictures of the behaviorist paradigm. In fact, it is an "evolution in the way we conceptualize education—from teaching facts that can be memorized and regurgitated, to a truly developmental approach based on the building blocks of knowledge".[75]

Rigid teaching methods associated with Applied Behavior Analysis are being rethought. Programs have emerged such as "TEACCH" and "PECS" that are less teacher-controlled.[76] TEACCH, or Treatment and Education of Autistic and related Communication-handicapped Children, and its "Structured Teaching Method" are based on individualized assessments of a learner's strengths, learning style, interests and needs. Although it uses behavioral procedures, it adjusts them to incorporate more naturalistic and social settings.[77] The Picture Exchange Communication System (PECS) focuses on initiation of communication rather than teacher controlled responses. ABA is being combined with these and other methodologies to create hybrids as researchers find that no single method is perfectly suited to all autistic children.[78]

As with museum learning, the study and practice of learning strategies for autistic children has shed its heavy dependence on behaviorism and related transmission-absorption and objectivist teaching realizing that it is not a change in our behaviors nor is

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[74] Greenspan and Wider, 2006: 276.
[75] Ibid.
[76] Adams et al, 2004 and Siegel, 2003: 436-440.
[77] National Research Council, 2001: 14l. See also http://www.teacch.com/ (accessed 4 February 2006). For information on PECS, see http://www.pecs.com/ (accessed 4 February 2009).
[78] Siegel, 2003: 438-443.

it an ingestion of facts that leads to knowledge but experience gained from social interaction.

Learning Strengths and Styles

More recently developed learner-centered approaches lessen the authoritative role of teacher and take into consideration individual strengths and styles. As daunting as autism is, we should "never assume a ceiling on a child's abilities".[79] Autistic children can love, relate, emote, communicate, and think creatively and abstractly. The nervous system is flexible and can change, and skills can be acquired by attending to individual challenges and building on individual strengths.[80] Instead of considering autistic learners' challenges as disabilities, Stephen Shore asks, "How about looking at what they *will* be able to do?"[81]

Autistic learning styles surface when individuals overcome challenges by self-accommodation, compensation and adaptation. They can also be styles developed from specific interests and strengths. Autistic learners themselves are aware of these strengths and their learning partners need to be aware of them. Noted autistic writer Temple Grandin remarked, "the people that helped me most were the creative, unconventional thinkers. The more traditional professionals such as the school psychologist were actually harmful. They were too busy trying to psychoanalyze me and take away my squeeze machine".[82] Grandin developed a squeeze machine to help her cope with sensory issues. Later, her fixations on such machines led to a successful career inventing more humane

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[79] Greeenspan and Wieder, 2006: 125.
[80] Ibid: 12-27; 235.
[81] Shore, 2009.
[82] Grandin 2002. See also Grandin's "An Inside View of Autism" at http://www.autism.org and Prince-Hughes, 2002: xi.

chutes for cattle. Half of the cattle in North America are handled in facilities she

designed. Grandin also notes:

> As a person with autism I want to emphasize the importance of developing the
> child's talents. Skills are often uneven in autism, and a child may be good at one
> thing and poor at another. I had talents in drawing, and these talents later
> developed into a career in designing cattle handling systems for major beef
> companies. Too often there is too much emphasis on the deficits and not enough
> emphasis on the talents. Abilities in children with autism will vary greatly, and
> many individuals will function at a lower level than me. However, developing
> talents and improving skills will benefit all.[83]

Every autistic person learns in a certain way that results from his or her strengths

coming to the fore. Many autistic learners develop their learning styles through

characteristic ways that do not depend on abstract, invisible or temporal concepts but

rather through innate strengths in auditory and procedural memory, visual-spatial

understanding and visual-motor coordination—that is, through the concrete, the visual

and the spatial.[84] It is important to identify and capitalize on the strengths rather than the

disabilities for increased success at learning. People on the autism spectrum are special

learners that need custom tools. Regardless of this, they are valid learners and can be

contributing partners in the learning process. They are not dislike learners written about

by Howard Gardner who display intelligences divergent from typically expected

linguistic and logical-mathematical minds.[85]

Interventions and Learning Strategies: Using Social Interaction

It has been argued that people on the autism spectrum cannot learn through social

means. Some educationists have attempted to adopt an asocial autistic style of thinking

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[83] Adams et al, 2004.
[84] Siegel, 2003: 78.
[85] See Gardner, 2006b and 1993 for his theory of multiple intelligences.

and therefore avoid social contexts for learning. They "teach" via computer programs for example, or stand aloof, directing lessons from behind the student. Studies have found, however, that facts and concepts learned asocially may remain as disparate, disconnected pieces of knowledge.[86] Social contexts for learning may hold critical value for autistic learners as long as they are contexts that are tuned to their specific needs.[87] As Greenspan and Wieder have discovered, "We have never worked with a child, teenager or adult who didn't have a desire to relate to others".[88] "An individual's patterns of avoidant, antisocial, or unusual behavior are related to his unique nervous system and shouldn't be taken an indications that he can't become more flexible or doesn't want to interact".[89]

Much research has moved away from asocial approaches and has found success with social interaction and student-led initiative in learning. One example, "intensive interaction," uses an "intuitive pedagogy" akin to child-led interactive style of parenting.[90] In "intensive interaction," the autistic learner is active, intrinsically motivated and an equal participant in learning activity.[91] This kind of intervention is valid not only with parents in the home but also for school-aged learners away from home. Using a similar premise, practitioners in the field have found that successful learning can arise from interaction between student-teacher partners in situations where both are learners. These situations are described using constructivist learning principles—they focus on the learner, not the teacher in situations where learning is an active participatory process and in which the learner shares control.[92]

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[86] Prevezer, 2000: 57.
[87] Nind, 2000a: 46-47.
[88] Greenspan and Wieder, 2006: 231.
[89] Ibid: 234-235.
[90] Longhorn, 2000: 44-46.
[91] Nind, 2000a: 46-49.
[92] Ibid.

Socially dynamic learning approaches are gaining influence. They consider

individual strengths and include a developmental component. Working on the learner's

developmental level through scaffolding and social interaction they seek to increase skills

in all aspects of learning. Learners' preferences guide the activities. Naturally occurring

reinforcers such as a sense of mastery and efficacy in functioning provide motivation.[93]

Participatory, active and guided by the learner, this type of learning is preferred over a

stimulus-response process because not only is it more enriching, but it is important for

brain development as it reorganizes brain capacity for better functioning. Moreover, self-

initiated problem solving not only allows for active responding but also enables the

development of personal knowledge.[94] Extending this idea, it would seem that a context

for learning that does not depend on instruction could be advantageous for autistic

learners. As one researcher put it,

> It may be the case that those with autism can learn (as is evidenced by their
> behavior in non-academic settings) but may not be receptive to being taught. It
> follows from this that teachers might usefully conceptualize their task as being
> one of finding ways of enabling learning rather than of organizing teaching.[95]

Notable developmentally oriented strategies such as Stanley Greenspan and

Serena Wieder's DIR (developmental, individual-difference, relationship based) and

Steven Gutstein's RDI (relationship development intervention) use complex social

interactions for learning and skill building. These programs differ from behaviorism in

that they are customized approaches that attend to individual strengths, they make

accommodations for sensory issues and they focus on naturalistic or incidental learning.

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[93] National Research Council, 2001: 136.
[94] Siegel, 2003: 39-40; Powell, 2000: 11.
[95] Powell, 2000: 118.

Goals for these programs include acquiring communicative, relational and problem solving skills above acquiring facts and displaying correct responses.[96]

Based on the view that our cognitive abilities grow with our social relationships, Greenspan and Wieder's DIR model stresses the need for a continuous flow of interaction that includes meaningful exchanges. Each DIR experience is customized for individual skills and interests and encourages special talents and sharing. Activities take place one-on-one and in groups where participants can gain a group identity and gain cognitive advances through dialogue and reflection.[97] Gutstein and Sheely's RDI program focuses on trying to recover developmental foundations through social interaction that leads to the ability to engage in spontaneous, dynamic and fluid peer interactions. Gutstein sees the core challenges of autism as rigid thinking, aversion to change, inability to understand other's perspectives, failure to empathize, and absolute, "black-and-white thinking".[98] Both approaches help learners to reach higher developmental stages through increasingly complex social interaction.

In recent studies, Gutstein has expanded his program of study to unite autism intervention with Vygotsky's zone of proximal development and strategies of apprenticeship learning. Coupling these with brain-based educational research, Gutstein sees that those on the autism spectrum need specific types of experiences to foster the neural integration that they lack. The optimum learning experiences afford cognitive challenge through guided participation in a non-threatening environment. Borrowing the notion of guided participation from Rogoff, Gutstein believes in a collaborative learning

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[96] Greenspan and Wieder, 2006: xiv.
[97] Greenspan and Wieder, 2006: 178-182 and 230-235.
[98] Gutstein and Sheely, 2004.

relationship and bases his RDI program on "GPR" or guided participation relationship.[99] This parallels my research on Vygotsky, social constructivism, and apprenticeship learning informed by Rogoff, Lave and others.

Regardless of the variety of approaches, there are consistencies across programs. These include focuses on communication, social engagement and interactions, predictable routines and a goal of inclusion.[100]

SCERTS: An Approach Compatible with the Museum Learners Club

After years of work in the autism field, and upon the 2001 call for innovative educational models by the National Research Council, a group of researchers and practitioners developed what they term a "next generation" model for learning: SCERTS.[101] SCERTS is based on a developmental framework that involves successive stages of growth in communicating and relating to others and improving the ability to regulate emotional arousal. The acronym represents the primary developmental dimensions: SC—Social Communication; ER—Emotional Regulation; and TS—Transactional Supports. The approach has been called a demonstration of "respect-in-practice"[102] and is compatible with inclusive learning in schools and other settings.

SCERTS principles include a focus on learners' strengths, dependence on social interaction for learning, naturalistic environments and a semi-structured pedagogy. As such, SCERTS is also compatible with the constructivist community of practice framework of the Museum Learners Club. I have taken a closer looks at the SCERTS

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[99] Gutstein, 2009: 61-64.
[100] National Research Council, 2001: 159-162; 221.
[101] Prizant et al, 2002: 18. An overview of SCERTS can be found on the SCERTS Web site at http://www.scerts.com/the-scerts-model (accessed 3 February 2009).
[102] Gray, 2002: 1.

because of its efficacy in a variety of learning environments (school, community, home) and because it may be an approach that can be combined with a school-museum collaboration.

SCERTS is based on the premise that learning occurs in social contexts and that people learn best in everyday routines and a variety of social situations. They do not learn in isolation but rather in natural activities that encourage active participation. SCERTS research has found that "natural routines across home, school, and community environments provide the educational and treatment contexts for learning and for the development of positive relationships".[103] Active engagement is especially appropriate for learners on the autism spectrum due to their propensity for repetitive behaviors. As SCERTS research contends: engagement helps with brain development; autistic behaviors do not.[104]

To keep learners engaged, SCERTS recommends capitalizing on each student's learning style rather than on remediating his or her weaknesses. "A child's unique learning profile of strengths and weaknesses plays a critical role in determining appropriate . . . teaching strategies".[105] A uniform, standardized curriculum that incorporates standardized testing is not appropriate.[106] Rather, SCERTS outcomes are based on the degree of participation and success in everyday communicative exchanges.

> In demonstrating a child's progress and the effectiveness of an educational approach, it is important to go beyond traditional static measure, such as improvement on standardized tests or school placement. Examples of broader and more dynamic measures include degree of participation and success in everyday communicative exchanges; related dimensions of emotional expression and regulation; social-communicative motivation; social competence; peer

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[103] Ibid: 18.
[104] Wetherby, 2007.
[105] Prizant et al, 2006a: 18.
[106] Ibid: 15.

relationships; competence and active participation in natural activities and environments; and, ultimately, the ability to make important short- and long-term decisions about one's life.[107]

SCERTS measures progress with eight Social-Emotional Growth Indicators: Happiness; Sense of Self; Sense of Other; Active Learning and Organization; Flexibility and Resilience; Cooperation and Appropriateness of Behavior; Independence and Social Membership; and Friendships. In addition to these learner variables, assessment extends to a measurement of positive educational effects: 1. Gains in initiation of spontaneous communication in functional activities; 2. Ability to remain well regulated in the face of challenges to emotional regulation; and 3. Generalization of newly acquired skills across activities, partners, and environments. "The ultimate goal is for children to be able to participate more successfully in developmentally appropriate activities with adult partners and peers in a variety of settings".[108]

SCERTS: The SC, ER and TS

SCERTS cites the core challenges of autism as social communication (SC) and emotional regulation (ER) and combats these challenges with transactional supports (TS), otherwise known as "teaching strategies".[109] The challenges are manifested as difficulty with developing socially conventional means of communicating; difficulty with sensory processing and exhibiting unusual reactions to stimuli; and motor planning discrepancies in the areas of speech and physical coordination that may cause confusion and/or anxiety.

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[107] Ibid: 16-17.
[108] Ibid: 17.
[109] Wetherby, 2007.

Social communication is ranked as the highest priority. Emotional regulation is the second priority.[110]

Social Communication deals with joint attention, responding to others and being socially reciprocal, sharing and using gestures and language in socially meaningful ways. Effective social communication leads to participation and, as discussed in Chapter 3 on Intellectual Framework, participation *is* learning. The SCERTS learning method recognizes the need to increase the frequency and efficacy of social experiences.[111]

Emotional regulation involves the ability to attend, remain socially engaged, to process information and actively participate in a comfortable manner. Autistic learners may have some difficulty maintaining an optimal state of arousal. Neither too much nor too little arousal is conducive to learning. It is essential to maintain a balance that makes activities predictable yet flexible enough to allow for autistic characteristics.

Transactional Supports comprise the situational framework for learning and pedagogical strategies. They involve a social context with natural activities. "Naturalness" in this case refers to "whether an activity or event designed for learning already occurs or can be scheduled to occur as a regular routine in a child's life experiences across a number of different partners, contexts, or environments". Transactional Supports also include interpersonal learning with teachers, caregivers and peers. Included in this notion of interpersonal learning are partnerships with more expert learners operating within the Vygotskian zone of proximal development.[112] The expert should be a sympathetic partner because, as other children, those on the autism spectrum "seek out those people who are most intuitive, understanding, and able to take the

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[110] Prizant et al, 2006a: 14.
[111] Ibid: 20.
[112] Ibid: 76-78, 130.

perspective of others. The most successful interpersonal interactions that occur . . .

include partners who are able to take the time to consider, 'If I were this child, how

would I feel, or what would I be thinking right now?' "[113] Expert partners should use

facilitative rather than directive styles that give the student more control in the area of

communication. This will yield greater success in initiating social communication.[114]

The idea of "transactional" strategies is based on work by psychologist Arnold

Sameroff in his 1987 *Transactional Model of Development* that recognizes children learn

through social engagement and that all development is integrated including social,

emotional, communicative, cognitive and motors skills. Defining characteristics of the

SCERTS approach have been strongly influenced by principles from Sameroff. These are

enumerated in the following list:

1. A child is viewed as an active learner who learns best through creative problem solving and social engagement.
2. All aspects of development are related; this includes social, communicative, academic, motors skills and emotional aspects.
3. Inclusion with non-autistic peers in natural settings provides good models and benefits both autistic and non-autistic learners.
4. Transaction extends from teachers and other professionals to all caregivers and family.[115]

These principles are employed in a "semi-structured" manner. SCERTS does not

totally rely on a child-initiated focus but instead establishes some structure that promotes

more social interaction. This semi-structured approach offers consistency and

predictability where needed yet includes flexibility and learner initiation where

appropriate. The SCERTS learner is given clear expectations and anticipated format but

not strict or prescriptive teaching. Lectures and transmission-absorption styles of teaching

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[113] Ibid: 77.
[114] Ibid: 119-121.
[115] Ibid: 6-7.

are not advised for those who may have difficulty processing complex language and non-verbal behavior. As SCERTS founders write, ". . . it is our experience that an over-reliance on prescriptive teaching practices perpetuates social and cognitive inflexibility, which is such a challenge for many children with ASD who are predisposed to interacting, learning and behaving in inflexible ways due to their learning style and the very nature of their disability".[116] Reviewing the careful balance between structure and flexibility, SCERTS is described in the following passage:

> Activities are designed to be consistent and predictable, with an overriding priority on social communication, social and emotional reciprocity and creative problem solving fostered in the context of meaningful activities, shared enjoyable experiences and *shared control*. Shared control involves two or more partners having opportunities for turn-taking and choice-making, with the ultimate goal of each partner developing the capacity to follow the other partner's agenda. In this manner, the model is flexible and responsive, allowing partners to capitalize on a child's motivation, spontaneous communication and 'teachable moments.'[117]

Significantly for the Museum Learners Club, and for other school or museum-based learning initiation, the SCERTS approach is adaptable and can incorporate other practices that are philosophically consistent and have similar core values.[118] SCERTS also fits into the philosophy of inclusive education.[119]

The SCERTS method employs an inclusive and multisensory approach that compares favorably with the Museum Learners Club pedagogy. The approach encourages the MLC community coordinator to pay attention to states of arousal and learners' ability to participate. She must be flexible and responsive in order to provide a supportive framework for learning. Structure, consistency and predictability along with flexibility

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[116] Prizant et al, 2002: 17.
[117] Ibid.
[118] Ibid: 18.
[119] University of Connecticut, 2007: 15-16. SCERTS has been introduced into general education classes so learners on the autism spectrum can progress with their non-autistic peers.

and responsiveness are hallmarks of the "semi-structured" SCERTS and, in turn, the MLC.[120] Specific tactics of a multisensory approach include monitoring stress levels and maintaining a quiet or calm learning environment if needed and providing a combination of temporal, procedural, spatial supports and visual supports. These take the form of schedules, routines, checklists, verbal and visual reminders and reinforcement and ways to organize the environment that will make learners comfortable and reduce distractions.[121]

Museum Learners Club Strategies and Goals Based on Autism Research

The Museum Learners Club is based on theories of knowledge and learning and aspires to be an environment for inclusion. It is not a learning program or intervention for those on the autism spectrum. Autism interventions and learning programs like SCERTS follow complicated structures and employ experts and scholars in the field of autism research, communication disorders, developmental disabilities, child psychology, social work, neuroscience, and related disciplines. The Museum Learners Club research has not included profound study in those areas. Nevertheless, its design incorporates the general principles of developmentally oriented interventions that focus on socially dynamic learning.

The Museum Learners Club considers both Greenspan and Wieder's set of learning challenges as displayed in Fig. 4.1, along with SCERTS strategies for teaching that place social communication and emotional regulation as priorities. The synopsis in

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[120] Prizant et al, 2006a: 12-13.
[121] Myles et al, 2006 and Moore and Overstreet, n.d.

Fig. 4.2 illustrates how the Museum Learners Club views and responds to symptoms of autism within the learning environment.

SCERTS Priorities	Associated Symptoms	MLC Response
Social Communication: Ability to attend jointly	Exaggerated reactions or avoidance of social situations	Be patient; incorporate as you can; customize your approach
Ability to respond to others in meaningful ways	Illogical use of ideas, echolalia, repeating scripted language	Model and scaffold appropriate social communication
Emotional regulation: Ability to attend and participate comfortably	Aimless, random or self-stimulatory behaviors; self-absorption or withdrawal	Consider this behavior as a form of communication; alter routine to promote interest in the learning issue at hand
Maintain optimal state of arousal	Impulsive or repetitive behaviors (perseveration)	Turn unusual behavior into a strength; discuss special interests

Fig. 4.2 Museum Learners Club responses to autistic learning challenges

Elements of the Museum Learning Club can also be compared to the teaching strategies, or transactional supports of SCERTS as shown in 4.3.

SCERTS	MLC: A Constructivist Community of Practice
Transactional Supports: Social context and interpersonal learning based on Vygotsky	Social context Social constructivism of Vygotsky
Facilitative learning (not directive)	Community coordinator/constructivist facilitator
Natural and inclusive setting and activities	Learning outside the class in museums, inclusive and equitable participation

Fig. 4.3 Comparison of SCERTS transactional supports with Museum Learners Club strategies

The comparison of SCERTS elements with those of the Museum Learners Club indicates a similarity with regard to underlying philosophies of learning. The social aspect and facilitative nature of the community of practice and the constructivist focus on learners' interests and knowledge appears in both.

The increasing expectation that developmental, socially-based and constructivist learning environments are good options provides wide-ranging hope for autistic learners who have been relegated to isolated special education classrooms or behaviorist therapy sessions. The conviction that everyone should have a chance to learn commands that appropriate social settings and learning tools should be made available. As George Hein wrote:

> A belief that all children can learn is more compatible with a constructivist view of learning than it is with a didactic one that assumes knowledge has an existence independent of the learner and learners are passive recipients of that knowledge. The traditional view, with its focus on possible deficiencies of the learner, easily accommodates notions of the hereditary properties of intelligence, the need to restrict access to complex curriculum for some learners, and a focus on 'lower-level' skill acquisition by specific students. Conversely, the acceptance of the idea that all learners construct meaning and that all knowledge builds on the conceptions already in the minds of learners (if it is coupled with a belief that all humans do acquire such experiences) will focus more on universal educability and the value of what people already know.[122]

Reflecting on the challenges faced by autistic learners, I am bolstered by the convictions of Michael Polanyi who was not dissuaded by steadfast rules made by men nor by laws of chemical and physical processes that dictate thinking. We must search for new possibilities that can overcome restraints, and we must look at the whole, not the parts, to recognize that there is more to biological organisms that is not explicable in chemical and physical terms and laws.[123] I am also encouraged by the ways autism learning research dovetails with the philosophies and theories that buttress the Museum Learners Club whose framework for action will be detailed in the next chapter.

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[122] Hein, 1998: 98-99.
[123] Prosch, 1986: 125-126.

Chapter 5   Theory into Practice: The MLC Research Framework

This chapter describes the steps taken to develop a cohesive framework for field research from a complicated theoretical base. It represents the intermediary stage between theory and practice. The research did not lie in observing random museum visitors in museums. It involved the creation and cultivation of the Museum Learners Club, a "constructivist community of practice". Its origins are found in my inquiry into knowledge—how it is created and how it is gained through a social system. The framework incorporates a context for interaction, an appropriate situation for learning and a pervasive pedagogy.

The context for interaction for the Museum Learners Club is firmly based on Wenger's community of practice and successive concepts of educational design and learning architecture that Wenger includes in his 1998 treatise. The community of practice base overlaps other concepts of learning design found in apprenticeships, situated learning and various approaches from the field of knowledge management. It shares characteristics with conceptual and instructional models based on Polanyi's philosophy of personal and communal knowing. Like any cultivated community of practice, the MLC provides a sociocultural framework within which one can study the learning process.

The appropriate situation for learning is found outside the classroom, in museums and related locations. The situation is not a definitive separation from school learning. It embodies a synthesis of school and museum processes that I envision as a museum-

school hybrid. It is influenced by Wenger's educational design and by the related concepts of situated learning and cognitive apprenticeships.

Pedagogy that supports the Museum Learners Club is derived from the learning methodology of communities of practice and gains further depth from cognitive apprenticeships, communities of learners, and constructivist learning theory (especially that of social constructivist Lev Vygotsky). The constructivist view of learner-centered pedagogy and the primacy of prior knowledge are crucial elements in the MLC.

The aim of this chapter is to connect these strains so the reader will understand the research frame as a purposeful structure for learning within a naturalistic context for participation and identity formation supported by an organized pedagogy. This structure sustained the Museum Learners Club during the research period. I also took into consideration the flexible nature of the community of practice model and views of Polanyi that stress a natural emergence of knowledge from quotidian activity. At many junctures, and even randomly, structure dissolved and the ordinary course of life took over. The Club capitalized on the pedagogical aspects that are inherent in everyday life,[1] and participants were able to use naturalistic sources of information to develop skills relevant to them.[2] Thus, although the MLC was carefully planned and designed, it allowed serendipity and even thrived upon it.

The final section of the chapter delineates the merits and salient characteristics of qualitative research used during the course of the MLC field study. Looking at learning through the lens of the ethnographer is a natural and reflexive way of considering data. I

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[1] Wilson, 2000: 113-114.
[2] Gardner, 1993: 7.

believe that ethnography of this sort yields a clear picture of how human beings are able to develop identities and learn through participation.

The Non-Design

What is the basic challenge when designing a framework for learning? The concept of design connotes "a systematic, planned, and reflexive colonization of time and space in the service of an undertaking".[3] That is the way I approached the challenge; however, there is an inherent uncertainty of design in any community of practice since practice is not the result of design but a response to it.[4] In the end, a design may set up a certain framework but the framework will always be negotiable in practice. Social interactions cannot always be predicted; identity formation cannot be regulated; and learning can occur where it is least expected. Wenger understands that "learning cannot be designed. Ultimately, it belongs to the realm of experience and practice. It follows the negotiation of meaning; it moves on its own terms. It slips through the cracks; it creates its own cracks. Learning happens, design or no design".[5]

The biggest challenge when it comes to designing a social system for learning lies in the paradox that although there is an inability to create a firm learning system, there remains a need for one. As Wenger states, ". . . there are few more urgent tasks than to design social infrastructures that foster learning".[6] The Museum Learners Club is one such infrastructure.

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[3] Wenger, 1998: 225.
[4] Ibid: 223.
[5] Wenger, 1998: 225.
[6] Ibid.

Models from Organizational and Knowledge Management Theory

Many theorists who design social learning systems are based in the field of knowledge management. They view business organizations as social collectives where people *learn together*. Their research motivated the design of the Museum Learners Club.

In today's "knowledge society," business theorists realize that workers' knowledge, or "intellectual capital," is a company's greatest asset.[7] It is a commodity not viewed as an accumulation of facts and information but as "*experience that can be communicated and shared*,"[8] and deployed through social processes to contribute to an expanding knowledge base. Companies that take advantage of their intellectual capital by becoming "learning organizations" are the first to innovate and develop better products. Peter Senge describes them as ". . . organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together".[9] The success of these organizations is based upon their ability to act as social learning systems.[10]

To encourage organizational learning, business leaders create participatory environments. They cite Michael Polanyi's philosophy that discerns the differences between explicit and tacit knowledge. They contend with making explicit knowledge

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[7] Management theorists and strategists use terms such as "knowledge age," "knowledge society," and "knowledge economy" to describe today's dependence on knowledge as the primary asset of a corporation. See Drucker, 1993, 1994, 1998, 2000; Burton-Jones, 1999; and Allee, 1997 for some accounts. Peter F. Drucker is credited with originating the term "knowledge worker" and starting multifold discussions about the "Knowledge Society". For a discussion of the knowledge worker's place in the Knowledge Society see Drucker, 1994.

[8] Allee, 1997: 42.

[9] Senge, 1990: 3.

[10] Wenger, 2000: 225.

more useful and grapple with the challenge of teasing out tacit knowledge, knowing that harnessing tacit knowledge is pivotal to being more innovative and competitive.

Consider the figure below that illustrates the multidimensional range of knowledge. It shows a continuum indicating the relative dominance of tacit and explicit knowledge found in organizations (or in schools or any social situation). The continuum ranges from ineffable knowledge that is impossible to articulate to a point where there is a strong personal component to knowledge that is difficult to express. It continues toward a situation where experts can share tacit knowledge due to their common experience and finally to a place where there is little tacit knowledge and the existing knowledge is widely held by many. The figure reflects Polanyi's belief that, to a certain degree, all knowledge includes a measure of tacitness.[11] Organizational theorists understand the components of this knowledge continuum and develop ways to reap the value of tacit knowledge in their designs for organizational learning.

Dominance of Tacit Knowledge---Dominance of Explicit Knowledge
Ineffable   *highly personal*   *known to experts*   *known to all*
(Cannot be articulated)   (Difficult to articulate)   (Able to be shared)   (Common knowledge)
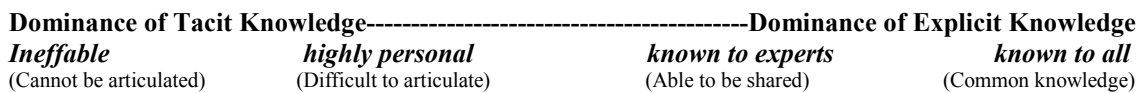
Fig. 5.1 Tacit and explicit dimensions of knowledge[12]

The SECI Model: Creating Knowledge in Practice

There are many designs for learning environments found in knowledge management literature. This paper discusses models from Nonaka, Takeuchi and Wenger to show how theorists have tried to promote and enable learning in organizations. The

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[11] Grant, 2007: 178.
[12] Figure adapted from Grant, 2007: 177.

first examples issue from Nonaka and Takeuchi's theory of knowledge conversion as remarked upon in Chapter 3. This theory of knowledge conversion is also known as the SECI model and is associated with a range of practical approaches that can be employed in organizations. The acronym SECI represents four processes involving explicit and tacit knowledge: socialization, externalization, combination, and internalization. Nonaka, Takeuchi and their colleagues liberally discuss actual instances of practical application of SECI in books and articles.[13]

For Nonaka and Takeuchi, learning arises from interactions between tacit and explicit knowledge in a social situation. In the SECI model, four modes of knowledge conversion provide the impetus for the expansion and creation of knowledge. These four modes are what an individual experiences when tacit and explicit knowledge interact with each other in organizational activities: 1. *Socialization*—the conversion of tacit knowledge to tacit knowledge; 2. *Externalization*—the conversion of tacit knowledge to explicit knowledge; 3. *Combination*—linking explicit knowledge to explicit knowledge; and 4. *Internalization*—the conversion of explicit knowledge to tacit knowledge.[14] It is helpful to visualize these modes in graphic form as Nonaka and Takeuchi do (see Fig. 5.2).

Essentially*, socialization* is a shared experience that does not depend on language, a co-mingling of tacit knowing that might be compared to what occurs during a craft apprenticeship. It causes greater understanding, but is not articulated. *Externalization* is brought about by the use of metaphors, analogies and verbally expressed mental models, and comes about through dialogue or collective reflection. Among the four knowledge

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[13] For an example, see Nonaka and Takeuchi, 1995: 95-123.
[14] Takeuchi and Nonaka, 2000.

conversion modes, externalization is the most important for knowledge creation because it creates new explicit knowledge from tacit knowledge.[15] *Combination* combines different bodies of explicit knowledge, documents and databases for example, and is akin to the way we learn through formal education. *Internalization* takes place when we incorporate tacit knowledge into our knowledge base and parallels "learning by doing".[16]

	Tacit Knowledge To Explicit Knowledge	
Tacit Knowledge	**Socialization**	**Externalization**
Explicit Knowledge	**Internalization**	**Combination**

From

Fig. 5.2 Four Modes of Knowledge Conversion, the SECI Model[17]

Socialization and combination, the two conversion modes that link tacit with tacit and explicit with explicit, are limited forms of knowledge creation that have predictable value for the organization. During externalization and internalization when tacit and explicit interact with each other, organizational knowledge is created that stimulates innovation. These are the situations where new, inventive and highly valuable

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[15] Criticisms of Nonaka and Takeuchi contend that regardless of the means of creating and transferring knowledge, some knowledge always remains tacit. See Muñoz et al, 2009: 26-27.
[16] Takeuchi and Nonakja, 2000: 147-56.
[17] Nonaka and Takeuchi, 1995: 62.

organizational knowledge come about through a continuous and dynamic interaction between tacit and explicit knowledge.

To create a functional design for learning based on the SECI model, Nonaka and several colleagues add a knowledge strategy and a series of knowledge enablers that support knowledge creation. At the core of their design is an enabling context, a social situation based on the Japanese philosophical concept of *ba*.[18] *Ba* is more or less equivalent to the English word "place" and is conceived of as a platform for advancing knowledge. "*Ba* can be thought of as a shared space for emerging relationships. What differentiates *ba* from ordinary human interaction is the concept of knowledge creation".[19] Within the enabling context of *ba*, Nonaka sees small groups he calls "microcommunities of knowledge" working together to create knowledge.[20] These groups, made up of five to seven people each, can occur naturally or can be intentionally formed. The people within a microcommunity "indwell" or "live with" a concept together.[21] They share tacit knowledge through observation, narration, imitation, experimentation, and joint execution.[22] Additional enablers round out the work of the microcommunity. These enablers include instilling a knowledge vision, facilitating conversations, mobilizing people designated as knowledge activists and globalizing local knowledge.

The knowledge work rooted in the microcommunity continues in what is called a "knowledge spiral" through successive organizational levels in phases that connect the

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[18] Nonaka and Konno, 1998.
[19] Ibid: 40.
[20] Von Krogh et al, 2000: 14, 83.
[21] Ibid: 55.
[22] Ibid: 82-84.

work to the four modes of knowledge conversion.[23] In phase one (through socialization), a team of individuals produces a shared mental model. In phase two (through externalization), a dialogue articulates a new concept. In phase three, the organization's mission and vision dictates the validity of the concept. In phase four (through combination), an archetype or model operating mechanism is built. In phase five the new concept moves to a new cycle of knowledge at a different ontological level within the organization (intraorganizationally) and between organizations (interorganizationally) triggering new knowledge creation. This knowledge conversion process is a dynamic context-driven situation for learning and innovation.

One can see in these conceptions that, like Polanyi, Nonaka and his colleagues place great value on the interplay between explicit and tacit knowledge within a social unit. Business organizations utilize both dimensions; however, to advance as innovators they must realize the potential of tacit knowledge. The most successful organizations "nurture this tacit knowledge; they enable its sharing and use; they get it out of individual minds into a social environment; they turn individual creativity into innovations for everyone. In short, they engage in unlocking the mysteries of tacit knowledge—to their advantage".[24]

Although the Museum Learners Club is not associated with a business organization, nonetheless it resembles a microcommunity within a *ba*. Participants "live with" the concept of learning in museums and relate together in a shared space where tacit knowledge can flourish and proliferate. A knowledge activist—in the MLC case, a

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[23] Nonaka and Takeuchi, 1995: 70-73.
[24] Von Krogh et al, 2000: 264.

community coordinator—instills a mission for the group, creates enjoyable activities and facilitates dialogue to enable learning.

Nonaka and Takeuchi offer two additional practical approaches for knowledge creation in organizations based on their theory of knowledge conversion. One they call a "hypertext organization" and the other, a "middle-up-down management process". The hypertext organization is a synthesis of two business entities that stand in opposition to one another: bureaucracy and task force.[25] Whereas a bureaucracy is formalized, centralized, standardized, hierarchical and marked by routine, a task force is organic, participatory, flexible, adaptable and non-hierarchical. The conscious mingling of characteristics from these two forms creates a hybrid that utilizes the four types of knowledge conversion. The bureaucratic qualities are suited for internalization (the conversion of explicit to tacit knowledge that generates operational knowledge for the organization) and combination (the conversion of explicit to explicit knowledge that generates systemic knowledge for the organization). The way a task force behaves induces socialization (the conversion of tacit to tacit knowledge that generates sympathized knowledge for the organization) and externalization (the conversion of tacit to explicit knowledge that prompts new concepts).

One can surmise that the four conversions within the hypertext organization produce a mosaic of explicit and tacit knowledge similar to a hybrid of museum-school learning that relies on both formal teaching with explicit concepts and informal learning that develops from tacit sharing. This type of synthesis is reflected in the Museum Learners Club because of its ties to the formal and standardized school curriculum and to

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[25] Nonaka and Takeuchi, 1995: 160-196.

the more creative and more flexible tasks it has before it, as a small participatory group learning on its own.

Nonaka and Takeuchi's middle-up-down management process is reflected in the Museum Learners Club in a similar way. Traditional management models of "top-down" and "bottom-up" chains of command both neglect the fact that knowledge takes place at the group level, through dialogue.[26] In the top-down method, top management creates concepts and lower members of the organization implement them. Only the people at the top are allowed to create knowledge utilizing the conversions of internalization and combination and emphasizing explicit knowledge. In the bottom-up method, knowledge is created and controlled at the bottom where autonomy, not interaction is the operating principle. At the bottom, tacit knowledge is emphasized as socialization and externalization conversions take place.

Nonaka and Takeuchi argue that middle managers can be knowledge engineers who balance the four conversion processes in the middle-up-down scheme. In a sense, participants of the MLC field study acted as middle managers to combine the forces of top-down and bottom-up approaches. They abided by the classroom rubric (an unavoidable explicit document) and at times relied on the community coordinator in a top-down manner. On the other hand, they shared thoughts, ideas and individual expertise through dialogue and joint activity in very tacit ways.

Applying their theory of explicit-tacit knowledge conversion to usable models, Nonaka and his fellow researchers attempt to find or create the ideal locus for learning— a place where explicit and tacit evolve to produce new knowledge. One of their champions, Peter Senge, whose work on learning organizations is widely read, sums up

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[26] Ibid: 124-159.

their work with a comparison to the view of John Dewey that not only commends

Nonaka and Takeuchi but also points out the pitfalls of traditional behaviorist education:

> I agree very strongly with Nonaka and Takeuchi's view that all learning involves explicit knowledge and tacit knowledge. A very simple way to say that is that all learning involves thinking and acting. This view that learning involves thinking and acting goes back, in the west, to John Dewey, one hundred years ago. If there is no acting there is no learning. If there is no thinking, there is no learning. That is part of the problem with behaviorism. It is just focused on acting. It does not deal with the conceptualizing or sense making that is also essential for learning. I really like Nonaka and Takeuchi's framework. I think the reason these are good ideas is that they are foundational. It is foundational to talk about learning as a process that involves thinking and acting, explicit knowledge and tacit knowledge.[27]

In the end, we can view Nonaka and Takeuchi's knowledge conversion as a

learning process that activates new knowledge. It happens in microcommunities, in larger

communities throughout organizations and it happens in the Museum Learners Club. The

process was instrumental in helping me see how knowledge is mobilized and made

relevant.

Communities of Practice

The discussion about Nonaka and Takeuchi's SECI model shows how

organizations propagate knowledge by developing enabling architectures that use social

strategies.[28] Whether these architectures are a series of micrcocommunities, hypertext

organizations or middle-up-down management schemes, they are all built upon similar

premises that deal with ways to use existing knowledge and create new knowledge. The

enabling architecture that originates from the field of knowledge management and is most

relevant to the Museum Learners Club is the application of communities of practice. This

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[27] Senge, 2000: 55-56.
[28] Brown and Duguid, 1998: 103.

concept is set forth by Wenger and his fellow researchers who, like Nonaka and Takeuchi, believe that knowledge created in organizations leads to competitive advantage. Wenger advocates giving communities of practice a central role within organizations and cultivating them to create ideal learning environments.[29] The organization is thus reconceived in a noncanonical way as a "community-of-communities".[30]

The cultivation of a community of practice—really a microcommunity of practice as the size of my research model matched Nonaka's ideal—was the heart of the Museum Learners Club enterprise. In organizations, these communities are horizontally positioned groups that capitalize on social interaction to stimulate knowledge creation and innovation. Innovation arises from the communities not because workers are being managed in a hierarchy but because they are allowed to participate in a more natural social context that generates new ideas from existing personal and tacit knowledge of community members. My research shows how the example of communities of practice can be transposed to learning in a museum setting where learning supersedes teaching.

I designate my learning framework a "constructivist community of practice" after its primary influences; however, it derives its shape and process from many sources. Nonaka and Takeuchi's theory of knowledge conversion and their practical approaches helped build its foundation, one that lies on the interface of explicit and tacit knowledge. Brown, Duguid and Collins along with Lave and Wenger helped guide what began as an idea for business organizations into a universal environment for learning that shares characteristics with apprenticeships. Vygotskian scaffolding techniques and constructivist

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[29] Wenger et al, 2002.
[30] Brown and Duguid, 1991.

principles from museum research helped form the pedagogy. The basis for it all lies in

Polanyi's philosophy of personal and communal knowing. Culling ideas from these

various sources, I developed a workable framework for learners on the autistic spectrum

and their non-autistic peers. It is an environment that not only nurtures learning but also

promotes inclusion.

The constructivist community of practice is laid out in detail here in three

sections. The first discusses its context that is heavily dependent upon the learning theory

of communities of practice. The second discusses the situation in which the community

operates: a museum-classroom hybrid. The third discusses pedagogical strategies that

stem from constructivism, apprenticeship learning, and related concepts.

The Community of Practice as a Context for Learning

The context for learning is a joint venture, a communal enterprise, a *ba*, a

situation where we act together. For this, we need to have or create a common framework

for participation and coordination of activity that respects and is compatible with

learners' existing knowledge and enables the creation of new knowledge.[31] The Museum

Learners Club provides this framework in the form of a cultivated and complex

community of practice. This community offers appropriate activity and challenge for

participants who each have their own personal knowledge, who may be members of the

same or disparate interpretive communities, and who have different levels of

understanding and cognitive development. In addition, the challenging makeup of the

community, with learners on and off the autistic spectrum, calls for increased flexibility.

The design of such a community of practice at first seemed daunting, but by

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[31] Rogoff and Gardner, 1984: 97-98.

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incorporating sound principles that allow for adaptation it becomes a successful frame for learning, one that is complicated on paper but more easily functional in practice.

Although Wenger contends that a design for learning is inherently uncertain, nevertheless he explains how to construct optimal learning architectures for organizations and extends his discussion to educational institutions.[32] His educational design goes beyond the fundamentals of the community (a group of participants) and the practice (shared activities and purpose) and rests on balancing the forces of four dualities: 1. participation and reification; 2. teaching and learning; 3. the local and the global; and 4. identification and negotiability. A properly balanced composite of these dualities comprises a four-dimensional design for learning as outlined in Fig. 5.3. This is the complex foundation that lies under the structure of the Museum Learners Club.

MEANING MAKING *Balance participation and reification* • More participation; less reification • Use carefully thought out reification that does not hinder or decontextualize learning	DESIGNED & EMERGENT *Balance teaching and learning* • Emphasis on learning not teaching • Community coordinator assumes an "un-teaching" facilitative role
LOCAL & GLOBAL *Balance local engagement and other practices* • Broaden the context for learning • Encourage membership in museum learning practice	IDENTIFICATION & NEGOTIABILITY *Empower meaningful identities* • Offer relevant source of identification • Use everyday activities to make meaning, encourage capabilities of all individuals

Fig. 5.3 Four-dimensional design for the Museum Learners Club based on Wenger's educational design

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[32] Wenger, 1998: 230-277.

Participation and Reification

Making meaning within a community of practice, and within the Museum Learners Club, is a matter of striking a balance between participation and reification. The proper balance takes place where consequential activities and negotiation of meaning are more important than the mechanics of information transmission, a place where learning overcomes teaching. For example, a new vocabulary is more easily acquired when it is learned from active use than when it is memorized from a word list.[33] The word list is an intermediary stage that can act as a hurdle to learning. People learned by doing for thousands of years before learning became institutionalized into transmission methods. Creating situations for active participation focuses on and motivates the learner. Meaning arises only out of experience.[34]

Reification is developing "thingness" or making something concrete. Because it distances learning from actual situations, it can be a risky enterprise.[35] The question always lingers, how much should we reify learning? What proportion of educational design should be based on and derived from such things as textbooks, curriculum, and teaching rubrics? Codifying and proceduralizing knowledge into intermediaries like curricula, textbooks and contrived problems can be helpful, but can also be burdensome. "A good tool can reify an activity to amplify its effects" and "a procedure can reify a concept so that its application is automatic".[36] If reification is overdone, however, learning can become formulaic, unyielding or superficial. Overly reified learning is decontextualized and dependent on reification itself leading to "a brittle kind of

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[33] Ibid: 266.
[34] Sotto, 1994: 28, 56.
[35] Wenger, 1998: 58, 264-266.
[36] Ibid: 61.

understanding with very narrow applicability".[37] This can easily happen in the school setting.

The Museum Learners Club design deemphasizes reification and depends upon participation. As the research study proceeded, we were actively engaged in museum activities. Our learning activity mainly consisted of moving through museum spaces, looking and conversing. We related our activity to the school theme and curriculum but instead of undertaking research in the classroom, we learned by doing, not by reading texts or following a strict curricular guideline. We encountered museum labels, objects and formal education programs but designed little reification that was not already part of the practice (the practice of museum learning). The reification that did occur was carefully designed not to intrude too much upon participation and was always eclipsed by participation if time and circumstance limited its use or caused a choice between the two.

Reification used with the Museum Learners Club included tools and procedures that were adaptable. They were useful at certain junctures and dispensable when exigencies of time, place and individual preference demanded flexibility. Museum Learners Club participation and reification is shown below in Fig. 5.4.

Participation	Reification
Shared activities	*Tools and Procedures*
Doing things together	MLC moniker and acronym
Experiencing museums	Agenda and schedule
Looking, listening, touching	Orientation, orientation materials
Conversing	Concept mapping
Dialogue and reflection	Writing exercises and notebooks
Self tours	Drawing exercises
Free time	Formal museum programs
Time for fun and "recess"	End of semester project

Fig. 5.4 Participation and reification in the Museum Learners Club

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[37] Ibid: 265.

Although the two sides of the chart seem to be equitably balanced, far more time was spent with the elements of participation. The reified materials kindled and ordered participation. The participatory activities defined the enterprise and generated the practice. The two together generated meaning.

Balancing participation with reification for the Museum Learners Club was an ongoing concern that took a good deal of thoughtfulness and ability to adjust. On occasions when there was not enough time to complete something the club had planned, participation often prevailed as activities that demanded reification were dropped. "It is about balancing the production of reificative material with the design of forms of participation that provide entry into a practice and let the practice itself be its own curriculum . . .".[38] The practice in this case ascended as our identities as members grew. When we were together, we were more closely tied to MLC pursuits than with formal reified activity derived from school learning.

Teaching and Learning

The second dimension of the Museum Learners Club educational design as adapted from Wenger, concerns the balance between teaching and learning. Wenger terms it the "designed and the emergent"[39]— an apt description if one considers the character of teaching and learning. Teaching, by its nature, relies on design. Learning can occur with or without teaching. It is an ongoing process that may or may not take advantage of teaching design. When learning does respond to teaching, it is merely using

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[38] Ibid.
[39] Ibid: 266-267.

teaching as one of many structuring resources. Effective learning depends on appropriate

interaction between the designed and emergent so that teaching and learning can become

structuring resources for each other.[40]

The notion that teaching and learning do not have a direct cause and effect

relationship is important for museums in general and specifically for the MLC, a

community that has no "teacher". People who visit museums recoil at the thought of

being taught yet they want to learn. Stephen Weil has cited research that indicates the

"prospect of being taught elicited an almost wholly negative response. But the prospect

that visitors might be given an opportunity to learn was considered highly positive".[41]

The fact that MLC participants learned but were not taught is contrary to what occurs in

most schools. Eric Sotto is adamant about learning superseding teaching as seen in the

following passage:

> . . . what goes on in many classrooms is based on a false perception of learning
> and teaching. Because we can teach someone, we risk slipping into the belief that
> we can also 'learn' someone. But we know that we cannot do that! All one can do
> is to try to arrange conditions which will enable people to learn.
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> That may sound a rather passive function. Many teachers feel that they
> must teach. Isn't that what they are paid to do? But when we focus on teaching,
> we tend to produce a performance. Can a performance generate learning? Surely
> teaching has to stop before learning can begin?[42]

To ensure an appropriate balance between teaching and learning, Wenger asks us

to take into account the kinds of rhythm and shifts of focus that allow learning and

teaching to inform each other and enable processes of negotiation of meaning within the

teaching-learning interaction.[43] As a context for learning, not teaching, the MLC

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[40] Ibid.
[41] Weil, 2003: 43.
[42] Sotto, 1994: 27.
[43] Wenger, 1998: 267.

members shared their insights, used resources available at museums, and negotiated meanings equitably, in practice.

Teacher Role: Community Coordinator and Guided Participation

There is no "teacher" in the Museum Learners Club. The teacher role is assumed by a community coordinator who builds the community, maintains its vitality, develops its practice and facilitates activities. This critical role shuns authority yet proactively designs a social architecture, guiding participants to see the larger picture and purpose that define the enterprise.[44] Rather than a teacher-student relationship, the MLC accommodates a rich field of essential actors who participate and change (learn) together.[45] The coordinator manifests an identity as participant in the community.[46]

During the field research study, I was the community coordinator and as such acted as guide but not sole leader. At the initial meeting wherein the community was introduced, I explained the notions of mutual leadership and learning. As an expert at museum learning, I invited the more novice participants to join the community, to begin to identify with the Museum Learners Club. I shared leadership among Club participants, recognizing that all participants had the ability to be leaders in their own right. That is, they had opportunity to guide effective action within the Club.[47] The notion of the omniscient authority figure did not exist in this community of mutual learners. Indeed, all participants, including the coordinator, were co-learners and had opportunities to lead in accordance with their identities as Club participants. The Club coordinator remained

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[44] Wenger et al., 2002: 80-82; Senge, [1990] 2000: 24-31; Bruner 1996: 21-22.
[45] Lave and Wenger, 1991: 56.
[46] Wenger, 1998: 277.
[47] Senge, 2000: 56-57

instrumental in sustaining momentum and making the community cohere and can be compared to the knowledge engineer that appears in Nonaka and Taekeuchi's conception of middle-up-down management—a participant who engineers learning at the group level.

There were many instances during the Museum Learners Club study where student participants became leaders. Just as in the "communities of learners" conceived by Matusov and Rogoff, MLC students learned how to support and lead others and became responsible enough to manage their own learning, building on prior knowledge and interests to learn in new areas.[48] They eagerly took on guiding and facilitating in the form of leading the Club through museum exhibitions and initiating discussions. They answered the coordinator's invitation to become part of the practice in a mutual relationship with all participants. They identified with the Club and its learning purpose and took on identities as community participants, co-learners, and co-leaders.

The Local and the Global

The Museum Learners Club strikes a balance between the local and the global. It does not ignore the depth that comes from a focused curriculum, yet it looks outward from the classroom to offer an expanded view of taught subjects. Wenger advocates for this type of education that is not confined to a classroom or a local practice. He states, "if school practices become self-contained then they cease to point anywhere beyond themselves. School learning is just learning school".[49] The fourth dimension of his educational design involves looking beyond school to the outside world. This was critical

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[48] Rogoff et al, 1998: 410. See also Bruner, 1996: 21-22.
[49] Ibid: 267.

for participants of the MLC study whose *raison d'être* was to become members of a new community of museum learners. The Club concept broadens the scope of education and creates links to other practices in a way that allows students to "learn whatever they need to learn where they are".[50]

In a conscious sense, the Museum Learners Club seeks outside linkages, taking advantage of varied learning situations and content area experts away from school. It is through these types of experience that learning is more deeply negotiated.[51] Following John Dewey's arguments, the MLC approach offers the student "an opportunity to escape from the limitations of the social group in which he was born and to come into living contact with a broader environment".[52] During the research study, the MLC was able to intersect with other communities of practice in the museums we visited: archivists, museum educators, and historians for instance.[53] In these varied situations of the everyday world the MLC witnessed and took advantage of a wider scope of relevance.

Identification and Negotiability

Theorists in the postmodern era view learning as the construction of self and a sense of agency[54]—what Wenger terms the trajectory of identity. By focusing on the negotiation of identities, the Museum Learners Club model empowers individuals to gain their own understanding and make meaning that is relevant to them. Enabling the formation of meaningful identity over rote learning is the goal (for identity formation *is*

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[50] Ibid: 269.
[51] Ibid: 268.
[52] Dewey, 1916: 24.
[53] See Matusov and Rogoff, 1995: 101, for various communities of practice encountered in the museum.
[54] Bruner, 1996: x. Bruner continues to write of the significance of identity vis-à-vis learning: "Perhaps the single most universal thing about human experience is the phenomenon of "Self," and we know that education is crucial to its formation". (Bruner, 1996: 35)

learning). Wenger equates learning with an experience of identity in the following

passage:

> Because learning transforms who we are and what we can do, it is an experience
> of identity. It is not just an accumulation of skills and information, but a process
> of becoming . . . . We accumulate skills and information, not in the abstract as
> ends in themselves, but in the service of an identity. It is in that formation of an
> identity that learning can become a source of meaningfulness and of personal and
> social energy.[55]

The typical classroom limits learning by hampering the formation of new

identities and disabling the ownership of meaning. Wenger issues a harsh criticism:

> One problem of the traditional classroom format is that it is both too disconnected
> from the world and too uniform to support meaningful forms of identification. It
> offers unusually little texture to negotiate identities: a teacher sticking out and a
> flat group of students all learning the same thing at the same time. Competence,
> thus stripped of its social complexity, means pleasing the teacher, raising your
> hand first, getting good grades. There is little material with which to fashion
> identities that are locally differentiated and broadly connected. It is no surprise,
> then, that the playground tends to become the centerpiece of school life (and of
> school learning), that the classroom itself becomes a dual world where instruction
> must compete with message passing, and that some students either seek their
> identity in subversive behavior or simply refuse to participate.[56]

Since the ability to assume a new form of identity and make meaning that is relevant to

one's life and locale is diminished in school, the Museum Learners Club claims a

communal territory that reinforces "identities of participation" not found in the

classroom.[57]

Identity and Modes of Belonging

The formation and trajectory of identities demarcate learning. If a learner's

identity is caught up with institutional sequestering and reified curricula, it will merely be

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[55] Wenger, 1998: 215.
[56] Ibid: 269.
[57] Ibid.

an identity of a schoolchild.[58] If a learner's identity is one of social participant that

crosses over into different contexts and involves membership in different practices, then

it becomes an identity on a meaningful trajectory. As such, the learner is a true learner or

one who makes meaning that is relevant to one's life.[59] The community of practice

design for education that Wenger proffers is contingent upon expanding identities

Identities emerge and expand within the three modes of belonging—engagement,

imagination, and alignment—as discussed in Chapter 3. In Wenger's educational design,

these modes of belonging comprise the architectural infrastructure and fertile ground for

identity development.[60] In the case of the Museum Learners Club, they provide the

following: 1. "*Places of engagement*:" opportunities for being together and sharing in

museums, libraries, archives and ancillary community environments; 2. "*Materials and

experiences with which to build an image of the world and self*:" orientation to the MLC

and community venues, involvement with objects, interactivity, times to explore and

reflect; and 3. "*Ways of having an effect on the world*:" connecting this learning research

to the larger world, especially in the areas of inclusion, equality and equitability.

Educational engagement encourages MLC students to learn by participating in a

practice in which they identify. "Unlike in a classroom, where everyone is learning the

same thing, participants in a community of practice contribute in a variety of

interdependent ways that become material for building an identity".[61] Hence identity and

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[58] For use of the term institutional sequestering, see Lave and Wenger, 1991: 104-105.
[59] Wenger, 1998: 269.
[60] Ibid: 270-277.
[61] Ibid: 271.

learning serve each other. The curriculum of such engagement is not a list of subject matter but an itinerary of transformative experiences through participation.[62]

Educational imagination is central to the MLC and gives students the ability to explore who they are, where they are and where they might go. It is the part of educational design that opens up the world for students, letting them see the broader scope and to understand that "Learning is a lifelong process that is not limited to educational settings . . .".[63]

Educational alignment is the mode of belonging that takes learners beyond local engagement to a broader enterprise with far-reaching effects. This mode was not possible to fully incorporate in the short-term practice of the Museum Learners Club yet I, as the lead researcher, was able to see the consequences beyond the MLC borders. Outcomes of this research may lead to much greater impact on a grander scale. The extension of the spring semester MLC to the entire class during the following fall semester was a first step. The future use of the MLC model in museum practice will be the next.

Wenger's four dimensional educational design and modes of belonging provide the fundamentals for delivering the Museum Learners Club curriculum. Both systems fuse to become a solid base for learning that privileges participation over reification and learning over teaching as it supplies the means to see beyond local engagement and develop new identities. Identities are built within an enabling place of engagement that fuels the imagination and allows learners to see themselves and others in an expanding world.

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[62] Ibid: 272.
[63] Ibid: 273.

Within the MLC context, knowledge undergoes conversions just as it does in business microcommunities. Personal and prior knowledge is allowed to expand and tacit knowledge is unleashed as interaction ensues. In sum, the MLC is a small collective of individuals who learn together in museums in active ways, not by typical classroom procedures of lecturing, reading and decontextualized problem solving.

Additional research and ideas about learning overlap, supplement, and reinforce Wenger's educational design for the Museum Learners Club, especially where it concerns the appropriate situation for learning and specific pedagogical issues. The next sections discuss notions of situated learning, the museum-classroom hybrid, and ways that constructivism, Vygotsky and apprenticeship learning augment the MLC design for learning.

An Appropriate Situation for Learning: The Museum-Classroom Hybrid

Learning that occurs in communities of practice is "situated learning" whereby the activity and situation that surround and enable learning are integral to it. Brown, Collins and Duguid aptly state that the "activity in which knowledge is developed and deployed . . . is an integral part of what is learned. Situations might be said to co-produce knowledge through activity. Learning and cognition, it is now possible to argue, are fundamentally situated".[64]

Situated learning thrives in a community context—a place where the central issue is becoming a practitioner, not learning about the practice. The Museum Learners Club community of practice is the context for learning. It draws attention away from abstract knowledge and cranial processes and situates it in an active museum learning milieu

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[64] Brown and Duguid, 1989.

where knowledge takes on relevance for students.[65] Learners relate to objects and experiences directly, not via intermediary texts and procedures. They gain valuable lessons on how to interact in a more natural community atmosphere, outside the more artificial classroom environment to which they are accustomed.

Though a natural setting is ideal, the most appropriate situation for the Museum Learners Club is a hybrid setting, one that is located outside the classroom yet retains characteristics of classroom methods and curriculum even though they are deemphasized. The MLC field study indicates that this type of hybrid is necessary in order to forge a strong partnership between museum learning and school learning.[66] The teachers involved in the study had an established curricular rubric of study that their students followed. In my research I sought to respect that rubric and augment it with the constructivist community of practice approach. This proved to be a viable solution that the school understood and supported. A more severe break from the school would have resulted in disruption for the class as a whole and for the students involved in the study.

As the principle researcher during the study, I adopted a few procedures from the existing classroom situation. These amounted to roughly following the class social studies theme, using writing exercises, and creating a term-end project that was assigned to the class as a whole. Generally, the MLC strategy diverged from that of the classroom. As much as possible, MLC participants did not learn from books, lectures or other direct transmission methods. They were able to participate in museum learning and gain

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[65] Brown and Duguid, 1991.
[66] The MLC hybrid is related to a similar hybrid of formal and informal learning found in museum schools, usually charter schools associated with or housed within museums. See Phillips, 2006 and Krapfel, 2000: 149. Examples of museum schools are the NYC Museum School and Henry Ford Academy.

broader identities.[67] A conscious break from classroom learning enabled me, as lead researcher, to investigate the merits of a cultivated community of practice and related learning theory that were at odds with traditional classroom teaching.

Learning Outside the Classroom

The Museum Learners Club project capitalized on the opportunity to organize an authentic community of practice away from class strictures. Departing from the class's didactic instructional model, the MLC was a place where students gained access to context so they could learn to know, not learn to learn.[68] Rather than having meaning mediated by an external view (the teacher's), MLC participants engaged in situated learning and were able to find their own meanings. They developed their museum learning practice and created its "curriculum" that was learned through legitimate peripheral participation and modes of belonging (trajectories of identities). This was a "learning curriculum," not a "teaching curriculum," that unfolded as engagement in the practice ensued.[69]

The MLC joins other efforts that advocate broadening learning opportunities for school children. One example is the initiative of Britain's Department for Children, Schools and Families for "Learning Outside the Classroom" (LOtC). The LOtC initiative values the inherently pedagogical aspects of everyday life and sends students "out and about" to a variety of locations including all types of museums. The LOtC believes that enhancing school learning with world experiences provides context, thinking and cooperation skills. Its manifesto insists "every young person should experience the world

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[67] Wenger, 2006: 43. See also Hein, 2006: 345.
[68] Ibid: 112.
[69] Ibid: 93.

beyond the classroom as an essential part of learning and personal development, whatever their age, ability or circumstances".[70] In a similar vein the MLC operates in more authentic settings away from school, particularly in museums.

What makes the museum different from the school? Is it a truly a more authentic setting? When we try to correlate school curriculum with museum experience in a Museum Learners Club hybrid for learning, aren't we creating a school environment within the museum? Although museums can be viewed as mediating structures, nevertheless they offer dynamic learning environments that mirror sociocultural settings where most people learn most of the time.[71] I consider the museum to be a much closer simulation of everyday experience. Museums are places where a variety of people intermingle during the course of the day. In my field study, MLC participants were first and foremost museum visitors and users, not school children seeking an alternative classroom. As such, they entered an authentic environment as practitioners, or what Jean Lave refers to as "just plain folks (JPFs)".[72] As JPFs, they used intuitive reasoning developed during their daily lives, not precise methods of problem solving that stem from formal school activity. They engaged in authentic activity using the context in which issues emerge to help find resolutions.[73] They became authentic practitioners.

The Hybrid Situation

Systems for leaning inside and outside of the classroom can coexist. Exigencies of the school system and the need to respect school boundaries and cooperate with school

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[70] Vision statement of the Learning Outside the Classroom Manifesto, http://www.lotc.org.uk/ (accessed 10 November 2009).
[71] Falk, 2004: 91.
[72] Brown et al, 1989:35.
[73] Ibid.

procedures prevent a complete retreat from the classroom. We cannot overturn educational practice, we must work with it. The realization that students learn in many different ways and can be fluent in more than one philosophy of learning, pedagogy, and practice leads to the conclusion that learning both inside and outside the classroom can build upon each other.[74] Even though the research presented here promotes and advocates for the social, participatory model of learning that naturally occurs away from class, the research subjects experienced more traditional approaches to teaching and learning during most of their weekday hours in school. Their school success was contingent on established standards and testing. This had to be dealt with, and the hybrid nature of the school-museum model brought balance to the situation. It helped alleviate ills of in-class education, offered a broader scope of learning and enabled a multi-dimensional community of practice to thrive while it adapted school curriculum and methods.

The combination of formal classroom learning with less formal outside-the-class learning promises enormous synergy and enrichment. One such synthesis is exemplified at the New York City Museum School where school and museum are considered corresponding learning environments. The school actively uses museum resources to foster engaged learning as it meets city and state curricular mandates in all subject areas. Its mission expresses the amalgamative nature of the school:

> The mission of the NYC Museum School is to integrate the city's museum collections of scholastic and artistic assets into established curricula to engage students in authentic learning experiences and higher order learning, while meeting NYS Board of Regents standards.[75]

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[74] Rogoff et al, 1998: 410.
[75] The New York City Museum School partners with the American Museum of Natural History, Brooklyn Museum of Art, South Street Seaport Museum, and Children's Museum of Manhattan and uses what they term a "Museum Learning Process". See the Web site of the New York City Museum School at http://schools.nyc.gov/SchoolPortals/02/M414/default.htm (accessed 16 November 2009).

The Museum School presents a unique "laboratory for museum learning". It is a place that stresses sustained looking, articulating observations, making connections, generating questions, undertaking research, and preparing presentations. Above all it is built upon collaborative planning, ongoing reflection and revision.[76] The Museum Learners Club operates with similar activities and demonstrates how museums can act as a bridge between two communities of practice—the community of the classroom and the museum learners' community.

Pedagogy for a Constructivist Community of Practice

In addition to the social context for learning (specifically, a Wengerian Community of Practice) and the museum-school correlation, the MLC framework incorporates complementary pedagogical methods. The MLC follows the lead of museum theorists who recognize that classroom learning is not always appropriate and call for the use of a non-traditional pedagogy.

If the learner is a passive vessel to be filled, then pedagogy means organizing and presenting subject matter in a way it can be absorbed. If the learner is not a passive vessel and has an active mind, then pedagogy needs to cater to that active mind. Thus we need to know how learners learn, what their individual learning styles are and focus on the various factors that influence learning: culture, environment, prior knowledge, and learning differences and styles in order to develop pedagogy that will be effective.[77] When developing pedagogy, a concentration on the learner is paramount.

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[76] Takahisa, 2000: 157-160.
[77] Hein, 2006: 345-347.

Pedagogical Premises and Forerunners

My research into pedagogy returns to the individual and social dichotomy of knowledge and associated learning theory. Pedagogical premises revert to Polanyi's contention that individuals have personal knowledge and the constructivist belief that knowledge is something the individual determines. Individuals learn in different ways, they have different learning strengths and styles influenced by their historical backgrounds, cultures, and interpretive communities. This is especially true when one deals with a group that includes both neurotypical and autistic learners—a segment of learners that presents further differences and backgrounds that call for heightened attention and respect. These considerations of personal knowledge must be combined with the understanding that although knowledge is individual, learning occurs through social means.

Since individuals learn through social interaction, my pedagogical methods maximize the potential for legitimate peripheral participation—the mechanism that naturally occurs in a community or apprenticeship—to insure appropriate levels of challenge for each individual. I use Vygotskian strategies that have to do with scaffolding and the zone of proximal development. Thus, the Museum Learners Club creates a scaffold for learning within its community of practice.

Two instructional models provided impetus for the Museum Learners Club pedagogy: Brown and Collins's cognitive apprenticeship and Matusov and Rogoff's community of learners. Both are based on principles of social constructivism as set forth by Vygotsky and legitimate peripheral participation as discussed by Lave and Wenger in which new learners progressively assimilate knowledge as they interact with others who

are more expert. They are forerunners to Wenger's fully developed community of practice theory and educational design.

The cognitive apprenticeship is an instructional paradigm that synthesizes schooling with apprenticeship learning in an attempt to make thinking processes visible, unlocking the tacit knowledge of practice for more effective learning. It includes traditional apprenticeship methods of modeling and observation; scaffolding; fading; and coaching. During modeling and observation, the expert performs a task while the learner observes. This phase gives learners a picture of the whole and provides advanced organizers, an interpretive structure, and an internalized guide for the time when an apprentice begins to become independent. Scaffolding involves a progressive supporting of apprentices that ranges from doing almost the entire task to giving occasional suggestions. Fading occurs when the expert slowly removes supports, incrementally giving the apprentice more responsibility. Coaching consists of overseeing the entire learning experience including choosing tasks, giving hints, evaluating activities, diagnosing problems, challenging apprentices, offering encouragement, giving feedback, structuring ways to do things, and working on weaknesses.

The cognitive apprenticeship adds strategies, less familiar to the traditional apprenticeship, that reinforce learning: articulation, reflection and exploration. Through articulation, learners' thinking processes and inherent tacit knowledge can be made explicit. Reflection involves reviewing the thinking processes of experts and learners in order to compare them. Exploration involves encouraging learners to problem solve on their own. These aspects allow multiple ways of carrying out learning tasks. Some

learners may advance to the master level as the singular master-apprentice relationship yields to multiple expert-novice relationships and varying models of expertise.[78]

Probably the most significant aspect of the cognitive apprenticeship approach is that, by design, it does not neglect any participant, even the most passive learner. Rather, it empowers all participants to use their knowledge.[79] This notion is important for the MLC because some "different learners" are overlooked in the regular classroom. No one is overlooked in an apprenticeship.

The cognitive apprenticeship was designed to be used in conjunction with school curriculum and shares the goals of the MLC in that way. It also contributed solid methods to MLC pedagogy. The other forerunner to the MLC, the "Community of Learners," is one that has appeared in museum studies literature and is close in conception to Wenger's community of practice model.[80]

Rogoff and co-authors Matusov and White view the community of learners as an instructional model distinct from one-sided models in which either adults or children assume control over learning. Adult-run pedagogy is a prevalent feature of U.S. schools and one in which the teacher's job is to prepare knowledge for transmission while the learner's job is to be receptive.[81] Children-run pedagogy arose during the free school movement of the late twentieth century and views adults as impediments to a natural course of learning.[82] The community of learners diverges from these unilateral models and is based on the theoretical perspective of "transformation of participation" wherein

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[78] Collins et al, 1991.
[79] Ibid.
[80] See Rogoff and Lave, 1984 for early development of the concept of community of learners. See also Matusov and Rogoff, 1995 and Rogoff et al, 1998.
[81] Rogoff et al, 1998: 391-394.
[82] Ibid: 394-395.

"learning and development occur as people participate in the sociocultural activities of their community, transforming their understanding, roles and responsibilities as they participate".[83] This theory is directly related to Wenger's ideas on transformative experiences.

Though transformative experiences can and do occur naturally, in the community of learners they are purposefully encouraged. Following Vygotsky and Dewey who saw value in directive learning, adult coordinators of the community of learners provide guidance, orientation and support.[84] They are not authority figures, but rather facilitators of a group of participants who are all active and responsible for learning. As Lave and Wenger stipulate, "mastery resides not in the master but in the organization of the community of practice of which the master is part . . .".[85] The coordinators proactively form a culture and design a social architecture, guiding participants to see the larger picture. They act with a sense of stewardship for the people and the purpose that defines the enterprise yet share and collaborate in a flexible environment that enables multiple opportunities for learning.[86] They are responsible for assuring that the learning process is pleasant, because instruction and understanding are enhanced when everyone enjoys the activities of learning.[87]

As in the cognitive apprenticeship, no one is passive in a community of learners. This is a key feature that directly affects any learner whose learning trajectory may be

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[83] Ibid: 390.
[84] Ibid: 396. See also Matusov and Rogoff, 1995:100 where the authors base their work on Vygotsky's notion that when two work together they can achieve more.
[85] Lave and Wenger, 1991: 94.
[86] Senge, [1990] 2000: 24-31.
[87] Rogoff et al, 1998: 405.

inhibited by innate differences such as autistic learning styles. This inclusive

characteristic of these two models was readily applied in the Museum Learners Club.

Constructivist Principles and Related Pedagogical Strategies

The Museum Learners Club pedagogy employs general constructivist principles

and more specific strategies of Vygotsky's social constructivism. Constructivism fits well

with the concepts of communities of practice concept and their derivatives.

Constructivist learning theory relies on the fact that individuals use existing, or

prior knowledge as a foundation upon which to construct new knowledge.[88] Therefore,

constructivist practice places the emphasis on the learner not the teacher. The "teacher" in

a constructivist setting assumes a double role as facilitator of learning and co-learner. The

constructivist conception of "teacher" is comparable to the community coordinator role

as conceived by Wenger.

Instruction in the constructivist paradigm is conceived of as learning together in a

Vygotskian sense. This type of instruction can be termed a social scaffold that

collectively involves learners (serves the entire community of learners) while it attends to

individual needs where they present themselves (recognizes different learning styles and

provides for one-on-one scaffolding). The collective and individual aspects of scaffolding

are part of the overall constructivist context—a freer, more flexible and natural setting

that mimics the Wengerian place of engagement. This is an authentic context where

interactivity is encouraged by the community coordinator.

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[88] Scientists who study brain-based education and autism researchers concur that the brain learns when it is building upon existing knowledge. See Gutstein, 2009: 12-13.

The constructivist design for learning is laid out in Fig. 5.5 that summarizes four pedagogical concerns.[89] I presented a version of this chart to teachers and families before the Museum Learners Club field study and explained it to all informants including the young learners. It served as a guide for me throughout the research period.

Learners	Context	Instruction	Teaching Role
Be attentive to prior constructions of knowledge and personal knowledge	Ground learning in real world where context and problems are relevant	Present authentic tasks and use primary sources; emphasize concepts not facts	Join the learning process as a learner not a teacher
Assure learner control: this is a learner-centered approach in which everyone has a voice	Maintain a range of activities and interactivities that engage all learners	Focus on process whereby two or more can learn together better than one learning alone	Act as a guide, coach, facilitator to help students reach their own conclusions
Recognize multiple points of view	Emphasize dialogue, collaboration, sharing and negotiation	Strive to learn in the zone of proximal development where expert can scaffold the less expert	Engage all participants; be organized yet flexible
Be sensitive to different learning styles	Be flexible, insure accessibility and comfort	Include reflexive practice	Be reflective and reflexive

Fig. 5.5 Constructivist principles for the Museum Learners Club

The first concern of any constructivist undertaking is the emphasis placed on the learner and the awareness that all learners possess a pre-existing matrix for intellectual effort.[90] One way the Museum Learners Club field study capitalized on pre-existing matrices was with the use of concept mapping, a tool developed from constructivist theory.[91] Concept mapping reveals existing schemes and ideas through graphical organizers and acts as a motivational, organizational and bonding exercise. Mapping helps to bridge past experiences and knowledge with present circumstances and, in the

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[89] The constructivist chart is a compilation of my ideas and those of many researchers and practitioners. Some of the most cogent are found in Hein, 1998, Murphy, 1997 and Henry, 2002. For a good summary of researchers' views on constructivism see http://www.cdli.ca/~elmurphy/emurphy/cle3.html (accessed 19 November 2009..
[90] Polanyi, [1958] 1964: 252.
[91] Jeffery, 2000: 214-215.

case of the MLC, sets the stage for visiting museums. Concept maps concretized the existing, sometimes unarticulatable, disposition of MLC participants first as involved classmates, and second as savvy and interested museum goers.

Museum research has demonstrated the efficacy of concept mapping. Studies that used the technique for pre- and post-museum visit data indicate increasingly organized and complex webs of knowledge.[92] Mapping during the Museum Learners Club field study ascertained the museum-going maturity of the students and enabled me, as community coordinator, to determine the orientation and advanced organizers I needed to provide before visits to museums. Details on how concept maps were used during the field study can be found in Chapter 6.

Placing the learner first was an abiding concern that permeated the Museum Learners Club endeavor. In the area of context, constructivist principles were carried out in a community of practice format that was as naturalistic as possible, but dictated by concerns for comfort and support of individual learners. It was an environment that is conducive to making connections and sharing ideas among all, regardless of learning differences.

Methods of instruction were also learner-centered using a Vygotskian framework that respects learners' zones of proximal development. Learners who were more expert helped or "scaffolded" those who were not. The MLC incorporated an interactional scaffold in which "selective intervention provides a supportive tool for the learner, which extends his or her skills, thereby allowing the learner successfully to accomplish a task not otherwise possible. Put another way, the teacher [or peer expert] structures an

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[92] Leinhardt and Gregg, 2002: 148-155.

interaction by building on what he or she knows the learner can do".[93] The scaffolding

took place as participation in the community context increased.

The "teaching role" in Museum Learners Club constructivist pedagogy is

threefold: to facilitate learning activity as community coordinator; join the learning

process as co-learner and insure reflection and reflexivity. The instructional models of

cognitive apprenticeships, communities of learning and communities of practice all

specify the need for a coordinator—one that guides but respects personal and individual

knowledge and learning styles and understands that individuals, not teachers, construct

knowledge.

I was both coordinator and learner during the MLC field study. I invited

newcomers to share my museum expertise and to identify with museum learning practice

through relations of mutuality. Wenger warmly discusses the relationship fostered by

mutual learning in the following passage:

> If learning is a matter of identity, then identity is itself an educational resource. It
> can be brought to bear through relations of mutuality to address a paradox of
> learning: if one needs an identity of participation in order to learn, yet needs to
> learn in order to acquire an identity of participation, then there seems to be no
> way to start. Addressing this most fundamental paradox is what, in the last
> analysis, education is about. In the life-giving power of mutuality lies the miracle
> of parenthood, the essence of apprenticeship, the secret to the generational
> encounter, the key to the creation of connections across boundaries of practice: a
> frail bridge across the abyss, a slight break of the law, a small gift of undeserved
> trust – it is almost a theorem of love that we can open our practices and
> communities to others (newcomers, outsider), invite them into our own identities
> of participation, let them be what they are not, and thus start what cannot be
> started.[94]

The constructivist chart also addresses reflection and reflexive practice—major

concerns for me as lead researcher and community coordinator. Self-awareness during

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[93] Greenfield, 1984: 118.
[94] Wenger, 1998: 277.

the MLC study was the cornerstone of qualitative research methodology and is further discussed in the next section.

Qualitative Parameters of Field Research

The Museum Learners Club thesis is derived from a thorough examination of theory combined with a qualitative research study that factored in context, nuance, and the texture and weave of real life situations to reveal the subjective reality of the participants.[95] The small-scale nature of the study is a qualitative hallmark and suitable for a lone researcher who must work with limitations of time and resources.[96] The resulting analysis can be considered more broadly to make a larger impact.

Qualitative research is a rich and varied methodology used in many disciplines, but particularly compatible with the social sciences including museum studies, education and constructivist learning.[97] At its heart is the rich, full description of social processes that make life meaningful.[98] This stress on human and social components opposes a laboratory model or "experimental design" that strictly focuses on quantifying empirical facts.[99] As such, it is allied with the view of the social inception of knowledge and learning. Museum research views the qualitative research style as coinciding with constructivist learning theory in the same naturalistic and non-objective paradigm. Naturalistic researchers are comparable to constructivist educators whereas experimental design researchers are comparable to didactic educators.[100] The Museum Learners Club,

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[95] Mason, 2002: 1 and Pole and Morrison, 2003: 5-6.
[96] Wolcott, 1994: 183.
[97] Hein, 1998: 78-80 and 1995a: 201. Although novel in his time, Vygotsky used a qualitative approach in human development and learning studies. See Vygotsky [1962] 1978: 14.
[98] Ezzy, 2002: xii.
[99] Hein, 1998: 68-69.
[100] Ibid: 78-80, 84-85.

as all communities of practice, is a social unit within a natural setting that appropriately lends itself to qualitative research.

The roots of qualitative research are found in ethnography, especially with the work of social anthropologist Bronislaw Malinowski and the Chicago School of Sociology during the 1920s and 30s. These researchers participated in the lives of the people they studied, observing social behavior and privileging an insider's perspective. As Douglas Ezzy points out, "Qualitative research is done through establishing relationships with people, places and performances. The best qualitative researchers do not separate their lives from their research, as if people could be understood through distancing ourselves from them".[101]

The ethnographer shares the life of informants and keeps detailed accounts. These are expanded to include analytical or thick descriptions that elaborate on a theory, checking it, seeing if it holds true and comparing it to what occurs in everyday life.[102] This approach to research consists of a "dialogue between ideas and observations, between theory and data, between interpretation and action".[103]

The Museum Learners Club: Characteristics of Qualitative Research

When I conducted the Museum Learners Club field research I employed a broad conception of qualitative research that incorporates connections to underlying and pre-existing theory, active engagement and reflexivity of the lead researcher, and use of a naturalistic approach. Theoretical underpinnings guided the planning and execution. As lead researcher, I took part in the MLC learning process along with acting as community

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[101] Ezzy, 2002: xii.
[102] Pole and Morrison, 2003: 11-13 and Denscombe, 2003: 84-95.
[103] Ezzy, 2002: xiv.

coordinator and guide. I used unobtrusive methods of observation and dialogue to examine the entire community of practice to see how things were related and interdependent. I did not seek to pick apart individual differences or failures although I noted them in cases where they were relevant to learning. My closeness to the process and to the research subjects invoked descriptive accounts that were intuitive as well as objectifying.[104] The use of these fundamental characteristics of qualitative research will be examined more closely in the following paragraphs.

Theory informs qualitative research whether it comes first (before data collection and analysis) or last (developed from the data and analysis) or whether theory, data generation and analysis are developed simultaneously in a dialectical process.[105] "All our key research decisions have both theoretical grounds and theoretical consequences".[106] In the case of the Museum Learners Club, sociocultural learning theory and groundwork laid by museum research were affirmed before the field study began. In a sense, the MLC sought to test the sociocultural paradigm in a real life situation.

The fieldwork went further to test my theoretical base built from Polanyi's ideas, communities of practice and constructivist pedagogy. I conceived the research framework from these bases before the field study out of consideration for the research subjects who were young and affected by autistic characteristics that called for a certain learning structure. Not all of the theory was laid out beforehand, however. Some of the theoretical testing and development occurred during the course of the field study where theory, data

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[104] Wolcott, 1994: 56.
[105] Mason, 2002: 180. See also Denscombe, 2003: 87. For the argument that data are "theory laden" before analysis and interpretation, see Wolcott, 1994: 16.
[106] Mason, 2002: 179.

and analysis came together concurrently to form a more fully-developed MLC concept that could be used in a museum-school collaboration.

My qualitative research was not objective; it capitalized on my perspectives and beliefs.[107] I was fully engaged in the research questions and worked reflexively to develop description, analysis and interpretation. Because of my personal experiences and commitment to inclusive museum learning, I was keen to be introspective and offer personal insights that led to greater understanding of autism and its confounding challenges. As such, I used my own voice as part of the interpretive act.[108] During the field study, I also encouraged all research subjects to reflect on whether or not this experiment in museum learning enhanced their overall learning experience. Unanimous agreement that the MLC was an appropriate and successful way to learn spurred on the research.

The Research Process

Research in the field employed a number of qualitative methods as I tested my theoretical framework in a real world situation. My objectives included linking theory with practice, examining the merits of an inclusive community of practice for learning in museums, and connecting the school with museums to improve learning outcomes. Before and during the field research, sampling and selection took place that conformed to the purposes of the study.[109] Research subjects were chosen through consultation with the classroom teacher, and with the teacher's consent, I arranged a series of organizational meetings and museum visits with the aim of produce relevant contexts. The planning

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[107] Hein, 1998: 69.
[108] Wolcott, 1994: 256.
[109] Wolcott, 1994: 16.

phase was strategically designed to provide a meaningful range of activity and access to data that would lead to a sound argument and the ability to conceive of a relationship to a larger population.[110]

I proceeded with the standard triumvirate of qualitative processes: data collection, analysis and interpretation. Data collection comprised the experience, inquiry and examination phase in which learners engaged in the community of practice. As lead researcher, I used triangulation to get my bearings from different perspectives. I not only participated but observed; used concept mapping; kept field notes; conducted conversational interviews; sought out comments by others; and used photography, audio and video taping to gather information. Participating and observing, coupled with textual and visual recording, were first priorities. It was through participant observation that I most readily discerned changes in the learning process. Interviews were secondary but important in assessing the views of a range of related individuals. They were semi-structured and can be described as "interactional exchanges of dialogue".[111]

During the analysis phase, I compiled, sorted, and filtered my descriptive accounts to reveal relevant events.[112] Following Wolcott, I narrowed my focus to a level of detail that aimed at a midpoint between the extremes of obfuscation and reporting that is too selective.[113] I placed greater emphasis on depth over breadth of data, concentrating on the acts, subtleties, and complexity of the social situation at hand.[114] As Clifford Geertz states, it is "not necessary to know everything to understand something".[115]

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[110] Mason, 2002: 120-144.
[111] Ibid: 62, 67.
[112] Wolcott, 1994: 13-14.
[113] Ibid: 14.
[114] Denscombe, 2003, 202.
[115] Geertz [1973] 2000: 20.

Handling the accounting in this way resulted in a rich, "thick description" that conforms to the conceptual framework at empirical and theoretical levels.[116] It also made the description a fixed and perusable representation of the discourse that is interpretive of the flow of social interaction and pertinent to larger issues beyond my unit of analysis.[117]

Throughout the field study, I paired analysis with data collection. The effort to keep these two processes close to each other resulted in final analyses shaped by all participants. It allowed research to be participatory with the hopes of hearing the voice of the "other".[118] Though there are no universally accepted ways to accomplish this, the Museum Learners Club study attempted to consider participants' offhanded remarks, gestures, and moods rather than solely rely on recorded interviews and respondents' quotes.[119] This type of research approaches the participatory and emancipatory research advocated by many in the autistic community. It exposes the insider's perspective and recognizes the subjective reality of experience as it gives primacy to "situated meaning and contextualized experience as the basis for explaining and understanding social behaviour".[120]

During the interpretive phase, immersion in the data and more detailed analysis led to a definitive evaluation of the Museum Learners Club. I expanded on the observations and descriptions in a reflexive and systematic way that identified significant factors and relationships. I transcended facts to probe into what is to be made of them.[121] I sought inference and meaning.

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[116] For a definition of "thick description," see Geertz [1973] 1996: 312. For the ethnographic concept of keeping the account on empirical and theoretical levels, see Pole and Morrison, 2003: 5.
[117] Geertz [1973] 1996: 318.
[118] Ezzy, 2002: 75-77.
[119] Ibid: 77.
[120] Pole and Morrison, 2003: 5.
[121] Wolcott, 1994: 36.

My commitment to theory drove the project from the beginning.[122] To make sense and reach a meaningful interpretation, I developed categories and analytic coding based on Polanyi's philosophy (including how Nonaka and Takeuchi interpreted it) and the components of Wenger's community of practice. Testing my theoretical concepts I looked for instances of knowledge conversion, degrees of participation and transformation of identities.[123] Ezzy describes this type of coding as "thematic analysis," an inductive process of identifying themes or concepts in the data and then using them to write a narrative account.[124] This kept theory and practice closely allied and emphasized interpretation over analysis. As Wolcott points out, when transforming data, "those who emphasize interpretation cast their lot with a creative human imagination capable of being informed rather than bound by an ever-expanding universe of facts".[125]

The table in Fig. 5.6 illustrates the qualitative research process described in this chapter. It indicates the steps I took to prepare for, collect data for, analyze and interpret the human interactions involved in the field study. The phases of research did not always occur sequentially. Some data collection, such as interviewing, occurred throughout the period. Concept mapping exercises occurred twice, once in the beginning and later toward the end of the research period. Analysis transpired during data collection and interpretation frequently took place during the analysis phase as I continually reflected upon the process. My reflections and ongoing reflexivity continually shaped my conceptions of learning theory and practice.

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[122] Ibid: 174.

[123] For the notion of reading data in an interpretive manner, see Mason, 2002: 78-79 and 148-150. For analysis according to themes, categories and coding see Denscome, 2003: 270-272 and Mason, 2002: 147-148 and 159.

[124] Ezzy, 2002: 86-94.

[125] Ibid: 40-41.

Museum Learners Club Qualitative Research Processes	
PRELIMINARIES	
Foundation for Field Study	Theoretical Framework: Museum Learners Club Statement of values and ethics
Strategic Planning	Access to the school Consultation with school administration and teachers Selection of research participants Consent forms Access to student participants and their families MLC schedule of activities
DATA COLLECTION	
Concept mapping	Determine existing knowledge about museums
Interviews	Conversations with teachers, parents and students
Participation and Observation	Immersion in the Museum Learners Club as co-participant Observation Record events by photography, audio taping, videography Field notes
ANALYSIS PHASE	
Immersion in data	Compile, sort and filter data; coding and categorization
Merge analysis with interpretation	Write description based on thematic analysis
INTERPRETATION	
Thick description	Narrative account
Final interpretation	Measuring outcomes against theoretical construct

Fig. 5.6 Steps in the MLC qualitative research process

The final part of the process was creating the highly interpretive account and assessment found in the next chapter. Placing emphasis on the interpretive act, the MLC study aspires to reach beyond its boundaries to find broader application and meaning, and improve learning environments.[126] "We must not only transform our data, we must *transcend* them".[127] Is this too lofty a goal? Wolcott admits:

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[126] Pole and Morrison, 2003: 4.
[127] Wolcott, 1994: 256.

If our goal is to contribute to knowledge, our own knowing is not enough: We must recruit other 'knowers' as well. Knowledge is a matter of agreement. Field observations, alone, data largely of our own making, cannot achieve status as knowledge. Our analyses reside safely because we carefully link them to the claims-making of others. Our interpretations are our claims to the independent creation of new knowledge. Arrogant work, indeed.[128]

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[128] Ibid: 258.

Chapter 6   Museum Learners Club: An Ethnographic Study

The Museum Learners Club field study was designed to investigate museums as effective environments for inclusive learning, especially but not exclusively, for those on the autistic spectrum. The endeavor produced sound evidence that the museum is a valuable site for learning, an important complement to classroom education, and a place where all learners regardless of their abilities and differences can participate, transform identities and make meaning.

The MLC exemplified characteristics of communities of practice including learning, not teaching, as the fundamental phenomenon; access to a practice, not to instruction; learning situated as part of authentic activity; learning proceeding from legitimate peripheral participation; harnessing elusive tacit knowledge during social interplay; and acquiring skills and meaning including a sense of belonging, a satisfying identity, and stimulated imagination. It was an inventive way of "engaging students in meaningful practices, of providing access to resources that enhance their participation, of opening their horizons so they can put themselves on learning trajectories they can identify with, and of involving them in actions, discussions, and reflections that make a difference to the communities that they value".[1]

This chapter presents the field study with analysis and interpretation derived from ethnographic methods. Intimate engagement and participant observation yielded the most meaningful data. Interviews added background information and substantiated my observations. The success of the project was measured by an examination of degrees of

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[1] Wenger, 1998: 10.

participation and the formation and trajectory of identities through observing what Wenger terms as modes of belonging. I also looked for the effects of knowledge conversion, especially tacit into explicit and explicit into tacit according to Nonaka and Takeuchi's theory of knowledge conversion.

Research Ethics

Ethical considerations initiated my inquiry, remained constant throughout the preliminary research, field study and analytical/interpretive phase and will be sustained for future work. Before data collection commenced, I developed a comprehensive statement that set out my principles, values and a code of ethics. A copy can be found in the Appendix. Leading concerns include respect for all MLC participants, their families, and school associates and a desire to foster positive relationships among all research subjects.

My regard for research subjects, along with particular sensitivity for the young students, included a promise of confidentiality and a transparent process. To secure these aims, I disclosed my purposes and research design verbally and in written form and underwent a thorough informed consent process. I have not and will not divulge identifying personal details. Descriptions of individuals, accounts of the field study and interpretive analyses use pseudonyms to protect informants' privacy. I received special permission for visual representations; however, the images are included without individual recognition. Full disclosure and regard for the dignity of all subjects governed my conduct as I built trust in the inclusive, non-discriminatory setting in which my research took place.

The Field Study: Review of Existing Learning Situation and MLC Organization

The Museum Learners Club field research commenced in 2006 in Tallahassee, Florida with fourth and fifth grade students, aged 10-12, from the School of Arts and Sciences. The research period occurred from February through May and coincided with the social science theme, "America: The Second Hundred Years".

The School of Arts and Sciences is a charter school and like many such schools it was established by a small group of independent educators and parents who desired an alternative to public schools. There are between 230 and 250 registered students in grade clusters ranging from kindergarten through eighth grade. School administration strives to reflect area demographics in the student body.

Though charter schools receive funding from government sources and are held accountable according to standardized test scores and individual pupil success, they do not need to abide by all of the rules of public school districts. They have a degree of autonomy that enables them to institute variations in what and how to teach.[2]

According to its charter, the School of Arts and Sciences seeks to provide a learner-centered and theme-based alternative with a pedagogical model that stresses learning by participating. "When you're *doing* it, you're getting it," a teacher at the school remarked. To these ends, classrooms at the school have grouped seating that allows conversation to flow among students; organized small group learning activities; a multi-age approach to learning by example; and five or six broad themes during the year. The school's philosophy is based on active engagement and includes this statement:

> Everyone learns best when learning is part of their lives through meaningful participation. Participating and practicing the arts and sciences in an environment

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[2] U.S. Department of Education, 2004.

that is linked to family and community is the means by which the students achieve personal academic success and emotional security.[3]

In addition to its commitment to participatory learning, the school "offers the full inclusion model of education" as stated in its handbook, *Best Practices for Inclusion.*[4] The inclusion handbook describes the model as follows:

> Serving children with social, physical, speech and learning differences shall be an integral part of the regular classroom program. Exceptional Student Education services shall be carried out by professional ESE teachers and related support personnel with the full cooperation and collaboration of trained and informed regular classroom teachers.[5]

The learner-centered, participatory and inclusive nature of the school's philosophies draws upon learning theory that is similar to that of the Museum Learners Club; however, there are significant deviations in practice. Though active learning is advocated, didactic teaching is prominent during the school day and teachers find it difficult to nurture different learning styles. Naturally occurring communities of practice exist with certain groups of students but not with students who are on the autism spectrum. Though inclusion is laid out in school policy, an exclusive system of "exceptional student education (ESE)" provides specialized education services that segregate students who have "disabilities and students who are gifted".[6] The school day is managed with time slots for discrete subjects that rarely provide enough minutes to complete tasks, especially for those who face learning challenges. It is as though students are running a race with time, chasing curricular subjects through the day. Hein puts it this

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[3] The charter and accompanying documents of the School of Arts and Sciences is found on its web site, http://www.artsandsciences.leon.k12.fl.us (accessed 1 April 2007). In 2004, a few years after its founding, the school abandoned three-grade cluster for classes with two age grades.
[4] School of Arts and Sciences, 2003.
[5] Ibid.
[6] The Florida Department of Education ESE program is detailed at their Web site, http://www.fldoe.org/ese/ese-home.asp (accessed 9 June 2009).

way: "We map this network, or try to, into linear orderings when we go marching

through the curriculum, the 'little racecourse.'"[7]

Initial interviews with teachers, students and parents and early observations at the

School of Arts and Sciences indicated areas of concern and produced a critical

assessment of classroom teaching and learning that I offer here in Fig. 6.1.

CONCERN	ATTEMPTED SOLUTION
Classroom Learning in General	
A large busy classroom is a difficult place to learn	Brief periods are allotted to small group or one-on-one instruction.
Authoritarian management of teaching in the classroom	Teacher allows dialogue, sharing, and negotiation to a certain point
Lack of time for reflection and sharing	Some time allocated, but not enough
Quiet, non-disruptive students who need special attention are inadvertently ignored	
Lack of authentic objects and experiences in the classroom, no natural context	Intermittent outreach from museums and other community institutions
Government-mandated testing emphasizes science and math at expense of social studies	Theme-based learning attempts to cover all areas of study
Use of standardized methods and state curriculum to "teach to the test"	
Stress on verbal/linguistic and logical mathematical teaching and skills	Some visual, musical, artistic and kinesthetic methods of teaching and learning
Extra-Classroom Learning	
Lack of transportation to museums and other community institutions	Parents help with transportation
Lack of time to go to museums and other community institutions	
Special Needs Learning Issues	
The school has a high incidence of learning disabled and autistic students[8]	Stress on Exceptional Student Education (ESE) with team of special education teachers
Inclusive learning is difficult to achieve in the classroom	Special needs students are pulled out of class for skills-based and remedial instruction
Special needs students are isolated from typical students during "pull outs".	Sometimes typical students join the social skills groups, but usually the group is non-inclusive
Learners who have different learning styles are often ignored	Awareness and some implementation of learning based on Howard Gardner's Multiple Intelligences

Fig. 6.1 Challenges facing the School of Arts and Sciences

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[7] Hein, 1998: 85.
[8] The school has identified 12-15 students out of a student body of 230, and there may be more, who have either been diagnosed or who present as though they are on the autism spectrum. Definitive diagnoses are difficult because some families do not take the formal steps to categorize their children with Autism Spectrum Disorder.

The critique in Fig. 6.1 indicates that the school struggles to fulfill its commitments to progressive and inclusive education. In many ways, the school is shaped according to government dictates. State and national curriculum and testing mandates, particularly the Florida Comprehensive Assessment Test (FCAT), skew emphases on a limited number of subjects and thus have the ability to distort learning. FCAT instruction and testing takes up time that otherwise could be used to advance participatory, experiential learning goals. In addition to the FCAT burden, the school is distinguished by a significant population of autistic and learning disabled students served by a thriving ESE program. Ostensibly, inclusive education is being practiced at the school; however, it does not always occur in the classroom as teachers realize the complexity of assimilating multifold learning styles.

Regardless of its shortfalls, the School of Arts and Sciences was open and welcoming to my work and for that I am very grateful. The core philosophy of teaching and learning and desire for active, community-based learning environments complements the constructivist community of practice approach that I developed through the Museum Learners Club. My research subjects were drawn from a classroom that had a forward-looking teacher, Jayne, who is dedicated to her students and to inclusive, interactive learning. She uses various teaching methods including small group discussion, larger group dialogue and authentic activities such as raising chicks and rabbits in the classroom. She does what she can to foster participatory learning but feels hampered by the mandate of standardized tests.

To address different learning styles, Jayne understands Gardner's theory of multiple intelligences and incorporates different modalities of teaching. These efforts

have incurred some success and introduce innovative experiences for students; however,

Jayne admits that she does not always have the time to attend to individual differences.

"You always think as a teacher – whole class, whole class everything," she states. She

worries that the learning difficulties of some students, especially those with autistic

characteristics, may be ignored. Special education teachers corroborate this concern. One

remark by an ESE teacher points out:

> I think what I see in the larger classroom is that there's more of a tendency to shut
> down – what I call "shut down" – where something that they're having to do
> overwhelms them [so] they may lay their heads down or just can't pull it together
> to do it. A lot of times it involves writing – that's the thing that shuts them down.

The smaller size of the Museum Learners Club framework and the nature of my

approach address many concerns of the school and could be an important factor in their

resolution. It offers a nurturing environment for participation and negotiation and makes

optimum use of authentic experiences and objects. Its inclusive nature equalizes learning

for all participants. Jayne agrees that museum learning enriches classroom learning. She

discusses its merits:

> I can't bring in to the classroom, all the things that are out there. I mean, we've
> got a bunch of city kids and I take them out to the Junior Museum and they hold
> on to a plow and they plow. I can't do that for them in the classroom.

> I feel that that experiential learning is more valuable than what [students] get from
> the classroom [where] they're getting it out of a book or off the Internet.

> I can't [offer] it all. As much as I'd like to think I [could], these kids need [more].

MLC Preparations and Curriculum

Integrative and organizational groundwork for the Museum Learners Club was

time consuming and intricate. It involved discussions with school administration, teachers

and parents, setting a course of study that would complement the class curriculum and selecting participants. Preparations continued with arranging transportation and creating a schedule of museum visits that would be agreeable to all parties. Although the early stages were labor intensive, they were gratifying because people were open to my ideas and willing to allow my intrusions in their lives and work.

I ascertained which museum collections in the area were applicable to topics assigned by the teacher. Museum educators welcomed the prospect of visits from local school children, especially because school budgets have cut appropriations for field trips in recent years. The opportunity to serve students, especially students identified as autistic, would broaden museum audience profiles for the period. Some museums offered to tailor their existing resources to our curriculum. In several instances, museums devised special presentations that met our needs; however, we mostly concentrated on existing exhibits and programs. It was important for me to know that relevant programs existed as a matter of course, not just because I was asking for them.

In early February I distributed an explanatory paper to the school principal and teachers. It outlined the MLC project, its goals and purposes, and included a description of the underlying research. A copy is included in the Appendix. I prepared similar explanations for participants and their families and for the museum professionals we would meet. Once the MLC schedule was confirmed, I distributed a packet of information to teachers, students and families that included consent forms, requests for interviews and a calendar of activities.

At the onset, I knew I needed to tie the work of the MLC to the class curriculum. This commingling of purpose resulted in a meaningful endeavor as I found school

administrators, teachers and parents willing to support my project and validate it with the students. Importantly, it enabled a sense of consistency. MLC students learned social studies and history content that related to the class theme and school curricular requirements. They also learned how to go about learning in museums and related institutions. Most significantly, they gained new identities as they participated in new places of engagement. This was clearly evident as these students became part of the larger community apart from the school.

I planned the MLC course of study after extensive consultations during January and February. Lead teacher Jayne discussed her curricular rubric for "America: The Second Hundred Years" that she derived from Florida's Sunshine State Standards.[9] It included topics on the Industrial Revolution, immigration, World War I and the 1920s, Stock Market Crash and Great Depression, World War II and the 1950s, the Vietnam War and later decades up to the present.

In Jayne's rubric, students were assigned to gather facts about major issues, events, and people of the times, looking for causes and effects. There was a secondary focus on social issues and historic highlights in areas such as fashion, scientific innovation, recreation, leisure activity, transportation, and the arts. From Mondays through Thursdays, a 15-20 minute block of time was allotted to fact gathering from library resources (mostly from books that Jayne checked out from the county library). On Friday afternoons, there was time for sharing facts.

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[9] Sunshine State Standards dictate what Florida public school students should know. They include general categories of knowledge, general expectations and specific benchmarks. For more information on the standards and how students are tested, see the Florida Department of Education Curriculum and Instruction Web site at http://www.fldoe.org/bii/curriculum/sss/ (accessed 9 June 2009).

Jayne expected students to complete a number of exercises related to the historical themes. They needed to compare primary and secondary sources and reenact history through a contextual activity. Primary sources were usually comprised of reproduced historical documents. The contextual activity was the simulation of a child labor assembly line. Students also were assigned a major project due at the end of the semester. It could entail anything pertaining to the theme that students found to be interesting and was expected to culminate in a poster board presentation and/or demonstration. Throughout the period, students were expected to write about what they were learning in various narrative forms.

The classroom curriculum was a formal course of study. It could be described as hierarchical, linear, and progressive because it was determined and organized by the lead teacher in an authoritative way and in a chronologically ordered fashion. It followed a specific stepped plan that would lead to certain goals.[10] The Museum Learners Club succeeded in connecting to its essence; however, it did not conceive the curriculum as a hierarchy of material to be taught and learned in neat segments. Rather, we viewed the theme in an open, non-linear way that would facilitate individual and group identities.[11] Involving museums with collections and programs that dovetailed with class topics, our curriculum arose through engagement in our social practice. This allowed a more natural network of relationships to surface.[12]

It was not possible to be entirely natural. Some structure had to remain even as we diverged from the curriculum and left the school for our own "classrooms" in museums. As community coordinator I was cognizant of the fact that "when a teacher surrenders the

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[10] Corwin et al, 1976.
[11] Ibid.
[12] Hein, 1998: 86.

support of the predetermined structure of knowledge, as reflected in a formal curriculum,

he or she takes on the difficult job of developing an overall structure in which children's

individual paths can flourish through learning activities".[13] We had diverse learners in the

community of practice and I needed to strike a balance between informal and formal

elements. To this end I set out an outline for what we would learn that would give us

some structure and encourage progressive study toward a final theme project. I integrated

subject areas and some classroom exercises—mainly writing, fact gathering and design

and construction of the final project—with the MLC's manner of learning. This

integrative effort coincides with the semi-structured nature of the SCERTS learning

interventions as described in Chapter 4. Introducing writing exercises was important

because it was an activity that teachers stressed and that was found to be challenging for

the students on the autism spectrum.

Above all, the MLC followed Wenger who advocates relinquishing the formality

of standardized curriculum for an "identity-oriented 'curriculum of meaningfulness'" that

emphasizes learning as identity transformation. This approach leads to "experience of

localized depth" in which students delve deeply into the practice of the community and

get a sense of membership or identity within the community.[14] As Wenger states, "it is

more important to enable transformative experiences of identity through full engagement

with a few things than to cover extensive content".[15] As coordinator, my main focus was

on keeping the practice vibrant, making sure all participants were engaged.

Before we visited our first museum, I met with MLC participants to talk about my

research and their impending roles in the community of practice. I shared ideas of

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[13] Corwin et al, 1976.
[14] Wenger, 2006: 42.
[15] Ibid.

constructivism and communities of practice. Aware that they were part of a unique experiment, they quickly adapted to the participatory environment and gained identity as participants. They knew that our work was different from that of the rest of the class. While students in the classroom listened to teachers talk, gathered facts from books and the Internet, and individually created a term-end project, the collective MLC gained meaning in museums from museum objects and group experiences and worked together on a project.

I worked closely with Jayne to arrange a schedule that would minimize class interruption and lessen interference for participants' required assignments. This was a complicated process that called for mutual trust and accountability. Rather than a greater number of relatively short museum visits that called for many class absences, we scheduled fewer trips that would each take up an entire school day.

We visited four museums, a library and archive. Our times together were designed to coincide with the classroom theme, provide comfortable transitions and reflect patterns of activity to which the young learners were accustomed. Each participant had a notebook in which to write and an agenda in hand as we traveled to our destinations. Our days together included a number of experiences including time allocated for lunch, recess and reflection. Although full, our schedules were flexible except for the times of scheduled museum programs.

MLC activities went beyond museum experiences to encompass serious reflective practice. We set aside separate meeting times for collective dialogue and work on the term project that enabled us to share explicit and tacit knowledge. For learners, these times resulted in feelings of belonging, increased competency, and solidification of

knowledge gained from museum resources. Those who study reflective practice contend that by employing dialogue we can unpack the richness of experience.[16] As Amulya writes:

> The act of reflection is the foundation of purposeful learning, particularly for experiential and practice-based learning. Reflection is an active process of reviewing an experience, either while it is going on or afterward. A key to reflection is learning how to take perspective on one's own actions, thoughts, and feelings—in other words, examining an experience rather than just living it. Systematically exploring and bringing a sense of inquiry to an experience allows the learning from that experience to be surfaced. We can go through an event that is rich in possibilities for learning, but without reflection, the event stays at the level of experience.[17]

Members of the MLC Community of Practice

In Jayne's class of 26 students there were at least four who exhibited behaviors on the autism spectrum. More than 15%, this is an extraordinary percentage given the nationwide incidence of autism of one in 100. Jayne suggested three of them, plus three others, for the MLC study. Two boys and a girl presented autistic characteristics: James, Ted and Fiona. Jayne and other teachers view these three as being on the autism spectrum with regard to their classroom behaviors even though two have not been formally diagnosed as autistic.[18] They possess learning-readiness skills; however, at times they presented quite severe learning challenges.[19] None exhibited radical behavior such as tantrums, seizures or aggression. They received special education services and have Individualized Education Programs (IEPs) to address their unique learning needs. As

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[16] Amulya, 2003: 3.
[17] Amulya, 2005: 1.
[18] The autism spectrum encompasses many characteristic behaviors as detailed in Chapter 4. A number of parents hesitate to go through the diagnostic process, some may even deny the condition. Along with Jayne and the special education teachers, I view these children as having autistic characteristics. They may also present multiple disabilities.
[19] I sought students who could generalize skills to independent settings as I wanted my work to be remedial not compensatory. See Siegel, 2003: 441 and Nind, 2000a: 45, 49.

such, they were determined to be "children with disabilities".[20] Neurotypical girls and a

boy, Holly, Sheila and Liam, completed the group that Jayne and I agreed upon.[21]

Aside from the six students, the MLC included the classroom aide for one of the

male students on the autistic spectrum. Teachers and parents were welcome to join us

and, on occasion, some of them did. I was an integral part of the community, as

participant observer, coordinator and co-learner.

Autistic learning styles that surfaced in the MLC included various social

differences; slow and halting cognitive processing; sensory issues including sensitivity to

loud noise and commotion; inflexibility; distractibility and attention deficits; speech

deficits; and physical needs for respite. Non-autistic learners also presented potential

impediments such as lack of interest in school, boredom, and frequent school absences.

At least one member of the group was a gifted student. Despite their varying abilities, the

learners easily worked together within the community of practice framework.

The inclusive nature of the MLC benefited all concerned. In fact, the community

provided unprecedented exposure to difference for the non-autistic students. This type of

inclusive opportunity can help "children without [autism] to become more sensitive and

supportive partners by developing a greater understanding of children who have

developmental differences, thus having a mutually interdependent, transactional benefit

for children with [autism] as well as for children without . . .".[22]

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[20] For more information on Individualized Education Programs see the U.S. Department of Education Web site at http://www.ed.gov/parents/needs/speced/iepguide/index.html.
[21] The term neurotypical is one used by some with autism to describe others who do not have autism spectrum disorder.
[22] Prizant et al, 2006a: 6.

The following description of participants who have autistic characteristics is derived from extensive observation before, during, and after the MLC field study and from interviews with teachers and parents.

James

James is an intelligent child who is good at problem solving yet it takes him a lot longer than most to gather his thoughts and complete tasks, especially written work. One could describe his cognitive processes as halting and he seems to manifest under-connectivity that is characteristic of the autistic brain. He suffers from sensory issues and cannot bear loud noise and cacophony that can occur in a classroom with 26 young students. James's mother discussed his difficulty with loud noise and compared her own experience:

> It is physically painful for him. I can identify with that. I remember going to pep rallies in high school and being in tears because it hurt so bad. It was physically painful. It's like a barrage, it's like being hit. So, I used to skip pep rallies to do my homework.

James is also sensitive to touch and may panic if he is too close to others, needing to set a wider boundary to his physical space.

James is perceived as being socially aloof. At times, he withdraws in order to avoid the busy environment around him which, to him, is confusing, or to cope with being overly stimulated. At other times he uses movement to combat distress. Rocking back and forth, pacing, or going for a "runaround" helps to calm him and refocus his efforts on learning. During a vocabulary learning session at home, his mother accommodated James's need for movement to facilitate learning. She describes the session:

Last night he was lying on the couch and he had something he was throwing up in the air, moving his arms up and down, and we were going over his words. He was kind of contained lying across this loveseat we have and I was right in front of him, but he was having enough movement and I wasn't having to say, "Now look at this word".

James has a distinctive learning style. His auditory processing is slow which makes it difficult to receive information and, in turn, express what he knows. This leads to a loss of confidence and a feeling of self-consciousness. James hangs back and clings to the periphery of social situations. The slow processing speed also contributes a difficulty with transitions resulting in either in decreased ability to focus or the opposite: a hyper-focus.[23] James realizes that he has traits that impede learning, however; and is determined not to give up his effort at problem solving and expression. He is a good self-advocate who lets those around him know what he cannot tolerate.

In some ways, school provides valuable learning opportunities for James. His IEP allows him special accommodations that include increased time for writing tasks and special education services. He enjoys being pulled out of the regular classroom to be with the special education teachers so he can be in a quiet place, away from others. At some times, however, school hampers learning. His mother recognizes that James does not learn through classroom lectures and a transmission-absorption style of teaching. She is committed to giving him learning choices and providing opportunities for him to learn how to cope with the world outside school and be flexible.

James's mother believes that opportunities for decision-making and overcoming rigidity generate confidence. These are the main reasons she was so enthusiastic about James's participation in the Museum Learners Club. Getting James out of the classroom

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[23] These descriptions of James mostly use his mother's terms. She is trained as a speech pathologist and has a master's degree in language disorders.

means exposing him to new resources and giving him the tools for learning. She invariably credits the importance of museums in this regard. "Knowing what the resources are in the community is really half the battle. You can have the most wonderful topic to research, but if you only know one way or one place to research it, it can be really deadly, boring, and you won't understand it," she states. As she talked about her son and the Museum Learners Club, she referenced an oft quoted phrase that appears at the nearby university campus: "The [MLC] kind of reminds me what's on Dodd Hall at FSU – 'The better part of knowledge is knowing where to find it.' So I feel like, that's what this group has been about".[24]

Ted

Ted consistently has a positive disposition even in the face of a myriad of learning challenges. He has a good sense of humor and likes to be recognized for it; however, he can be overly silly as he tries to get attention. Ted is usually willing to tackle academic tasks, but markedly falls behind his fellow students. He has difficulty grasping abstract concepts. Though he reads fluently, comprehension is a challenge. He may have been late with developmental milestones, but he continues to progress on his own terms. He is difficult to get to know because he communicates on a younger level than others his age.

Like James, Ted has issues with slow processing but unlike James, he tends to be passive and surrender his efforts rather than persevere. He is easily distracted yet is almost always easily prompted to regain his focus. He needs one-on-one attention to

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[24] The maxim that appears over the main entrance to Dodd Hall on the campus of the Florida State University reads "The half of knowledge is to know where to find knowledge". Dodd Hall was a library when first constructed and these words were inscribed.

organize his thoughts and complete assignments and has had a full-time aide since he began going to school.

Ted has a general developmental delay and exhibits behaviors associated with the autistic spectrum. He may fall under the Pervasive Developmental Delay-Not Otherwise (PDD-NOS) or "atypical autism" category but has not been specifically diagnosed. His aide is part of a team of therapists and educators organized by Ted's parents that includes a speech pathologist, physical therapist and occupational therapist. The team helps with a number of challenges stemming from medical problems at birth that include speech and language delays, low muscle tone and fine and gross motor delays. At times, Ted's team includes professionals from the Center for Autism and Related Disabilities where he is a client.

Among Ted's behaviors that can be described as autistic are social reticence and inappropriateness. He frequently disengages from the class, peers out the window and is preoccupied with activity and events that are occurring outside teachers' lectures and instructional periods. He likes to talk with others; however, when he engages in conversation, he repeats the same rejoinders over and over. Conversations with peers are brief. When he is at home, Ted talks to himself in order to regulate his thoughts and functions. Throughout the day, he exhibits self-stimulatory movements such as shaking and finger picking that help him regulate his system and improve his state of arousal. He has a narrow window of optimal arousal – the state in which he is focused, able to problem solve and communicate effectively.[25]

Ted is more severely affected by his autistic characteristics than other MLC participants, but he is willing and enthusiastic and continually surprises his teachers and

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[25] Wetherby, 2007.

peers by overcoming obstacles, gaining strength, and developing an uncanny yet unusual intelligence. Though he refers to his fellow students as his pals, many of Ted's characteristics are off-putting and that has resulted in a lack of true friends. Unusual speech and language and physical ineptness set him apart as someone different. The mother of Ted's classmate Liam indicates how her son views Ted in the following passage:

> I remember [Liam] talking about [Ted] when he first met him – that he was different or he talks different, but he is really smart . . . putting it together that people are more than just what they appear to be and that difference is okay and that difference is good and . . . when you see that and you accept that then it helps – because everybody's different.

Fiona

Fiona is a beautiful and intelligent child who was diagnosed with the autism spectrum disorder known as Asperger's Syndrome. When she was three, her pre-school teachers noticed that she lagged behind in fine and gross motor skills. Later years were marked by social awkwardness and lack of communicative skills. Fiona can easily manage concrete ideas but struggles with metaphors and abstractions. At this stage in life she is learning how to more appropriately display her emotions.

Her social and communication challenges impede Fiona's learning. Her parents indicated that she has difficulty "fitting in" with others her age because she does not know when to speak or what to say. Her primary needs lie in the area of socialization skills.

Fiona is perceived by her classmates as being stubborn. She wants things to proceed in a certain manner and because of her inflexibility, others often give up their desires for hers. She can lash out if she does not get her way. At times she displays an all-

absorbing interest in certain topics at the expense of others. She also displays self-stimulatory behaviors in class, such as flipping book pages back and forth as she reads and pacing in circles. The unusual actions seem to help her keep her focus. She wants to make friends but seems unable to do so. Relationships are formed only after others take the initiative.

Like Ted, Fiona is a client of the Center for Autism and Related Disabilities. Her parents are familiar with Gutstein's Relationship Development Intervention (RDI) and prefer its guided participation model over behaviorist strategies. They are concerned about giving Fiona the best opportunities to gain socialization skills, at school and elsewhere so she may have the same quality of life as other children.

The preceding portrayals of James, Ted and Fiona are brief overviews and do not intend to explain all of the autistic characteristics that these participants present. Additional discussions of their varying abilities are included in the longer descriptions of the field study; however, even these brief accounts hint at the diversity of the autistic population and developmental challenges that are manifested differently and occur in different combinations and degrees. Whereas a student with Asperger's Syndrome may have a large vocabulary, know dictionary definitions and have a depth of learning in certain subjects, she may also have trouble using words in meaningful or emotionally relevant ways to relate to others.[26] Whereas a student with autistic neurological processing may know all the correct answers, he may not be able to express the answers to questions in a large, busy classroom and thus fall behind in academic assignments. Whereas, a student with fine motor delays and low muscle tone may be able to express

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[26] Greenspan and Wieder, 2006: 4.

what he thinks, he may find it difficult to move his tongue and mouth muscles to speak and thus give the appearance of lack of social skills and limits in cognitive abilities.[27]

As discussed in Chapter 4, the main areas of challenge that inhibit learning for those with autism can be separated into broad categories of relating, communicating and thinking and sub-categories that deal with engagement, socialization, logical processing and the ability to think abstractly. James, Ted and Fiona were challenged in all of these areas to varying degrees. One might fit their autistic characteristics into a similar chart as seen here in Fig. 6.2. This figure is intended solely for the purpose of a general outline of autistic characteristics that inhibit learning for these students and is based on observations and interviews.

Foundations necessary for relating, communicating, thinking in class	Indications of Autism Spectrum Disorder	Associated Symptoms for MLC Participants
Attention, engagement, emotional interactions: Ability to pleasurably relate to another person	Fleeting, intermittent or no engagement or interaction	*James:* Withdraws when class becomes confusing or loud, needs repeated movement to concentrate *Ted:* High distractibility requires cueing and prompting, self-stimulatory behaviors: shaking *Fiona:* Self-stimulatory behaviors: consistently flips pages, paces
Continuous purposeful social communication: Ability to negotiate, play, and read emotional intentions of others	Limited or no interaction; little initiative taken toward relating	*James:* Withdraws rather than relates *Ted:* Does not readily relate, remains passive, speech/language delay *Fiona:* Unable to read emotional clues
Creative and logical use of ideas: Ability to express needs, intentions, desires, feelings in meaningful conversation and connect ideas logically	Inability to use ideas in meaningful way; using ideas without logical connections	*James:* Slow processing causes decreased expression of ideas *Ted:* Repeats scripted language, perseverates *Fiona:* Focuses on knowledge in certain areas that are unrelated to task at hand
Abstract and reflective thinking: Ability to use high level thinking skills; make inferences	Concrete thinking that is rigid, lacking subtlety	*James:* Has high level thinking skills but slow processing, can be rigid *Ted:* Difficulty with comprehension, cannot infer *Fiona:* Rigid, stubborn

Fig. 6.2 Learning challenges for MLC participants on the autism spectrum (adapted from Greenspan and Wieder)[28]

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[27] Ibid: 4-5.
[28] Greenspan and Wieder, 2006: 7

Throughout the field research period, the MLC format was flexible enough to make allowances for the unique learning styles and abilities of this group of students. This is true for museums in general as it is "probable that pupils who 'shine' unexpectedly in museums are reaping the benefit of being able to use a range of learning styles and resources that are not always available in the classroom.[29] There was additional time for James to express his ideas and for Ted to gather his thoughts. There was enough space for Fiona to pace if she needed to. None of these behaviors, nor adaptations made for them, disrupted the community or hampered the learning going on within it.

The Neurotypicals

Holly, Sheila and Liam were the three neurotypical students who joined James, Ted, and Fiona in the Museum Learners Club. All three are average or above average academic achievers and can be described as typical students. Holly is a very intelligent fifth grader and attends gifted classes in Science each week. She travels with her family and frequently goes to museums. She is articulate and one of the highest achievers in Jayne's class. Sheila is an average student who has a quiet, calm nature. She is shy but can be gregarious once she feels comfortable. She does not like being alone and tends to gravitate towards another person when undertaking activities. Her mother indicates that Sheila learns best when in a small group. Liam is also smart but has had a recent history of poor attendance at school. He does not find school engaging and is frustrated with his fellow students, feeling more comfortable with an older age group. Before coming to the school, Liam had been home-schooled by his parents and prefers the individualized

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[29] Hooper-Greenhill, 2007: 259.

learning that home schooling allows. At times he is reticent to ask questions in class and fully participate. All three of these students and their families were excited about being part of the MLC. They flourished, learned and demonstrated that inclusive learning can be a success for all concerned.

Museum Learners Club Narratives: Theoretical Design in Practice

This section is devoted to an analysis of the MLC project through selective narrative and thick description of community activities. It begins with a discussion of initial organizational meetings, continues through the visits to museums, and concludes with the working out of the final project and reflective sessions that wrapped up the semester. Built into the narrative are quotations, analysis and interpretation, always with an emphasis on interpretation over analysis. I have liberally interjected my observations and viewpoints derived from extensive field notes, photographs, and audio and video recordings. My main goal was to seek out how the constructivist community of practice developed and the ways it facilitated learning. I wanted to trace the movement of understanding where degrees of participation increased and identities were formed and expanded. I was also looking for evidence of the conversion of knowledge from tacit to explicit and explicit to tacit. The following descriptions convey the subjective reality of the members of the community along with my thoughts as a reflexive researcher.

The Beginning

The first meeting of what I called the Museum Learning Community, later to be renamed the Museum Learners Club, occurred on March 8th. All young participants were

at the meeting with the exception of Liam who was frequently absent from school. I had issued an invitation to teachers and family members to join us at any time. On this day, the associate teacher, Li, was present.

My purpose was to orient the group, explain my views of the community of practice and get everyone accustomed to conversing about museums and how they can be used for learning. I explained that I would be doing a lot of explaining at first but that my talking would not characterize our time together. I spoke about what we would do for the next two months: that we would be doing things that were similar to what the class did, but the things we did would take place outside the class, mostly in museums. I discussed the project, writing exercises and the theme. I laid out the basic schedule for museum visits.

I said that each of us would be learners but some of us might be more expert in certain areas. I asked if anyone at the table was a teacher. No one raised a hand and all pointed to Li. I said that we could all raise our hands as "teachers," because we all had knowledge to share. I wanted to impart the idea that everyone in the group had an equal part to play in the endeavor but, at times, any one of us might be expected to assist others of us in the learning process. I was revealing notions of how learning took place in a community of practice by legitimate peripheral participation, cognitive modeling and scaffolding.

To outline the community's practice of museum learning and to invite dialogue, I followed with questions about museums, asking participants about their favorites and the ones they liked to visit in Tallahassee. I finished the line of questioning with asking whether or not they felt they could learn in museums and how that might take place. Each

participant contributed his or her thoughts. Holly was a quiet authority and seemed to have the most sophisticated knowledge of museums. She quietly mentioned that we could learn in museums by reading labels.

Each talked about museum stories from their own lives. Sheila described an experience at the Brogan Museum where she was fascinated by a computer-simulated photo of herself at an older age. Holly talked about frequent visits to the Museum of Florida History and the Tallahassee Museum. Ted remarked that the caboose was his favorite object in the Tallahassee Museum collection.[30] Fiona especially likes the ship at the Museum of Florida History.[31] These learners have parents who take them to museums on a regular basis. In fact, some of them described the museums they would visit during their upcoming spring break. A prolonged discussion about the Museum of Florida History ensued with mention of the huge mammoth skeleton and with James declaring that he knew everything about the museum and the government building that houses it and various other historical and cultural resources including archaeological collections and the state library. Fiona wanted to add what she knew about the Museum of Florida History but deferred to James when he made his declaration. At this point, James emerged as a leader of sorts with his knowledge of the R.A. Gray Building. I envisioned that when we visited the museum there, James would act as the expert and we would be his apprentices.

This first conversation conveyed a rich cache of prior knowledge about museums in general and Tallahassee museums specifically. I saw it as an important starting point

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[30] The Seaboard Air Line Caboose was in service on Florida rails from 1924 until 1963 and is now on display with a recreated interior.
[31] The ship Fiona refers to is a reproduction of a Florida steamer that traveled the state's rivers during the nineteenth and early twentieth centuries.

for increased learning in a constructivist manner. Significantly, each learner on the autism spectrum had something to say. With one brief encounter we were working together as a purposeful group, each of us identifying with the MLC and museum learning. It was a positive experience unlike some class discussions that are truncated because of time restraints or teachers' interjections. I sensed that each participant assumed a sense of leadership when he or she spoke.

I continued to outline the parameters of the community of practice and constructivist pedagogy referencing each paradigm. Regarding constructivism, I stressed that comfort was paramount. I explained that we should all enjoy ourselves while we learned and if anyone became uncomfortable, he or she should speak up. In response, James asked if participants needed to talk a lot. Boldly, he was self-advocating for a situation that would provide more comfort for him. I assured him that the learning community was built with a flexible structure, "talking a lot" was not a prerequisite, and that if too much talking became bothersome, we would deal with it in such a way as to make him feel comfortable.

Continuing the orientation, I showed the group a tentative schedule of museum visits. They all were interested in seeing what we would be doing. We agreed to think about the name for the group and discuss it at next week's meeting.

During this first meeting, individual identities and learning styles were established. Holly and James showed leadership capabilities; Sheila indicated a willingness to be a solid member of the group. She was attentive but did not assert herself. Ted was somewhat disengaged. At some times he stood up and walked away and at other times made random comments that had nothing to do with what the group was

discussing. His aide, Mr. D, keeps Ted on track by cueing him; however, Mr. D was not present at this meeting. The associate teacher Li was very intrigued with the group conversation and offered enthusiastic confirmation. This support from a teacher buoyed our effort.

As lead researcher I reflected on the early progress of the constructivist community of practice I was shaping. I was struck by the natural way things were coming together: the motivation to learn, the eagerness of participants to share and the ease with which the young learners accepted roles within the community. I was confident that our *ba* or "microcommunity" could be a rich learning environment. This was clear. What was not clear was whether or not we could find learning solutions for those on the autism spectrum. Was my work was really about autistic learners? With Fiona's certain reticence and Ted's lack of attention, I felt I was not directly addressing the challenges of autism.

It occurred to me that although I was not using a prescribed autism intervention, I was dealing with one of the basic reasons for my work: testing the value of inclusion. I was inviting into the community students who had previously been segregated, excluded, and rejected. The fact that there were degrees of participation from all, *including* those on the autism spectrum provided a glimmer of the overall success of the study.

However slight it may have been, the degree of participation I witnessed is significant when one considers that even the simplest collaborations require a level of neural integration that is non-existent or inchoate in many autistic learners. At times, even Fiona and Ted were exhibiting characteristics of genuine human collaboration: joint

focus with their partners toward a shared goal; self-regulating and valuing the integration of their actions.[32]

Concept Mapping

We had a full complement of six students when Liam joined our second meeting on March 16. Associate teacher Li and Ted's classroom aide, Mr. D, were there. Lead teacher Jayne joined us toward the end of our meeting. This was the second of two orientating sessions where we built the foundations for our constructivist community of practice. We quickly launched an energetic discussion about the name for our group. Many of us were talking at once. While there was a tenor of enthusiasm, Ted and James tried to provide input but were drowned out by others. Ted became distracted by the tape recorder, speaking into it and laughing and then preoccupied by a nearby recycling truck. Fiona came up with the moniker Museum Learners Club which everyone liked. I distributed folders with writing paper and explained what we would do during this meeting.

The excited talking quieted and we participated in creating concept maps. There were two reasons for this exercise. First, I wanted to invite Liam into the already established group with an activity that engaged all of us. This resulted in a concept map about school. Second, I wanted to determine what the group knew about museums and their readiness for museum learning. This resulted in a concept map about museums.

From a constructivist viewpoint, concept mapping can illustrate how learners we build upon prior knowledge as we learn. Concept mapping is also useful in developing consensual plans, providing advanced organizers, depicting cognitive deficiencies and

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[32] Gutstein, 2009: 208-209.

building specifically valid knowledge structures.[33] I could have used concept mapping for all of these purposes, but time was too limited to create a complex knowledge map with an intricate hierarchy and cross links, so I used the general idea of concept mapping as a way to more fully develop the ties we were forming as a community of practice. In our conversations we discussed relations between and among our concepts even though we did not fully indicate these relationships on our maps. It was an example of participation overcoming reification. In the end, the museum map we created, though rudimentary as a concept map and more fully developed as a conversation enhancer, did help to develop consensus and acted as an advance organizer.

The students were familiar with graphical organizers used for writing. They called one such organizer an "alien" that consisted of the topic placed at the top of a page of paper with tentacles that spread out below it. The tentacles connected to different writing themes or secondary topics that could be further delineated with additional tentacles demarcating a tertiary level. We adapted the alien form to construct our concept maps.[34]

The first map, used to continue orientation and to engage all participants involved the notion of "school". I asked a question to launch our mapping exercise: "What do we do in school?" The answer, "We learn," was proffered. I followed with the leading question, "How do we learn in school?" My questions were designed to initiate a process of thinking about school. I asked everyone to make a list of words associated with school that we could draw upon for major concepts and minor sub-topics. Our four major concepts included: reasons we went to school; people associated with school; academic

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[33] Novak, 2008. Novak based his work on the constructivist learning psychology of David Ausubel who believed that learning takes place when new concepts are assimilated into existing conceptual frameworks.
[34] There are many types of graphic organizers including star and spider charts and venn diagrams. The alien graphic looks most like what is typically called a network tree.

subjects; and learning tools. Sub-topics and other ideas completed our school map. The group proudly presents its school concept map in Fig. 6.3.

Fig. 6.3 The MLC with the school concept map

The exercise went well and the group was beginning to coalesce with the exception of Liam who was reluctant to contribute his ideas. I was directing the activity even though I again remarked that I would not be the sole leader and that we would be sharing our thoughts and working coequally. I tried to draw out Liam's ideas and was marginally successful. Liam was mostly quiet and needed encouragement to speak. His mother had already told me that he was not happy at school this year, did not feel challenged, and was frequently absent. It was difficult to connect with him. He stood out in that respect. I felt a stronger connection with the other participants who all wanted to express the ideas they had about school. I could sense their thinking processes as they came up with new words and concepts to describe what school meant to them.

Some autistic behaviors surfaced. Fiona stood up and walked around as she thought while the others were sitting down, making lists in their notebooks. At times, Ted strayed from the conversation, constantly repeated random words, and filled voids with excessive laughing. This would have been considered inappropriate behavior in the classroom, but we accepted it in this context. At other times, Ted was writing a list of words that pertained to the main topic, murmuring as he wrote, ". . . reading, lunch, recess, work time . . .". Occasionally he blurted out novel and relevant ideas that indicated he actually was on task and thinking about the subject at hand. This was significant. His aide, Mr. D, was impressed with Ted's contributions because in class Ted sits back and does not speak, rarely raising his hand to answer questions or make comments.

We constructed our school concept map after about five minutes of thinking and writing. Upon prompting, Ted was the first to contribute to our visual representation on the white board. Fiona and James followed with their ideas and soon everyone except Liam readily contributed to our picture. The learners on the autism spectrum revealed their individual differences in obvious ways. Fiona was thoughtful and insightful but needed the physical stimulation of pacing around. Ted displayed an intermittent lack of focus. James was slower than others in processing and expressing his thoughts.

We moved on from the discussion about school to develop a museum concept map. I generated conversation by asking, "What do we do in a museum?" By this time, the young participants, even Liam, were eagerly describing what museums looked like; what they contained; the types of museums; why we should go to museums; and what we would encounter while in museums. The map, reproduced in Fig. 6.4, was a good

depiction of the institutions these students knew well and enjoyed visiting. The children knew museums and knew the kinds of things to expect from them. I placed a copy of the map in each MLC folder and by the end of the term participants had added more concepts (shown in italics in Fig. 6.4).
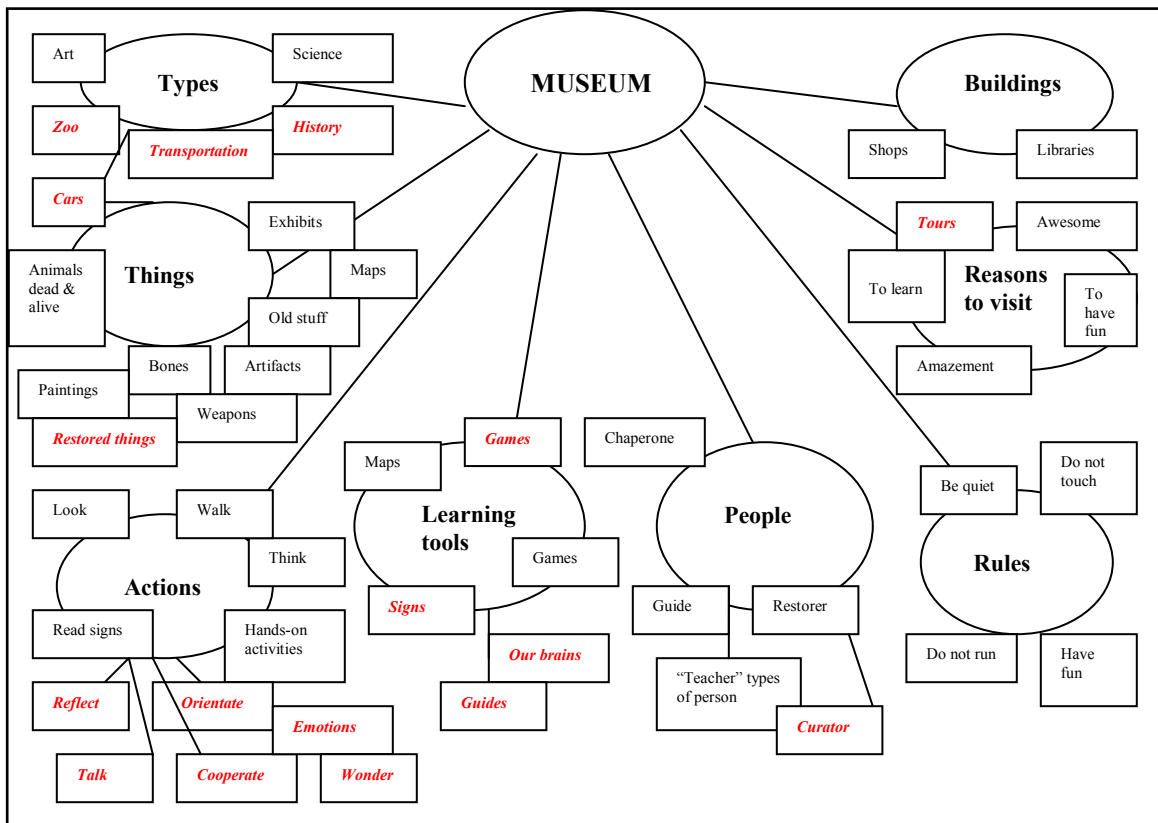
Fig. 6.4 Museum Concept Map created on 16 March with later additions in italics

The concept mapping and much of our discussion proved to be a metacognitive undertaking. We were aware of our learning processes and thinking about how to learn in museums. It struck me that the Museum Learners Club would be involved with two intersecting courses of study. We would be learning social studies content but underlying that, and perhaps more applicable to the purposes of this study and to the future learning success of the MLC, we would become expert museum learners.

As we completed the museum map exercise we resolved to make the most of the museums we encountered. By the end of the brief mapping period, each of us was anxious to move to the next phase. We would be going to our first museum as a cohesive museum learning community now called "The Museum Learners Club".

Fig. 6.5 The MLC with the museum concept map

Looking back on the concept mapping session, I see many early indicators of success for both the MLC learners on the autism spectrum and their non-autistic peers. Ted's attention and concentration was extraordinary considering his usual strong tendency to disengage. Mr. D also noticed a difference in the way Ted approached his work:

> I was surprised to see the way he was doing his lists. For the first time he actually numbered the items in his list and he was adding more as the kids were saying things to add. He's never really taken that much [effort] to organize a list and he organized it with numbers – both times, with the school and the museum list he organized his lists with numbers. I thought that was pretty cool.

James was able to demonstrate his knowledge of museums and museum staff positions. This framed him in a new light for other participants. They could see his influence on the concept maps. In turn, he gained confidence. Holly, Sheila and Fiona emerged as intellectual leaders. They were quick to respond and led the discussion most of the time. They developed their thoughts beyond the maps and came to interesting conclusions about our emerging practice. When Fiona contemplated her two lists of school and museum concepts, she remarked that the school and museum were looking a lot alike. That indicated that even though these were different institutions, she viewed both as places for learning.

In addition to noting observations of individuals and their varying degrees of participation, I stepped back to look at and think about the group as a whole. If we were to learn successfully it would be as a community of practice not as discrete learners. I could see that the framework that was forming, imbued with constructivist principles and Wenger's characteristic social infrastructure, was motivating the learning process. The museum mapping exercise in particular indicated that the group was truly learning together, sharing ideas, and making collective decisions. It also succeeded as an advanced organizer that prepared students for what was to come.

Many times, my thoughts turned to my role as steward. Keeping in mind the MLC's forebears, Matusov and Rogoff's community of learners and Brown and Duguid's cognitive apprenticeship, I guided participation and modeled more expert behaviors while keeping an open mind to flexibility that would allow the group to move naturally on its own. I had to maintain an adaptable environment so that these diverse learners could master their own learning in styles. This type of thinking led to more encouragement for

some, more time to enable thought processes, and acceptance and tolerance of atypical behaviors without losing sight of inclusive group procedures. Each participant, autistic or non-autistic demanded equal time and effort from me and from the group as a whole.

The Museums

Late in March, as school reconvened after spring break week, the Museum Learners Club began its series of museum visits. There were five remaining weeks in the school term and we spent one day per week at museums. We also set aside as much time as possible each week to reflect upon what we had learned and develop our final project.

The museum visits demonstrated both effective and ineffective museum learning practices and my narratives could also be used as a critique of museum practice. Our purposes, however, were to test the constructivist community of practice in museums not assess museum education per se. In the cases where we made meaning by participating we were most successful. During those times, the museum loosened curatorial authority, allowing objects and experience to dictate learning outcomes.

The Tallahassee Museum of History and Natural Science

Our first trip to a museum occurred on March 30 when we went to the Tallahassee Museum of History and Natural Science. On this day, the Museum Learners Club was a group of nine—six students, Ted's aide, the classroom teacher and me. The teacher could stay for only part of the day. Looking over our agenda on the 20-minute trip to the museum gave us the opportunity to see what we would encounter during the day and read about new concepts such as "orientation," "self-directed exploration," and "reflection".

The young participants were happy to see lunch and recess on the schedule—typical

school activities that carried over to the MLC.

MLC
Museum Learners Club
at the
Tallahassee Museum of History and Natural Science
Thursday, March 30, 2006

I.   *Orientation* **to the museum**
II.   *Self-directed exploration* **of the museum**
III.   *Museum Program* **led by Sierra**

             "The Great Depression: 1929-1941:
             A Day in the Life of Turpentine Workers in Leon County"

IV.   *Reflection* **about what we saw**
V.   *Lunch*
VI.   *Recess* **– time to walk through the natural animal habitat**
VII.   *Other Twentieth Century Objects* **at the museum**
VIII.   *Writing Exercise* **– describe an object you saw today**
IX.   *Discussion* **about club project for class**

Fig. 6.6 Agenda for Tallahassee Museum of History and Natural Science

The MLC arrived at the museum and stopped by a large illustrated map near the

entrance. We looked at the layout of the museum. All MLC participants have visited this

museum a number of times. They knew most of the components: the nineteenth century

farm, natural habitat zoo, historic African-American school and church, Bellevue

Plantation house, the discovery center, nature trails and caboose. The pause in front of the

map gave us an opportunity to become familiar with our surroundings and think about

what we wanted to do during time allotted for self-exploration. Even this short step

provided us with a chance to recall our museum mapping exercise, call up our prior

knowledge about museums and initiate active engagement with one another.

Figs. 6.7 and 6.8 The MLC uses the Tallahassee Museum map for orientation and planning

Fig. 6.9 Sharing personal knowledge at the reptile exhibit

We decided to view the reptile exhibit before our appointment with the museum educator. We moved about with a comfortable, casual togetherness. We were cognizant that each of us was part of a group; however, we felt free to look and investigate on our own. Some of us demonstrated special interests. In particular, Fiona gave detailed

explanations of snakes in their terrariums and miscellaneous insects. Fiona is fascinated by these small creatures and some of us joined her fascination by contributing what we knew. While we were studying the reptiles I saw the Curator of Living Collections who invited us to stop by for a behind-the-scenes look at the museum's animals later in the day. This chance encounter led to an ideal activity for our recess period—a time that Liam was later to describe as "the most awesome recess".

We walked to the Seaboard Air Line Railroad caboose to meet the museum educator. The young learners climbed aboard the caboose and inspected its interior. Soon Sierra warmly greeted us and introduced a new program about the Stock Market Crash and Great Depression that she had developed upon hearing about our study topic. We would be exposed to museum resources that would help us understand how people lived during the 1930s. Sierra also mentioned that the museum collection included several twentieth century modes of transportation (one of which was the caboose we had already encountered) and that we would also have time to see these objects.

We walked to the Concord Schoolhouse.[35] We sat at the old desks and Sierra stood before us as a teacher would have stood at the head of the class. She distributed laminated "INFO CARDS" that noted our location and the length of time we would have for what we would be doing in the museum activity. We were in an authentic setting from the past. We felt comfortable having been oriented and welcomed to a museum that we all had experienced before. Our INFO CARDS told us what to expect. We had met a gracious guide and were anticipating an enjoyable experience.

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[35] The rural one-room school was built to educate children of former slaves and served as a public school from 1897 through 1968.

What initially ensued was not as enjoyable as expected. In her "teacher" position at the front of the room, Sierra began a discourse on the stock market crash and subsequent depression. MLC participants became listless and showed visible signs of boredom. Ted studied his INFO CARD, picked his fingers and stared out the window. Liam relentlessly drummed his fingers on the desk before him and waggled his leg. Other participants held their heads and faces in their hands and slumped. No one seemed to be paying attention to our lecturer.

When Sierra asked a general question, James was quick to respond but immediately resumed his bored posture. There were no answers for Sierra's question, "What is a stock?" She answered it herself. When she turned to employ personal pursuits to exemplify what she meant, she met with responses from the MLC participants. She asked each child about their interests. Fiona and Ted answered, "Playing piano". Liam answered, "Books," and James answered, "Drawing". Extracting personal knowledge this way, she invited MLC participants back into a more dialogic encounter with the stock market crash.

The dialogue was brief, however, and Sierra continued to talk on and on about the stock market crash as the MLC participants, children and adults alike, were noticeably unmoved. Images captured from the videotape in Figs. 6.11-6.14 indicate the degree of indifference. In order to redirect the talk to an area that might evoke personal association I raised my hand to ask, "What might have happened to one of us if we lived at the time of the depression?" I thought this might spur on a conversation in which we could all contribute. It didn't. Sierra answered it and continued with her scripted talk.

Figs. 6.10 and 6.11 The museum educator delivers her program at the schoolhouse

Figs. 6.12-6.14 MLC participants react to the "teacher"

The mood in the room changed somewhat when Sierra turned to discuss how we would learn about the depression through the resources presented in the museum, particularly the turpentine commissary exhibit. Sierra explained that we would experience what life was like for turpentine workers during the 1930s. "We're going to live through the life of a turpentine worker," she said.

"What is turpentine?" Sierra asked. "Where does it come from? How is it used? Its source, the longleaf pine, is endangered – do you know what that means?"

The children responded, slowly at first and then with increasing confidence as one question followed another. Sierra was eliciting response but the scene remained static as the learners sat motionless in their seats. Finally, Sierra asked the question her audience was waiting for. "Where do we go next?" The learners perked up and looked at their INFO CARDS and responded in unison, "To the nature trail!" They were anxious to leave the classroom scene for a more dynamic activity.

We filed out of the school and embarked on a much more meaningful museum learning experience. It was one that involved our minds and bodies during a series of participatory exercises. We walked through the woods to a clearing where the six young learners looked for and collected natural objects that Sierra had placed in the area earlier. Each MLC participant picked up one object and read its tag. The tags read as follows:

Berries = Hay
Flint rock = sewing needles
Turtle shell = 1 yard fabric
Bird feathers = 1 cane pole
Antlers = sack of flour
Pinecone = medicine

The activity caused a stir in the group. We were all intrigued with the newly found objects and their equivalents. We were not yet quite sure what the language on the

tags meant. Fiona discovered that the berries she held were real berries. That was a pleasant surprise.

Figs. 6.15-6.17 The MLC finds natural objects to trade at the commissary

Unfortunately, the stirring came to a halt as Sierra again began to talk about the depression. We stood around her, picking and twisting our fingers and hair, pacing, and

looking around. The young learners only focused on Sierra when they were individually addressed. Fatigued, Ted and James found resting spots on a nearby log. Relief came with the question that again gained everyone's attention, "Where do we go from here?" The museum learners knew where the next stop was because it was listed on their INFO CARDS. "To the caboose!"

The caboose was where we had begun the museum program and we retraced our steps to the section of the train car lined with sleeping bunks for the railway workers. Sierra talked about train travel. She told us what conductors and railroad workers did in this caboose that began its service in 1924. A lively question and answer session evolved. As we closed our discussion of twentieth century train travel, conductors, engineers and cabooses, Sierra returned to an interactive museum learning activity that would use the natural objects the students still held. She circulated "statement strips" attached to cords that she placed around each learner's neck. She also handed out more INFO CARDS that announced the next destination as the Turpentine Camp Commissary.[36]

"First, read the statement strips to yourself," Sierra instructed as she explained this step in the program. The strips told us something about the families who lived in a Florida turpentine camp during the 1930s. Each strip assigned a role to a participant. Sierra continued, "Now think about your role at the turpentine camp and what your object signifies. Try to figure out with whom you need to 'barter.' Barter means to exchange".

Fiona read her statement strip, "I'm a turpentine worker. My mom makes clothing to earn money".

Ted was next, "I'm a turpentine worker. I am a father with sick children".

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[36] The B.O. Wood Commissary is one of the 14 historic buildings on the museum site.

Sheila followed, "I'm a turpentine worker. My mom bakes biscuits to earn money".

Holly read, "I'm a turpentine worker. I am a father with eight children who need clothing".

Liam read, "I'm a turpentine worker. I have a hungry cow and mule".

James was the last to read, "I am a turpentine worker. I live by a river and have many hungry children".

As they finished reading, the learners realized that they could trade amongst themselves for things they needed in their roles as turpentine workers. The natural objects they held had specific value. They made the exchanges they needed in order to obtain necessities. Ted gave his bird feathers to James who needed them to barter for a fishing pole. In return, he received the pinecone from Holly. Liam gave Fiona the flint rock in exchange for the berries. James handed over the turtle shell to Holly. Sheila kept the antlers that she needed to barter for flour. The caboose became a lively trading post. It was gratifying to see everyone moving about, trying to secure the correct object. This type of vigorous interaction among autistic individuals and others rarely occurs in the classroom.

It was also interesting to see that the learners on the autism spectrum were capable of carrying out the social exchange without evidence of irregularity. They understood both their personal role and their group role during the exercise. It was an example of what happens in a social learning system (in a community of practice) where learning results from "interplay between social competence and personal experience"—a dynamic,

two-way relationship between people and the social environment in which they participate.[37]

      With objects in hand, the MLC left the caboose and walked toward the turpentine commissary exhibit. The exhibit is housed in a pine planked cabin fronted by a wide porch. The screen door opened to a darkened yet fascinating place that told the turpentine camp narrative from several perspectives. Half of the building was outfitted as a store complete with necessities and a few luxuries for the workers and families who lived at this Northern Florida outpost in the early twentieth century. On display were brooms, barrels, potatoes, cane poles, washboards, meats, cheeses, lanterns, work and church shoes, liniments and ointments, fabric, overalls, toilet paper, soap, cigars, plain and fancy hats, canned goods, tools and other implements on shelves and counters, on the eaves, and in cases. A cash register rested on the main counter.

      In their roles as turpentine workers, the museum learners acquired what they needed through a bartering system. Ted picked up a small bottle of medicine for his sick children, James found a cane pole for fishing, Sheila got a sack of flour to bake biscuits, Liam collected hay to feed his animals, Fiona found sewing needles to make clothes and Holly found fabric.

      The learners examined the items they received. James used the cane pole to cast for an imaginary fish. It was obvious that the quest for the objects and the handling of the objects themselves made a difference in the amount of attention paid to the learning activity. Sierra talked about the turpentine community and the small shanties occupied by working families. Fiona weaved back and forth during Sierra's talk about life in turpentine shanties. This periodic meandering behavior, common with Fiona, does not

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[37] Wenger, 2000: 227.

hinder her learning process. She may not appear to be attending, but frequently contributes insightful remarks during and after such physical routines. The flexible nature of the MLC allowed her to carry on with her movement.

There were other facets to the commissary exhibit that drew our attention and we were able to freely walk around to pursue our interests. In the rear of the building was a multimedia diorama that explained the administrative side of the turpentine industry. In a room adjacent to the general store was a scale model of a turpentine camp and its environs. The MLC spent time looking at and activating these displays. The students particularly enjoyed studying the scale model of the camp, especially Holly and Sheila.

Toward the end of our time inside the commissary, there were intervals in which Fiona dropped away from the focus of attention and walked back and forth, round and round. Even though she was noticeably distant from the main dialogue she would still interject thoughtful comments. Ted lagged behind the group and wandered about mostly alone and away from the others. Sheila and Holly had similar interests, reinforcing one another as they looked at the turpentine camp model.

The turpentine camp activity had run its course and we moved on to see the museum's Model T Ford and Dyno-Hub motorized bicycle. This was a welcome surprise for me even though it meant a change in our agenda, leaving less time for lunch and the writing exercise. I had discussed the idea of seeing more of the twentieth century collection but had not expected Sierra to include the extra tour of vehicles.

Sierra engaged us by asking questions as we explored the vehicles. "Do you know how long it took to make a Model T Ford?" Sierra asked. "One was assembled every 93 minutes! Where is the fuel intake? Let's see if we can find it," she continued.

Eagerly we circled the car, looking for the fuel tank. It seemed like a treasure hunt and each of us wanted to make the discovery. Fiona, even though she was involved with her customary swaying and pacing, alerted us by announcing, "You have to read the sign to know". We clamored over to the label and found that the fuel tank lay under the front seat. We still could not see it. We all wanted to touch the display to see if we could find the gas input. Sierra explained that none of us, not even she, was allowed to touch the car. Museum objects can be unintentionally harmed by touching, she told us. But, quietly and quickly she raised the front seat cushion to uncover what we were looking for – the fuel tank input valve! We were astonished that drivers and riders would have been sitting atop the fuel tank. I think it was something we would have found difficult to believe if we hadn't seen it for ourselves. Sierra may have broken the "do not touch" rule, but in the process she opened our eyes to something we will not forget.

Sierra pointed out the electric Dyno-Hub bicycle hanging high on the wall as another example of twentieth century transportation. By this time, some MLC participants had tired. Ted decided to sit in the only chair in the lobby. Fiona was shifting to and fro and walking back and forth to such an extent that James, bothered by sensory issues, exclaimed, "Fiona, *please stop* moving!"

Shortly, Sierra told us that we would end the program by returning to our first stop, the schoolhouse, in order to "go over what we talked about today". I was happy to see that Sierra incorporated time for summation and reflection before the program culminated. Led by Sierra, the entire group participated in a question and answer review of the concepts we had learned. These included changing lifestyles during the depression including alternate occupations such as turpentining; bartering for necessities; the

significance of the longleaf pine, that it is the now endangered source for turpentine; and various types of twentieth century transport including the Model T, the Dyno-Hub cycle, horse and buggy, and train.

Ted repeated the definition of bartering out loud to himself and I wondered whether or not he really understood the concept. I thought this was significant because he is a learner who verbally repeats concepts. It seems to help organize his thoughts and provide him with a memory. When asked about the definition of barter in subsequent months, he remembered that to barter means to trade things that we have for things that we want. It seemed that the repeated vocalization helped him remember the concept.

We left the schoolhouse after two hours of a rich and mostly stimulating museum experience that took us on a journey through the depression in the context of turpentine workers of North Florida with a few wayside stops to think about transportation of the period. Hungry and tired, we ate our lunch and rested.

Our agenda provided a recess period after lunch, and we headed to the natural habitat zoo. We saw numerous native species as we ambled on the boardwalks that wind along the banks of Lake Bradford, through a cypress swamp and around a hardwood and pine forest. We stopped to see bald eagles and screech owls, river otters, red wolves, bobcats, panthers, and alligators. Along our way, we stopped at the animal headquarters for the promised behind-the-scenes tour. The assistant animal keeper showed us how she maintained healthy animals by preparing nutritious meals and administering vaccinations. We toured the food storage and preparation area and were able to get very close to the panther and black bear enclaves. Our recess turned out to be an exciting learning experience.

During the final half hour of our visit, we assembled in the museum's all-purpose room. Changes in the day's plan, a longer than expected program with Sierra, and our extended recess meant we had very little time for reflection, writing and discussion about the theme project. Our activity was rushed yet we were exuberant. I was aware that though we struggled through periods marked by transmission-absorption teaching, overall the day was a success. We were uniting as a community of practice, assuming community identities and sharing knowledge. We responded well to constructivist learning methods and each one of us increased our level of participation.

The van was waiting to carry us back to school, but we persevered to complete our agenda as we could. Though the time span was short, what we accomplished was valuable. I introduced the idea of combining what we saw and did at the museum with a writing exercise. Since museums use descriptive writing in exhibits, our task was to write a description of an object we had seen. My purpose was twofold. First, I wanted to undertake "content writing"—to learn content and be able to express it. This was part of the class rubric. Second, I felt writing would act as additional reflection of the day's activities. The MLC folders were distributed and participants found copies of the museum concept map we had created a couple of weeks earlier. This acted as a point of departure for our writing exercise.

We approached writing through an animated discussion about the use of a graphical organizer and a sharing of concepts that went into a "description". A general air of enthusiasm prevailed. We agreed that the appearance of an object—its color, size, and shape—could be part of a description. Everybody contributed to the dialogue, sometimes talking over one another. Occasionally, I facilitated the discussion—mostly because of

the lack of sufficient time to let it wander, but also in an attempt to reconcile differences of opinion and misconceptions.

I reiterated one of our ideas, "A description is what something looks like".

"Its color," said Ted.

James agreed but added, "Yes, but the color *is* what it looks like".

I was witnessing a sharing of basic concepts among learners. I was witnessing competence in a community of practice. My scaffolding as a more expert member of the community was aiding the understanding of those who were less expert. We were learning through social exchange, in certain instances as an apprentice learns from a master. I used a white board to write down some of the descriptive words that were generated but I slowly faded out.

Finding some difficulty as she began to write, one of the girls asked, "Can you say what it's *like* instead of what it *looks like*?"

"Yes. Is it flat? Is it something that you hold? What is it? What am I getting at?" I answered.

Seeing that she was writing about the commissary, I continued, "It is a buil . . ."

"OH. It's a building!" She exclaimed as she now had a starting point.

"Yes, it's a building. And, Ted, your object is a . . ."

"Caboose".

"Part of a . . ."

"Train".

"And it's . . ."

"Red".

"Yes, absolutely".

"I'm going to say it's a train car," he concluded

The dialogic "coaching" helped Ted make sense of what he wrote and was an example for the others about how to approach a description.

I continued to gently extend the discussion, encouraging and suggesting new concepts, "Let's think not only about what it looks like but also what it *does* and why it is *important* to the period of time we are studying—the crash and depression. To frame it another way, a description could tell us the *purpose* of an object". Several participants helped explain what purpose means. James said, "Purpose means *why* it is important and *what* it is for".

Greenspan and Wieder discuss ways to stimulate advanced thinking for those on the autism spectrum that include the use of extended conversations, gestures, challenges, open-ended questions and a multi-sensory approach that uses not only words but images, objects and interactivity.[38] I could see that the MLC format allowed these strategies in a natural environment.

From time to time I felt the need to offer individualized help to those who appeared to lose focus. This consisted of repeating questions and explanations. Special help was also offered by Mr. D, Ted's aide. While under the pressure of time constraints, it was James and Ted who suffered the most. I could see that the slower processing rate of the two boys affected how they reacted and their ability to keep up with others.

Opportunities for reflection arose as we pursued our writing. We reiterated basic things we had learned about how the crash caused the depression and the depression brought on the need for bartering. When the young participants asked questions, I

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[38] Greenspan and Wieder, 2006: 120-124.

answered with additional questions and suggestions, always allowing them to reach final decisions. I guided but I did not instruct. I helped them negotiate meaning. At times, as in the case with Ted, I would begin sentences and let the young learners complete them. Other participants followed my lead and came to the aid of those with questions. I constantly adhered to constructivist techniques explicated by George Hein, Eric Sotto and others who understand that dialogue enables learning. I viewed my role in the constructivist pedagogy as threefold: to facilitate learning; join the process as co-learner and insure reflection. I followed leads provided by Etienne Wenger who sees the need to connect people who can learn from each other in an enabling context. The MLC provided this and shifted the focus of learning from the acquisition of facts to a changing relationship of participation.

Regardless of neural integration challenges, even the autistic learners in the group were relating and collaborating. My facilitating kept the momentum going. I was prompting, I was scaffolding then fading, then prompting again in a circular pattern until everyone was conversing and writing. This was not a field trip where a teacher brings a group of students to a museum to look or play independently as she remains passive and distant from the learning process.[39] The fact that potential learning could be lost was a constant thought as I encouraged verbalization of things we had seen and the concepts behind them.[40]

We had little time to produce complete descriptions. Nevertheless, what we had written signaled we were learning in the museum within a community of practice context. We each shared our writing with the group. I read mine about the bird wing of feathers

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[39] Griffin in Falk et al, 2007: 37-38.
[40] Hooper-Greenhill, 2007: 263.

that we used to barter for a cane pole. Holly, Sheila, James, Liam and Mr. D each wrote about the commissary in unique ways. Fiona contributed what she had discovered about the longleaf pine stump displayed at the turpentine exhibit. Ted combined prior and new-found knowledge in his portrayal of the caboose. Everyone had written about a paragraph except for James who, at the end of our time, was still at the stage of situating his bits of knowledge into a graphic organizer.

With only several minutes to spare before boarding the waiting van, I felt the need to introduce a conversation about the theme project due in May. The MLC would work together as a unit to produce what the other classmates would do individually or in pairs. The project and, more importantly, its process comprise a critical component of the constructivist curriculum.

At this first discussion about the project, we confronted varying opinions. As each participant voiced his or her ideas, two main topics emerged as group favorites: historic modes of transportation and a scale model of a museum. There was discussion about how we might combine the two to make a museum of transportation. The day's experience showed us many things that we might include in such a museum: trains, Model T cars, horses, carriages, bicycle, and transportation by foot (walking). Participants had questions about whether or not transportation would be a valid theme for a museum. There was quite a bit of dialogue that culminated in our being able to justify a museum of transportation.

For a time, it appeared that all agreed that the final project should involve a museum of transportation, mostly likely a scale model. Each participant offered

suggestions about how to proceed. Holly, Sheila and James described how they could use cardboard to construct the model.

Dissension arose over the transportation theme when Liam pointed out that transportation was just one area of museum collecting that we had seen. He suggested that we undertake the construction of a complex, large museum with many gallery spaces, one of which could be devoted to transportation. With this idea, I began to worry that ambitions for this project might be larger than existing time and capabilities.

Everyone joined in a spirited conversation about what a large, all-encompassing museum ought to entail. Should we each be responsible for one room, they asked, or should two people team up to make a room? Holly and Sheila thought it would be a good idea if two MLC participants worked on each museum room. In particular they favored reproducing the store found at the commissary exhibit. I saw that they were interested in working together as a pair. I feared that working in pairs would be a departure from the community of practice idea of sharing and working together. Functioning individually might have broken up the group and isolated individuals. It was better, I thought, to keep our work collective within the MLC. Working alone or in pairs is something the students encounter in the classroom and I wanted this to be a different experience.

As conversation turned into commotion, I made attempts to clarify and repeat all ideas that were proposed. I directed attention to the entire group and to those who were not speaking quickly or loudly enough to be heard. This was a case that called for guided participation. James had a suggestion, but he was having difficulty expressing it. His slower than typical processing was evident as he tried to tell me his idea.

"Here's what I . . . how like I . . . show the places I work . . . and then show the transportation around the areas. Like I'm at . . . I'm the exhibit . . . I'm at . . . I'm the trading post," he said.

"The commissary?" I asked.

"Yeah, I'm, you know the, one . . . I'm . . ."

To me, James was unintelligible. Mr. D, having spent more time with him in the classroom, was able to interpret. James was talking about creating a scale model of the turpentine camp like the one we saw in the commissary exhibit. This scale model would include modes of transportation used in and around the camp.

With James's idea, we had three alternatives for the group project. Holly and Sheila liked James's idea but still wanted to reproduce the store. There was continued talk about recreating the entire camp and all the kinds of transportation we could incorporate. Ted reminded us that we could include a Model T Ford. Knowing well the learning styles of this participant, I was *amazed* to see the amount of interaction and relevant suggestions he offered. Energetic participation seemed to spark his cognitive process.

The three learners on the autistic spectrum were equal players in this conversation. At times, they may not have been able to verbally express themselves as clearly or quickly; however, they kept pace with the rapid give and take of the brainstorming. The active involvement alone signified that this learning community was effective.

There were many suggestions. Someone mentioned museum labels and how we would compose them. Another talked about how each MLC participant could take on a

museum staff role during the project formation and presentation: someone could be the educator, someone could be the fabricator, and so on.

I became increasingly concerned that we had run short of time without agreeing on the project. Nevertheless I was as enthused as anyone about how things were going. I knew that we were working well as a group and that our prior knowledge was being transformed into new meanings. This would not be the first time we did not complete our agenda and it tested the intended flexibility of the MLC structure.

We had overstayed and needed to return to school. On the drive back, everyone was enthusiastically talking. It was difficult to be heard over the chatter. I decided to ask one question of the entire group. "Do you think learning at the museum was effective?" I asked. Without hesitation, they unequivocally stated, "Yes!" They liked it better than classroom learning because it was more immediate. And, they *really* enjoyed recess!

I received a lot of positive feedback about the trip to the Tallahassee Museum. An interview with Liam's mother was particularly telling. Liam had told his parents and sister everything about the day—the museum activities, the special recess, the writing activity, and our discussion about the project. Liam's mother explained:

> He *loved* it and he told us about each [activity]: 'first we did this and then we did this and then we did this.' He told me, he said, 'I was *this* far away from the panther!' He gave us all the details and he talked about the turpentine workers and . . . His sister said, 'Turpentine—that was blah blah blah . . . .' I forget what she said about where it came from. *And*, she wasn't correct. And, he said, 'No, no, it comes from the trees—the longleaf pine. He remembered that specifically.

Liam learned about the turpentine industry and was able to recall what he knew. I realized this learning experiment was working.

His mother told me that Liam had one complaint about what had transpired. He had come up with the idea of creating a museum for the final project while Fiona voiced

her desire to make transportation the project theme. He knows that Fiona displays rigidity in class and becomes cross if her opinions do not prevail. "Fiona wants to do transportation and she gets mad if anybody disagrees with her," he reported. I understood what Liam referred to regarding Fiona's characteristic autistic behavior, although during the course of this study I was happy to see it modified. Liam was afraid that I would acquiesce to Fiona's suggestion, but he should not have worried. I was adamant that all decisions would be reached by community consensus.

I reflected at length on this first museum visit. My thoughts centered on the different teaching and learning methodologies we encountered at the Tallahassee Museum. I readily situated them in George Hein's educational theory domains.[41] At the schoolhouse, Sierra demonstrated didactic/expository teaching, the traditional academic linear transmission of knowledge from an expert to the students. When we explored the woods to find objects, we were involved with discovery learning where the learner becomes an active meaning maker. The discovery style of learning was carried through during the turpentine camp exercise that included traces of behaviorism during which the museum educator shaped a series of stimulus-response events. With our early discussions at the reptile exhibit and our later group conversations we were experiencing constructivist learning where the learners were making choices and constructing meaning in a non-linear way and were able to draw from social and cultural influences.

The MLC might have received facts and information from didactic and behaviorist input but it was clear that meaning making occurred during interactivity and dialogue. The real learning came when we were reflecting, talking, walking, and looking ourselves. This was later borne out when we built our project that included a recreation of

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[41] Hein, 1998: 21-25.

the commissary. We did not remember much from the schoolhouse exercise, but we knew what a commissary was because of what we found there and how we bartered among ourselves for the merchandise we needed. We were participating in problem solving rather than listening to explicit explanation or watching a demonstration by an expert. Information was "transmitted tacitly through pragmatic communication in the context of solving the problem".[42] We had engaged in situated learning that involved specific actions and participation in a social context. Those actions were more powerful than the articulation and acquisition of facts.[43]

It was clear we were learning, but did our understanding fit with the class theme? Did the MLC students learn history? Would they be able to pass a school test on the depression era? Of that I am not certain; however, I saw movement toward an even greater awareness of what history embodies. It recalled a quotation from Jerome Bruner which I offer here: "History never simply happens: it is constructed by historians. It is a lame excuse to say that children can't do it. I have seen the interpretive approach to history developed . . . where kids were learning to *be* historians rather than consumer of potted "correct" histories . . .".[44] In a sense, the MLC participants took the first step toward being historians in their own right.

World War II and the Post-War Era

The Museum Learners Club encountered significant museum and archival collections on Monday, April 3. It was the first day that the class theme turned to the 1940s and World War II. MLC participants had not studied this historic time period

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[42] Rogoff and Gardner, 1984: 116.
[43] Lave and Wenger, 1991: 34.
[44] Bruner, 1996: 91-92.

before. There were ten of us: six young learners, Ted's aide Mr. D, the class associate

teacher, a special education teacher and me. James's mother joined us for the second half

of the day.

MLC
Museum Learners Club
at the
Museum of Florida History and
Institute on World War II and the Human Experience
Monday, April 3, 2006
I.   *Museum of Florida History Program* **led by Lee and Alex**

"Destination Florida"

II.   *Self-directed exploration* **of the World War II gallery**
III.   *Lunch and reflection*
IV.   *Recess* **– walk to Florida State University**
V.   *Archivists show us* **World War II papers and artifacts**
VI.   *Hands-on experience* **with World War II objects**
VII.   *Discussion* **about club project for class**
IX.   *Writing Exercise* **– Imagine you are a soldier or a nurse in the army**
            during World War II and you are far away from home. Write a
            letter or diary entry that describes a day in your life.

Fig. 6.18 Agenda for the Museum of Florida History and the Institute on World War II

As we gathered to leave school, I noticed great anticipation among the students

who were talking about the "MLC," as they all called it now. They asked about their

MLC folders and agenda and wondered what was planned for the day. It was obvious

that they identified with the group and its practice.

Our first stop was the Museum of Florida History, a government agency that

maintains historical collections and large exhibit halls. One of the current exhibits is

entitled "Florida Remembers World War II". I had earlier inquired about museum

programs that would involve the week's topic. Museum staff informed me that there was

no prepared school program for the World War II exhibit but that they had one that would

be suitable for us entitled, "Destination Florida" that dealt with early travel and tourism. I

made a reservation, hoping it would be worthwhile and also requested that our visit

include time to see the World War II gallery. In retrospect, we might have been better

served to concentrate on self-exploration considering our experience with the museum

educator, Lee.

When we arrived Lee ushered us into the auditorium and we sat on carpeted

benches to listen to a lecture and watch a slide presentation. We were again sitting in

"class," facing a "teacher" who was presiding as an authority, just as we had done in the

Tallahassee Museum schoolhouse. To his credit, our "teacher" did ask a variety of

questions to try to engage us; however, when our answers were not forthcoming, he

would admonish us, "Come on! Participate!" Fiona, who had her legs wrapped up around

her on her seat, was reprimanded three times during the course of 30 minutes to put her

feet on the floor.

We saw a projected photograph from the museum collection that depicted early

twentieth century boat travel to Florida by affluent northerners. Our host asked for a

volunteer to read a passage from the diary of early traveler Harriet Beecher Stowe as we

studied the image. Sheila read the passage. Pointing out one of the boat passengers, the

museum educator stated, "I want a volunteer to describe this lady," he said. "Come on,

come one. You're not shy". Fiona was able to come up with some suitable adjectives that

described the well-heeled woman.

We were then each given a copy of an historic boat ticket and asked to use the

picture and the ticket to find clues about what happened during early Florida tourism.

"We are learning through observation," we were told. Ted was quiet, most of us were not

comfortable, squirming in our seats trying to discover the clues we were meant to find.

"Say it, say it, you are historians, you are investigating," Lee urged. We finally realized that the ticket was issued to "Mr". and that we were witnessing evidence of an earlier culture in which women could not travel alone.

The museum educator then passed out miniature cars to the audience. They were small Model Ts. The MLC knew about this car as they had just studied one the previous week. We dutifully inspected the cars in our hands, and I thought we might be able to build upon our knowledge; however, we were not given the opportunity. "Put your feet down," the museum educator instructed Fiona. There was a new image on the screen and a volunteer read a passage about the rutty sandy condition of the first roads in Florida. We saw images of early tourist destinations and were told that Model Ts were transformed into "tin can campers" by lower class tourists. These rustic campers were stocked with tinned food for the new type of traveler coming to the state.

The next objects we examined were reproduction tin cans with labels describing their contents: peas, pears, and peaches. We compared these cans to the ones we know today. "I have a rope I can tie around your feet," the educator jokingly threatened Fiona.

By now the images on the screen showed various tourist attractions throughout the state. The narrative of Florida's history sped up with brief mention of the peninsula's role in World War II and the post-war growth of the entertainment industry. It seemed to me that the MLC was weary and needed more stimulation. What could have been a fascinating tale of Florida history supplemented by hands-on activity, had turned sour with too much prodding and too many demands for sought-after answers. I was happy to hear our speaker say, "Now, we will see the real thing, we will experience 'Destination

Florida.'" With that announcement, the educator clapped his hands and yelped, "Come on, wake up!"

Lee led the procession as we walked through museum galleries to a replica of the riverboat *Hiawatha* upon which we could embark and "pretend we were rich people". We boarded the boat, stopped to peer into a state room and looked at a table top model of Silver Springs, a popular tourist destination. We went to the wheelhouse where we could try our hand at "steering" the craft. The exhibit was alluring, except every time we stopped to look at an object or label or listen to an audio clip, our guide interrupted us. By the time we walked off the boat and over to the 1923 Model T "tin can camper" all of us were disengaged from the programmed tour. Fiona paced back and forth, Ted wandered away. Seeing an authentic tin can camper was anticlimactic, even though it had been a prominent item of the earlier slide show. Several of us never even took the time to look.

The entrance to "Florida Remembers World War II" was nearby. Lee led us into the exhibit, but basically we explored the area ourselves as he had no prepared talks for this portion of our visit. We listened to recorded radio broadcasts, saw war photos, maps, posters and uniforms. It was a small space crowded with objects and texts. Although one or two participants stopped to read labels, most seemed uninterested until they found the video kiosk where they watched film clips and newsreel footage. Shortly, we were led out as Lee said, "I hope you've learned how the history of Florida has been shaped by tourism and war" and he bid us good-bye.

Just outside the World War II exhibit visitors, were invited to record their thoughts about war on index cards printed with the following questions: *When are we justified in going to war? What are your thoughts?* This piqued our interest. We gathered

together and wrote down our thoughts. We attached our cards to the display board and read them:

No. It's not right to kill people. (Ted)

You should Never go to war it is a very bad thing people could get killed. (Holly)

It is hardly ever right to go to war. (Fiona)

War should be only a course of last resort, ONLY IN DEFENSE and only when all other possible diplomacies have been exhausted. (Sheila)

When there is really a thret. But not when we only have a geuss. We never want to go to war if it is not neccesery. (James)

The formal education program at the Museum of Florida History was off-putting, yet the informal activity at the end of the World War II exhibit roused our attention. Led by Lee, we were controlled by the museum's authority, unable to interject new ideas. I wondered if any of us would retain what we were "taught". I recalled Bruner's prediction about the tenuous future of the omniscient teacher and contention that humans naturally form communities of *mutual* learners.[45] During the final part of our journey through the museum we came together, mutually, to share and learn from each other.

After lunch, we walked a mile to the campus of Florida State University for our appointment at the Institute on World War II and the Human Experience, an archive housing a large collection of personal papers, letters, diaries, photographs, and memorabilia amassed by veterans and their families. We met with the senior archivist and her collections manager in a room where they had assembled objects for our perusal. We donned archivists' gloves and spent an enlightening hour looking at, touching, and trying on primary material. The fact that these were authentic objects that we were allowed to hold and wear gave us great satisfaction. We found out that this archive was open for

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[45] Bruner, 1996: 22.

research and that the things around us were used by scholars to make important discoveries about World War II, write books, and film documentaries.

The presentation was divided into two parts: one dealt with the home front and the other involved the battlefield. During the home front presentation we learned of the value of family and friends who supported the war effort. We learned about communication they had with loved ones who faced combat. We saw letters written to soldiers that had been shrunken so that 12,000 of them could fit in a cigarette pack. We saw examples of government censoring in which references to locations had been razor cut or blotted out. We could read self-censored letters written in codes or designed with illustrations that had secret meanings. We saw sketched portraits, records and pillow cases that soldiers sent home to their loved ones from training camps or hospitals. We saw ration stamps, books and the tiny tokens that made up change from buying a pound of steak costing 12 points. We saw war bond and morale boosting posters. A vast array of items made the distant war present for us. The archive experience was filled with object-rich experiences.

Figs. 6.19 and 6.20 The MLC learns about the home front during World War II

We turned to talk about the battlefront and see military objects. Here we were introduced to the idea that those who had been neglected in past histories—women, African Americans, and Native Americans—actually played significant roles on or near the front lines. We saw what comprised "standard issue:" helmets, mess kits, canteens and pockets stoves. We held canned C rations that contained a biscuit, sugar and coffee and a P38 can opener.

One of the most memorable activities was trying on a combat helmet. Everyone, even Ted whose attention had drifted, was excited and surprised at how heavy it was.

Figs. 6.21-6.23 MLC participants try on the World War II helmet

After we had all tried on the helmet, we were able to handle and try to lift a 23.4 pound 90 mm anti-aircraft shell that would have been shot out of a huge gun we saw in a photograph. The collections manager said, "Think about trying to load this gun for more than an hour!" "Aw come on, lift it!" exclaimed James.

Figs. 6.24 and 6.25 Lifting an anti-aircraft shell

Figs. 6.26 and 6.27 World War II artifacts: nurse's hat and censored letter

Our hosts kept up the fast pace by showing us actual soldier's dog tags that had been worn in pairs. If a soldier died, one tag would stay on the body and one would go to the gravesite. Holly was allowed to pick up and shake the tags. They made a jangling noise. Subsequently, we were shown dog tags "silenced" with rubber surrounds that had been developed toward the end of the war. Then the girls had an opportunity to try on a

Women's Army Corps (WAC) hat that they had been looking at and a conversation ensued about the WACs, the WAVES (U.S. Navy's Women Accepted for Volunteer Emergency Service), the SPARS (U.S. Coastguard's women's auxiliary unit) and other women's groups.[46] We saw examples of secret diaries written at great risk by POWs that were now prized possessions of the archive. We saw silk escape maps that pilots could use if shot down in enemy territory. We compared the silence of the lightweight silk map to the rustling sounds of a standard paper map.

At this point, Ted had lost interest. It could have been fatigue or loss of stamina to keep standing. He was leaning against the tables and finally found a place to sit on a desktop away from the group. I felt we had lost him without recourse. He was quiet and I thought about what his teacher Jayne had said about quiet students who were ignored in the classroom. There was a time limit to his attention span.

Regardless of Ted's indifference, the group carried on with a thorough discussion of war uniforms. There were several Eisenhower jackets and a long wool nurse's cape. We looked at pictures of soldiers' pet dogs, monkeys, horses and goats. I was surprised that this did not interest Ted because he often talks about his pet dog; however, I realized that he had reached the end of his attention span and needed a respite. Fiona, too, was indicating weariness as she paced and stretched her hands and fingers.

At the end of the presentation, we were asked about any personal involvement we might have had with World War II veterans. Fiona, James, Sheila and Ted spoke about their grandfathers and grand uncles who had fought in the war. We were encouraged to invite them to provide oral histories. We each received an informational package that included a set of reproduced dog tags.

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[46] SPARS signified the Coast Guard motto, "*Semper Paratus* - Always Ready".

We left the display area and moved to the archival workroom where we met researchers transcribing oral histories and accessioning documents. The behind-the-scenes experience impressed us with the delicacy of archival study.

We then walked up a few flights of stairs to the storage area where we saw the vast boxed collections of diaries, memoirs, transcripts, letters and ephemera. We were able to walk through the stacks and talk about primary source research. It was fascinating to see the contents of the boxes and hear about the preservation methods and "do no harm" motto of the archive profession. We noticed that all boxes were marked "acid free" and newspaper clippings and photos were held in plastic sleeves. We discussed the alkalinity of the storage materials and how lamination destroys documents.
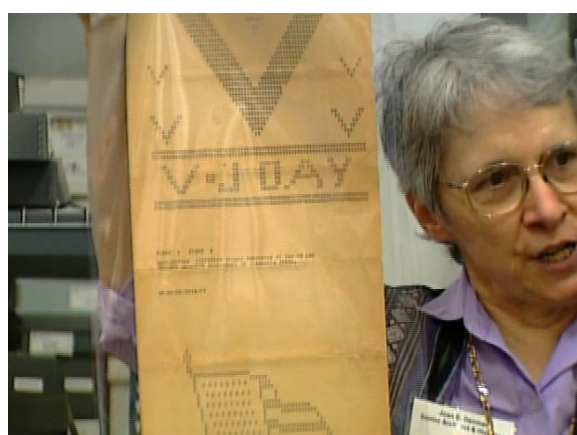
Figs. 6.28-6.31 Archival collections storage

In our short time in storage we received a lot of information about World War II. The environment was full of artifacts and we had a glimpse into document files and drawers, archival boxes and wardrobes. We learned about teletype machines. We talked about VE Day and VJ Day and the victory sign popularized by Winston Churchill. We saw more letters, more documents, more photographs and more uniforms. The amount of information was overwhelming and we could not possibly make meaning out of all that we saw; however, we gained a solid grasp of what war meant in a personal way and what comprised an archive.

Time had elapsed and we needed to leave. There was no time for reflection and our writing exercise. Had we been able to reflect, through dialogue we could have better organized the information we had amassed into a more meaningful body of knowledge. In this sense I felt as though I had let down the learning process by not allowing time for more conversation. As Hooper-Greenhill writes, "Museums are dependent on teachers to maximise their pupils' learning, and if pupils' are not encouraged and helped to verbalise or otherwise represent their experiences . . . much potential learning may be lost".[47]

Regardless of my failure to provide time for reflection, our visit to the archive made a lasting impression. Mr. D noted that the students enjoyed their afternoon:

> They would all talk to me about how much fun they had afterwards, how it was cool. I didn't expect them to like the archive but almost every child came up to me and said 'The archive was so cool, I couldn't believe this' or 'I couldn't believe that.' 'I couldn't believe they had so much information.' That kind of thing is what sparks them and that's cool for them to be able to see that and say, 'Wow.'

Much of what we saw and touched on this day stayed with us throughout the semester and was especially evident when we recreated a World War II archive as part of

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[47] Hooper-Greenhill, 2007: 263.

the final project. It was also a factor in Fiona's upcoming visit to see her grandfather who had been a fighter pilot during World War II but who recently had been stricken with Alzheimer's disease. I learned from my interview with Fiona's father that Fiona was able to show her grandfather a picture we had taken of her in the World War II helmet. Regardless of the advanced stage of his disease, her grandfather was able to summon up past memories. Therefore, the two of them, the young girl and the old man, were able to communicate about wartimes that he knew intimately and that she had known from her experience with artifacts from the archive. I was struck by the way museum learning had the power to affect the family at a later date and a distant location.

There was marked difference between the two museum programs we experienced. At the Museum of Florida History we viewed projected photographs, held and read copies of historical documents and handled reproductions. The authentic objects we saw were behind glass or out of reach. The museum educator positioned himself as an authoritarian and we knew he was looking for "right" answers, not extended conversation. There was no provision made for learners who may have needed more time or more space. Fiona could not even sit comfortably with her feet up on the carpeted bench. At the Institute on World War II, we were able to be close to genuine artifacts, to touch them, and to perceive them in ways we could not perceive objects in cases or distantly hanging on walls. We were also given freedom to voice our opinions. Questions asked were open-ended and invited our ideas and discussion. We could mingle with each other as we tried on helmets and dog tags. Rather than being called upon individually, we were given equal opportunity to participate. We had a deeper sense of community.

Antique Car Museum

By the first week of April, all participants referred to the "MLC" with ease and
frequency and called our work "awesome" and "exciting". We looked forward to being
together, going to museums and partaking in unique experiences with a unique group. We
had expanded identities outside the classroom and school.

<div align="center">

MLC
Museum Learners Club
at the
Tallahassee Antique Car Museum
Friday, April 14, 2006

</div>

I.	**Introduction to the collection with Sarah**
II.	**Self-directed exploration of cars**
III.	**Find a car that you would like to include in the final project. Learn about it by looking reading the label and asking questions. Think about these two questions:**
	What is important about the car?
	Why do you want it to be in the project?
IV.	**Lunch and reflection**
V.	**Write a museum label for the car you have selected**
VI.	**Discussion of four-part project: the Twentieth Century Museum**
	Car museum exhibit
	Commissary recreation
	Art museum gallery
	World War II archive
VII.	**Recess: Museum scavenger hunt**

Fig. 6.32 Agenda for the Tallahassee Antique Car Museum

On April 14th six students, Mr. D and I traveled to the Antique Car Museum. On
our drive I distributed agendas for the day and hoped we would have time to settle our
differences regarding the term project.

Opened, in 1996, the car museum is a wide-ranging private collection of a local
entrepreneur that includes not only scores of historic automobiles but multifold
memorabilia. We were there expressly to look at twentieth century transportation but also
had time to browse the displays of motorcycles; boats and boat motors; toy pedal cars;
old fuel pumps pinball machines; knives; pianos; golfing paraphernalia; antique furniture;

cash registers; sports mementos; time pieces; and Native American artifacts. Though the collections are kept in clean, air conditioned spaces, they are preserved and exhibited in an amateur way with uneven signage and accompanied by kitsch and personal items.

The museum attendant, Sarah, introduced us to the museum with a story about the owner and his eclectic collecting habits. She also pointed out some highlights: the Duesenberg automobile, sold at $30,000 in 1930 and now valued at $1,250,000; the Alma Tadema grand piano, the most expensive new instrument ever built by Steinway & Sons, purchased for $675,000; the extremely rare 1894 Duryea Motor Wagon, one of the first gasoline powered vehicles; a customized motorcycle; Elvis memorabilia; and the collection of Barbie Dolls. Again, we found ourselves in an object-rich environment that was overwhelming in its scope.

Sarah mentioned different categories exemplified by the car collection—antique, classic, high performance—and she left us to explore on our own. This museum does not employ an education staff and there were no planned programs available for us. It was an opportunity for us to look over a collection by ourselves. Sarah did offer a scavenger hunt activity. I thought it would make a good recess for the MLC and scheduled it for the end of the day. But first, we had some exploring to do. We started by acclimating ourselves to the automobile showroom, walking and talking together as a group along the rows of cars. We all contributed our knowledge of various vehicles. The conversation was lively. James was thrilled to see a DeLorean and wanted to tell us what he thought:

> This kind of car was made . . . on the time. . . um um um . . you know the kind of . . . um um . . . this kind of car was used in . . . um um um . . . . . "Back to the Future". This kind of car was used in "Back to the Future". And and because um, the doors go up and m m m m . . .

James was somewhat unclear but because we gave him the time to process his thoughts and speech, we understood that he was pointing out that the DeLorean, with its wing-like doors that open upward, was featured in the 1985 film "Back to the Future".

We saw older cars with tillers instead of steering wheels. James and Fiona had a spirited discussion about where drivers and passengers would sit in such a car. Some of us talked among each other about past associations we had with some of the cars. Ted's father owns a Pontiac GTO and he gravitated toward the GTO on the floor. He also sought out the Volkswagens because he is a fan of the film, "Herbie Fully Loaded," that features a VW Beetle. Fiona spoke about the Elvis Presley Car Museum she had visited as she was drawn to Cadillacs of the mid-1950s that were on display. She wanted to learn more about the 1953 Cadillac Eldorado convertible. Holly and Sheila looked for "cool" cars. All of us agreed that the cars were "awesome".

I walked along with the young learners and we looked at the entire car collection. I modeled reading labels and the others followed. We needed to glean what we could from text, observation and discussion so we could later write about what we had seen. Everyone focused on a particular car for further study. James selected the DeLorean, saying "If you say delirium, it sounds like a sickness. If you take DeLorean and put an 'm' on it". Holly eyed a 1992 Dodge Viper—slick, red and low slung. Ted chose the Volkswagen, "I'm doing the Herbie, the Beetle". Liam turned to the Pontiac Trans Am that was featured in the film "Smokey and the Bandit" as he and Ted shared some laughs over their choices. I stayed among them, prodding discussion, reading labels, asking open ended questions.

Our activity continued with several interchanges among the students. James met up with Ted to walk down an aisle lined with cars. They discussed the Batmobile made famous in Batman movies. An exchange between these two rarely occurs in the classroom but was natural here.

We moved from the car display area to the east wing where miscellaneous collections packed a large room. We saw another Batmobile and the Duckmobile driven by the Penguin in "Batman Returns". We spied a land and water vehicle, the "Amphicar," and Sheila selected it as her research object. The boys and Mr. D explored the boat motors and hoard of toys. The three girls became fascinated by a carnival mirror. Eventually the entire group assembled in front of the mirror for prolonged peering at their distorted reflections.

The ability to explore on our own and the flexible time schedule allowed these random activities that formed bonds and encouraged transformation of our identities. It was satisfying to witness the maturing identities and the inclusive nature of the group. The participants interacted, naturally and unencumbered.
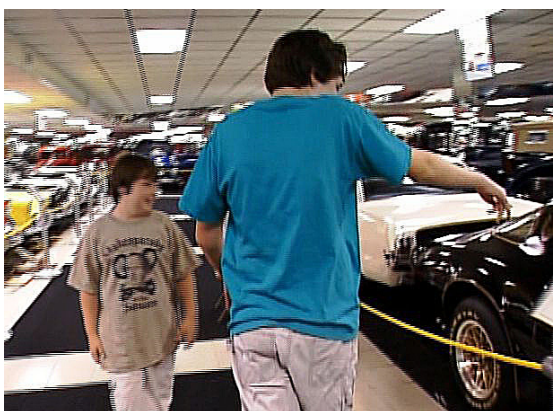
Figs. 6.33 and 6.34 MLC participants at the Antique Car Museum

Figs. 6.35 and 6.36 MLC participants at the carnival mirror

James retreated from the noisy activity in front of the mirror and soon everyone sat down to rest as we recounted the cars we had selected to study for our final project. We took photographs of them and found a couple of small model cars in the gift shop that we could incorporate into our project.

The museum had an anteroom that we used for lunch and discussion about what we had seen and about how we would construct our project and end-of-term presentation. The task seemed daunting to me but not for the younger learners. Based on Holly's suggestion that was refined by the ideas of others, we decided to construct a museum or museums on a desk-sized cardboard base. Our ideas were embryonic and there was some dissension in the group. I guided the conversation by suggesting that we could build two intersecting walls on the base that would form four "museum galleries". Each gallery would be devoted to a reproduction of what we had seen during our MLC museum visits.

"What could we have?" I asked.

"Car museum," said James

"Art museum," said Sheila.

"Commissary," said Holly.

"World War II archives," said Liam.

"World War II archive," said Fiona.

We talked about the possibility of dividing responsibilities according to different museum positions such as curator, registrar, and administrator; however, we came to the conclusion that all of us would work on all quadrants and that we would recreate part of each of four museums. I summed up our plan: there would be a turpentine commissary representing a history museum, a car gallery representing an automobile museum, an art gallery, and a World War II archive.

"That's a great idea, Ms. Susan, that you thought of – that we helped you – That we *all* thought of," said Fiona

"Well, I think we *all* thought of this," I countered.

"Yes, so do I – because we all thought of a different thing. You had the idea to put them together," responded Fiona.

"Well, I was worried because everybody wanted to do something different. And I wondered how we could put the different ideas together. I think we've done a good job," I said.

"Exactly, we all helped think of it," said one of the girls.

Our conversation had resulted in a settlement of the differences among us. We were all in agreement about the project. My role as facilitator was critical to the reconciliation. I asked questions and made suggestions, but it was the group who found the answers and solved problems.

I had pictures of general stores and commissaries and we looked at them during lunch to refresh our memories about the turpentine commissary we had seen. The pictures may have ignited conversation; however, the learners needed no reminding of what a commissary entailed. All remembered the various commodities for sale or barter. We

talked about how we could make these items in miniature and about the counter, shelves and barrels that had held them. We moved on to a discussion of the archive and how we could reproduce ammunition, guns, helmets, and uniforms. We talked about what we had just seen at the car museum and learned about James's father's special interest in model cars. Jokingly, James became "James DeLorean" as he reeled off information he had discovered on the DeLorean label. We decided that we needed cars, labels and pictures on the wall for the car museum part of our project. And, with humor, we decided we needed to rope off the cars and include "do not touch" signs. We were laughing together. All individuals had gained the ability to "fit in," to "belong," to have fun within the context of the community of practice. For the learners on the autism spectrum I sensed that this type of interaction abetted their social skills.

The MLC participants were sorting out plans for the project. They were retaining sophisticated information about the commissary and archive. They were involved, centered, and focused. The period of reflection was a happy, energetic time, filled with fresh ideas and a recognition that we came together to think and act. Pointed comments were made about the overall experience. I thought I heard someone compare museums with school:

What did you say? Museums are more fun than school?

Holly: Uh huh.

Why?

Liam: School is boring.

Fiona: I like museums because they are more fun than school.

Holly: They are more interesting.

Fiona: I like going to different places – not to the same place all the time.

Liam: Going to the same place every single day gets a little boring.

The exchange expressed the fun they were having, and this type of enjoyment is an indicator of learning.[48] As Liam's father told me:

> There was a joy and adventure to the whole thing and it was nice to see that. It wasn't like going to school, it was fun. And, it was fun because he [Liam] got to learn so many cool things and enjoy himself. School had become drudgery for him. What you guys did made it meaningful and made it joyful. That's the way school ought to be.

After eating, there was time to write about the cars each participant wanted to include in our car museum gallery. Our task was to write a short paragraph that would serve as a museum label for each car. I led the exercise by reiterating how we should approach the writing assignment. For most students, writing may be a simple task, but for those with processing differences it can be intimidating. I laid out simple instructions and drew the shape of the alien graphic organizer that they could use in forming their ideas. "Write the name of the car at the top of the paper. Then describe why you selected the car, why it is important, and why you want it to be in the project".

They all benefited from the discussion about how to begin their paragraph but were puzzled about how their cars could be deemed important. They asked each other whether or not their ideas were appropriate and after considerable discussion the talk turned to murmuring as they wrote. The discussion prompted Holly to exclaim, "Ah, this is awesome!"

At the end of our discussion, we had time for our promised recess that consisted of a scavenger hunt through the galleries. It was an entertaining way to end our time at the museum. Everyone was exuberant as they raced through the museum looking for cars

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[48] See Hooper-Greenhill, 2007 on measuring enjoyment as a learning outcome.

and marking them "found" on their hunt sheets. They were interacting as friends interact. This is a particularly significant observation in light of the difficulty many autistic children have with making and sustaining friendships.[49]

This was an important day for the MLC because we were on our own, without a museum educator directing us. I could see that our practice was solidifying while we used museum resources with our own ingenuity. We worked singly and together as we explored objects in the collection. We shared what we knew and what we had learned in participatory discourse. We found common purpose in developing our project.

At this juncture, the final project surfaced as an important force for identity formation. It was becoming a palpable "work" that drew us together during periods of reflection. Jerome Bruner, in his externalization tenet for a psycho-cultural approach to education describes this type of "work" that is produced by collective activity. These works give pride, a sense of continuity and solidarity to a community. They are "identity bestowing" as they embody thoughts in a form more accessible to reflection.[50]

Library and Art Museum

On our final day away from school we visited the Leroy C. Collins Leon County Library and the Mary Brogan Museum of Art and Science. Unlike other schools in Tallahassee, the School of Arts and Sciences did not have a library or media center. Going to the downtown public library was a rare opportunity for some in the group. Our purpose at the library was to conduct research on the automobiles we had selected to study for our project. The museum visit enabled us to make sketches of 21st-century

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[49] Entire chapters and books have been written on the lack of friendship in the autism community. For one example, see Lavoie, 2005.
[50] Bruner, 1996: 22-23.

works of art we would include in the art gallery section of project. The day also afforded

us an alfresco lunch and walk through the city's chain of parks from the library to the

museum. We included an additional museum experience at the Eco Lab and "recess" time

on the museum's science floor.

MLC
Museum Learners Club
at the
Leroy C. Collins Leon County Public Library
and
Mary Brogan Museum of Art and Science
Monday, April 24, 2006

I.	**Library tour with Joseph**
II.	**Research for final project**
	a. **Writing labels for car museum**
	b. **Museum summaries**
III.	**Lunch and reflection**
IV.	**Recess: walk to Brogan Museum**
V.	**Eco Lab experience**
VI.	**Art gallery: learn about and sketch a work of art**
VII.	**Second recess – 2nd floor science exhibits**

Fig. 6.37 Agenda for the library and Brogan Museum

At the library we had an appointment with Joseph to learn library skills. Joseph

knew our research topics and had gathered resource materials. We had a table full of

books about automobiles to peruse. He also showed us how to find additional information

by using the cataloguing system. He toured us through both the children and adult stacks

where we found additional texts. We were instructed on how to use the library's

computer terminals for research.

We spent a busy morning collecting materials, finding facts, writing summaries,

and compiling bibliographies. With this information we were able to complete the texts

for our car museum.

Figs. 6.38-6.41 MLC participants engage in research at the library

Our lunch in the park gave us time to relax. The three girls climbed a low hanging tree branch while the boys watched. On our walk to the museum we investigated a nearby construction project, peering into the deep foundation and up at the scaffolding. These leisure times were essential for the health of the group. They allowed completely natural conversations and alliances to develop.

The gathering together of a group of diverse learners that shared a myriad of activities led to anticipated and unexpected outcomes. Of the unexpected outcomes, one of the most poignant was the friendship that arose between James and Liam. On two occasions, I was contacted by Liam's parents who asked to talk with me in person about

an important development. Voluntarily they reported that Liam was seeing James in a

new light as an intelligent, clever and witty colleague with whom he would like to

establish a closer relationship. Like Liam's parents, I thought this was a remarkable

advancement. It meant that two distinctly different learners could create a bond that

otherwise would not have formed. A few weeks later, Liam's father expressed his

thoughts:

> [James] was a kid that [Liam] did not know and had not bonded with very well in
> the classroom and they got very close, both with the experience going to the
> museums and also with working on the project together. It seemed like it enabled
> them to see something different in each other that they weren't able to see in the
> classroom environment.

> I'm just really happy [Liam] got to participate in this. And, I'm happy he got to –
> because sometimes he kinda makes up his mind about somebody – and, doesn't
> get to know them after a while, [and says] well then, 'I didn't get to know them.'
> But here he got to know [James]. I've always liked [James]. I was always hoping
> that they would find a way to connect and they did. How can you beat results like
> that?

Liam's mother added:

> [Liam] is now noticing James's strengths – before, [Liam] found [James] to be
> aggravating. Now he has admiration for him.

> [Liam] saw the writing skills of [James] and a sense of humor that he had never
> before known.

> We were at ease and our comfort with one another was increasing. We were not

only identifying with the group everyone called "MLC," but we were also identifying

with newfound friends and learning partners.

> When we arrived at the Brogan Museum we enjoyed a guided visit to the

museum's "Eco Lab". Led by a science educator, we learned about underwater

environments and were allowed to touch various sea creatures such as a hermit crab and

horseshoe crab. The museum had offered this activity and I embraced the opportunity after a long morning of library research.

We left the Eco Lab after 30 minutes and climbed the stairs to the art gallery. The students had sketch pads and pencils so they could render artworks they liked. We met with the curator who gave us an orientation and brief explanation of the current exhibition, "Transitory Patterns," that showed two- and three-dimensional works by twentieth and twenty-first century women artists. She pointed out five intriguing paintings and sculptures and helped us verbalize our feelings about them by asking questions and suggesting clues to their meanings. I could see that we were all amazed by the provocative characteristics of contemporary art. Our brief talk made us feel comfortable with these works and undaunted by their enigmatic qualities.

Once we were on our own and able to search the gallery for works to sketch, I was witness to remarkable enthusiasm for and attention to sketching the art. This was especially noticeable in the case of Ted who usually holds back and lets others lead or looks to his aide for cues and prompts. He immediately spied an installation made from a group of old televisions, spread out his sketch pad on the floor and drew. Liam and James were both fascinated by a spotlit spiral of glass marbles. Holly and Sheila found abstract paintings to sketch and Fiona found a piece of framed jewelry. Everyone was entranced.

Ted's mother made a comment upon seeing his sketch of the television screens that were adorned by drawn outlines of mountainous landscapes:

> It was really interesting for me to see [Ted's] drawing of the televisions. He had all these squares on his paper, not in a line as they appeared in the museum, but all over the paper. It was his interpretation. He learned. He learned how to express himself. Now he knows what a landscape is, I'm not sure he knew that before.

He's not only recreated it for the school project, but we're putting together a book for his grandmother's birthday and he sat there and drew the same work again for that. I'm thinking, this gave him something to grab onto, because he's not very artistic and doesn't like to draw—but now he can draw that and he can repeat it. That means a lot to me.

Figs. 6.42-6.45 MLC participants sketch art at the Brogan Museum

After everyone completed their drawings and copied information from the wall labels, we left the art gallery for the science section of the museum for a diversion before we had to leave. Just as they were enthused about the art, the young students gravitated to the physical science exhibits where they could operate machines, manipulate puzzles and conduct with experiments. It was a pleasurable way to end the day.

I asked myself why this day had been such a success and decided that there were several reasons. We were a fully formed community of practice by this time. Each one of us identified with our role in the MLC. We were not individuals who were gifted, average, autistic or cognitively challenged. We were all MLC members. The program for the day offered acclimation and some information but there was ample time to explore and be the museum-going expert learners we had become. We had a mix of concrete activities and self-directed activity that engaged us. We sought knowledge from texts at the library; we had direct experience with objects at the art museum. All of this reinforced the idea that it is the style and process of a learning program that is important, not the content.

In addition, each learner was asked to select a work of art that moved him or her in a particular way. As Liam's mother later told me, "That was something that stood out to [Liam], the fact that *they* got to decide what *they* wanted to do. And, that was meaningful". The freedom to choose encouraged imagination in an activity that was removed from the intense community interaction we had come to know. As such, we reinvented our enterprise to reach a "novel situation of learning" that involved a new mix of participation and reification.[51]

Their art selections were based upon individual affinities and backgrounds. Ted was enthralled with electronics and selected a work that incorporated televisions. James and Liam were fascinated by the radiance of sparkling marbles. Fiona, fond of fashion and adornment, was captivated by the jewel-like quality of the piece she copied. This calls up an idea from Flora Kaplan who wrote:

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[51] Wenger, 1998: 185.

. . . when communication is optimal it creates an 'affect' among spectators and audiences. Affect happens when various exhibition elements combine in subtle and perhaps ultimately unpredictable ways for individual viewers, who are able then to cross an invisible 'threshold' of cumulative, personal and cultural experience. Thus, the viewer is an active participant in the communication process, not a passive observer. He or she brings unique experience, knowledge and perception into play, making affect and learning possible in particular historical and cultural contexts.[52]

The Culmination: The MLC Project and Time for Reflection

On April 11th, 17th and twice again toward the end of the school term, the Museum Learners Club participated in lengthy meetings to reflect on our museum experiences and to construct the project we would present to the class. The project work paralleled what the rest of the class was doing and would be part of the classroom showcase of projects on May 2nd.

With our project, we would demonstrate that MLC work was compatible with the theme. I was adamant that we make this connection to classroom learning because I suspect it is in the lack of connection that the value of museum learning often dissipates. That is, students go on field trips to museums, run around, see things, even get involved with programs, but they return to their class and go forward with totally unrelated curricula. Eventually everything they might have gained from their museum experience is lost or at least stifled. Even when there are pre- and post-visit materials provided by the museum, classroom teachers often do not use them or use them in only a cursory manner. This is borne out by what teachers and museum educators told me. If we can make good, strong connections between what children are learning in their classrooms (not by state or national standards but by actual "real-time" lesson plans) museums can make significant impact.

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[52] Kaplan, 1995: 41.

We had already completed various writing exercises that would be used as we designed the project and presentation format. We had written museum scripts, descriptions, labels and texts. We had talked numerous times about the project design and what it would entail. The subsequent series of reflective project building sessions cemented our communal bonds and brought forth abundant proof that the community of practice is an optimal site for learning.

I discussed plans with the classroom teacher and secured the school conference room for our meetings. I gathered together supplies and at the first meeting I laid out all the things we could use for construction: foam boards; cardboard; string; cord; fabric; scissors; markers; paint; glue; wooden skewers; toothpicks; popsicle sticks; clear plastic sleeves; needles and thread; yarn; wire and wire cutters; modeling clay; paint and paintbrushes; things I had purchased that looked applicable (feathers, little wood cabinet and boxes, model cars, small wash tub); and things I found, copied, reduced and printed from the Internet (war posters, maps, and pictures). As soon as the MLC participants saw the size of the foam board and realized that we would be making a sizable presentation, they were thrilled. I suppose that they had in mind a project on a smaller scale. The room resonated with excitement. MLC participants wanted to know what they should do and were eager to begin working.

We talked briefly about our plans, and the objects, materials and tools I had laid out jump started our activity. The modeling clay came in many colors and the students quickly began to make things that belonged in the 1930 commissary – red and green apples; pink and green watermelon; brown cigars with beige rings; brown boots; pink and white ham; black and grey meat cleaver; orange sweet potatoes and darker orange yams;

and yellow cheese. Liam and Holly were the modeling clay experts. Sheila worked on making sacks of sugar and flour using muslin, needle, and thread. She labeled them "FLOUR" and "SUGAR" and tied them with cord—just like the ones we had seen at the commissary exhibit. Ted attempted to mold apples and cheese but could not sculpt at the macroscopic level and soon gave up. He appeared out of kilter with the group.

Ted loses focus when attempting activities he finds difficult or impossible because of processing or cognitive issues and fine motor challenges. When this happens, he may make inappropriate remarks, stop attending, or wander away. On the other hand, when he understands and is able to undertake something, he joins in, has increased focus, and contributes. It may be tedious to deal with his learning styles but when they are overcome, there is an extraordinary sense of accomplishment. He finally found his niche when he decided to paint the small wood cabinet. Unable to manipulate clay, he actively contributed to the group effort in another way, happily assuming his identity as a full member. In this instance, we had determined Ted's zone of proximal development with minimal scaffolding as he could achieve something he had never before attempted.

For the archive, Holly cut out tiny World War II posters and plastic sleeves to protect them. She also attempted and found a solution to make small archival storage boxes from white construction paper. She labeled them "acid free". Sheila wrote small letters that simulated war correspondence. She remembered that these letters had been shrunken and so included four tiny letters on each bit of paper. Holly also wrote letters and "censored" them by cutting out small areas of print. I was astonished by the amount of information the student retained from their experiences.

We were active with various construction tasks. Mr. D cut the foam board with a craft knife to make the project base and walls. We all helped to assemble the walls and support the framework while the glue set. Liam worked with Mr. D to make a counter for the commissary and a very small container for the cigars Liam had meticulously sculpted. Ted and Mr. D figured out how to construct shelves. Sheila and Holly painted the wood Model T black. I helped Ted make fishing poles with wooden skewers, thread and glue. We talked about the cars we selected for the automobile museum and how we had found corresponding models to use in the project.

Fig. 6.46 Gluing the walls to the project base   Fig. 6.47 Supporting the project framework

Figs. 6.48-6.50 Interaction, joint problem solving and scaffolding marked the project construction

Throughout the flurry of activity, we talked about things we wanted to add to the project and what we might call the segments that represented four museums. Earlier discussions about museum labels and signs led to my suggesting we write an explanatory text for each. Holly was our first scribe. She wrote the explanation for the commissary. The next scribe was Sheila who wrote text for the car museum. Holly had an idea about how we could attach our signs on the foam board base. Ted was about to begin writing the archive text when we realized it was time to wrap up. We had come together at 12:30 and it was 3:00. It had been two and a half hours and we could not believe how quickly the time had passed. Holly said she felt as though we had been working for just a half hour! Reluctantly, we stopped for the day.

The next time we came together to reflect and work, the young learners came up with ideas for the presentation of the project, suggesting that they deliver a tour of each "museum" for their fellow classmates. We continued to work on the contents of our commissary and archive. Liam remembered in utter detail the ammunition shell we had seen and formed one out of grey clay. Holly and Sheila made brooms for the commissary out of collected pine straw and lollipop sticks. Holly also sewed a sack for feathers. James cut out tiny pieces of newspaper and maps for the archive, but soon he needed to rest his hands because the cutting exercise was painful. Liam, Ted and Mr. D mounted shelves in the commissary.

I took the copies of the drawings Holly, Sheila and Fiona had made at the art museum and made reduced copies to hang on our art gallery walls. James and Liam worked out a solution for representing the spiraling marbles that had captivated them at the art museum. I worked with Ted to recreate his television sculpture.

At our final meeting, we were ready to place all of the pictures and objects into our miniature museums. We began with the automobile museum and James stepped up to the task. He concentrated very hard while situating cars on a diagonal line. Sheila had made rope barriers and set them in front of the cars. Holly carefully placed "do not touch" signs on the ropes. When it came time to mount pictures on the walls, James had a brilliant idea. We knew because he used animated hand gestures to signal his thoughts on the matter. Trying to speak, yet unable to articulate, he physically situated the pictures on a diagonal that echoed the rows of cars below them. For James, this was an incredible demonstration of converting tacit knowledge to explicit knowledge. When I witnessed this scenario I understood that throughout the participatory process, especially during the creative phase of project building when we were acting more than speaking, tacit knowledge was surfacing. It was being converted to explicit knowledge that we could share by talking about it.

Polanyi said that we make meaning from using our personal knowledge (foreknowledge) and tacit knowledge and that there is a formal step from the tacit to articulation. He describes mathematicians and scientists who alternate between intuitive reasoning and formal procedures to find solutions. We need to give learners the time and freedom to do this—to alternate between what they tacitly know and what they can articulate.[53] Hooper-Greenhill also discusses tacit knowledge: "Felt-knowledge, tacit knowledge, which is laid down during active experiences produces knowledge which is encoded in a non-verbal way, laid down in a compacted manner; it requires effort to bring tacit knowledge out of this non-verbal state so that it can be used".[54]

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[53] Polanyi, 1957: 102-103.
[54] Hooper-Greenhill, 2007: 262-263.

The Museum Learners Club was a suitable environment that enabled James to take his time, call up his non-verbal knowledge and articulate his ideas.

Figs. 6.51 and 6.52 MLC participants work together to design the miniature car museum

At times, Fiona and Ted stopped attending and resorted to forms of self-stimulation. Fiona would pace or spin in a desk chair. Ted would sit and stare out the window. When this occurred I would let it carry on for a while because these two may have needed what this behavior provided; however, if it persisted I would gently try to bring them into the action. I was taking pictures of our progress when Ted asked if he could photograph the activity. This sparked his interest and he became enthusiastically involved. He stood on the chair, directed the action, and took candid shots. He was connected, engaged and learning.

The day we presented the project was the pinnacle of our communal success. The six young MLC participants took up their stations at the table displaying our four mini museums. They knew their scripts and were excited and eager to share what they had learned. It was a buoyant time as Fiona exclaimed, "Everyone is coming to see *our* project". With the detailed model of museums and a "museum brochure" that included

the texts we had written, we were prepared to demonstrate different types of museum collections. Excitedly, each participant rotated through the museums we had built and explained the MLC process and project referencing objects and experiences.
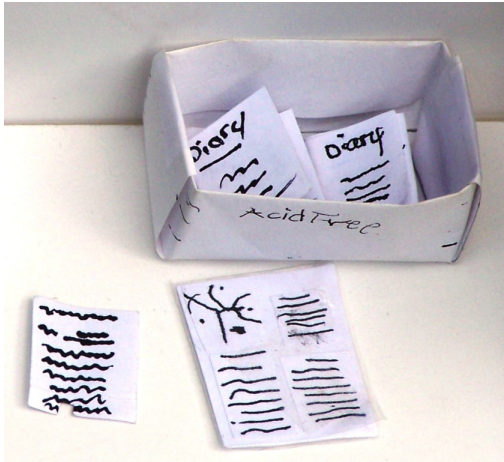
Fig. 6.53 Archive documents in acid free boxes

Fig. 6.54 Commissary exhibit

Fig. 6.55 The MLC Art Museum

Fig. 6.56 The Twentieth Century Car Museum

Figs. 6.57-6.60 The project showcase

The Museum Learners Club came together for final reflection after the project showcase and shortly before the school term ended. We enjoyed an animated conversation as we opened our MLC folders for the last time and looked at the museum concept map we had created when the group first met. Busily, we added concepts (See Fig. 6.4). We first looked at the area reserved for "actions" and an interesting dialogue developed:

Susan: Let's look at "action". What do we *do* in museums?

Mr. D: I wrote down reflecting.

Susan: We did a lot of that, didn't we?

Fiona: Yes, and *orienting*.

Susan: Oh, orienting . . . orientate – excellent.

Fiona: Is that a word: orientate?

Susan: Yes.

Fiona: Reflect, orientate – that's what we do in a museum

Susan: What are we doing now? Are we reflecting?

Girls: Yes, we're *learning*.

The notions of orientation and reflection are very important to the process of learning. The MLC participants came to know what these terms mean, not only definition-wise but also in a metacognitive sense. They understood that initial guidance before museum activity coupled with interaction during a time of reflection helped to make meaning permanent. The teacher, Jayne, bemoaned the fact that she does not have time for similar orientation and reflection in the classroom or on field trips. On the contrary, the MLC capitalized on these periods of interaction with three obvious results: 1. Atypical learners were able to achieve just as average or gifted learners do and thus gain identity within the group; 2. Learners were empowered to make decisions and thus gain confidence in their abilities; and 3. Misconceptions were kept to a minimum.

We continued with a discussion about the area of the concept map we called "learning tools". At first Fiona did not understand how we could add a person to this area as a person could not be a "tool". Her inability to discern a metaphorical concept like this fell away by the end of a brief exchange of ideas when she exclaimed, "Hey, what about our brain? Our brain is a learning tool". The conversation continued until we had added all the concepts we were thinking about (see Fig. 6.4).

I had planned to wrap up our work with a writing exercise that compared museums, libraries and archives, but I abandoned the idea because we were having such a productive dialogue. I wanted it to continue. I utilized the flexibility of the MLC format and kept on with the momentum of our conversation. The young learners demonstrated very sophisticated ideas about archives. They called them "non-museumish museums," places where works on paper were collected, stored and studied. After much determination to complete his thoughts, James added that they were non-profit institutions that do not receive or give out money. He was very proud of his understanding.

Like James, Ted was proud when he contributed to an ensuing discussion of archives and libraries. He eagerly participated with his ideas about libraries. Everyone in the group contributed their thoughts about the significance of libraries, the cataloguing system, researchers and library research, and librarians.

During this final conversation, I saw that each learner on the autism spectrum retained certain autistic characteristics—halting communication, slower processing, rigidity—nevertheless, all three felt comfortable with participating and fully identified with the MLC. These learners who frequently feel ostracized were able to be full members of a community of practice. This marked a triumph for the learning model that was supported by parents, teachers and the students themselves.

Final Assessment: Degrees of Participation and Transformation of Identities

Using a participation model, such as the MLC community of practice, calls for assessing learning by analyzing changing roles in the community. It does not look for

internalization of facts.[55] It does not rely on a competency-based approach that includes

"pretest – treatment – posttest assessment".[56] Rather, it necessitates finding and

understanding evidence of learning based on underlying theory and principles.[57]

The narrative accounts of this chapter speak to this and count as interpretive analysis;

however, this section goes further to recapitulate the importance of degrees of

participation and transformation of identities for evaluating learning. I readily observed

members of the Club moving from peripheral participation to full participation and, in

doing so, gain reformed identities. They gained competence not by instruction but within

the structure of engagement I had cultivated.[58]

Degrees of Participation

It is easy to observe changes in participation. Parents do it every day as they

watch their children's evolving interactions during the daily routines of life.[59] Rogoff

suggests three ways to view changes within the community of practice and thereby to

consider its success on personal, interpersonal and community-wide scales: 1.

Transformation of individual participation in joint activity; 2. Transformation of

interpersonal relations; and 3. Transformation of community practices themselves.[60]

I monitored individual, interpersonal and community relationships during the

ethnographic study of the Museum Learners Club and watched each transformation

unfold. On the individual scale, I was pleased to see each participant contribute to the

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[55] Falk, 2006: 152 and Lave and Wenger, 1991: 47.
[56] Matusov and Rogoff, 1995: 102. See also Sotto, 1994: 197-198.
[57] Sotto, 1994: 197.
[58] Wenger, 1998: 265.
[59] Matusov and Rogoff, 1995: 103.
[60] Ibid.

joint activity with increasing frequency. Each assumed leadership roles and/or new responsibilities at various times. Attitudes toward involvement changed, especially for those on the autism spectrum. On an interpersonal scale, relationships also transformed. I witnessed how MLC learners became more involved with each other, working together in spontaneous partnerships and group undertakings. The community transformation was also perceptible. Where initially participants needed support and guidance, this need diminished as the research period carried on and each solidly identified with the practice. The group reached a point where all were involved with sustaining the practice, suggesting how we should conduct our processes, wanting more involvement and respecting the process that had been new to them just weeks earlier. The culminating group discussions and project presentation demonstrated that diverse students could learn together seamlessly. They worked together to solve problems, build successful collaborations, and share knowledge. As the "expert," I was essentially being replaced.[61]

Identity Transformation

Hooper-Greenhill writes, "The outcomes of learning cannot be separated from individual identity . . .".[62] Learning is a process of reconfiguring identities that propels us forward. Wenger sees learning as a "social becoming, the ongoing negotiation of an identity that we develop in the context of participation (and non-participation) in communities and their practices".[63] Finding a meaningful identity is the key to learning and, once realized, signifies competence.

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[61] Lave and Wenger, 1991: 57.
[62] Hooper-Greenhill, 2007: 22.
[63] Wenger, 2006: 12.

The Museum Learners Club created and expanded identities for its participants. They were manifested in individual learning trajectories, community membership, and negotiated experiences.[64] The identities enabled learners to add to their repertoires new ways of being and making meaning that extended beyond the school. Hooper-Greenhill argues, "One of the tasks of a critical pedagogy is to provide students with a range of identities and human possibilities that emerge among, within and between different zones of cultures . . .".[65] The MLC accomplished this.

According to Wenger's construct, we can observe the trajectory of identities or modes of belonging in three areas: in *places of engagement* through transformative experiences, with *imagination* that gives us a grasp of our place in the world, and through *alignment* with the larger world beyond. An example that illustrates identity in a place of engagement involves Liam, the student who had difficulty identifying with his class. He was consistently absent and frustrated with the people and activity around him at school. The Museum Learners Club gave him a more meaningful way to negotiate meaning. As Wenger points out:

> What appears to be a lack of interest in learning may therefore not reflect a resistance to learning or an inability to learn. On the contrary, it may reflect a genuine thirst for learning of a kind that engages one's identity on a meaningful trajectory and affords some ownership of meaning. To an institution focused on instruction in terms of reified subject matters sequestered from actual practice, this attitude will simply appear as failure to learn.[66]

As with Liam, the learners on the autism spectrum were also able to negotiate identities within the MLC that were prohibitive in the classroom. They were given the time and support necessary to shape and communicate their thoughts. For them, the MLC

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[64] Wenger, 1998: 149-150.
[65] Hooper-Greenhill, 1999: 22.
[66] Wenger, 1998: 270.

was a transformative experience. They could assume positions equivalent to those of their peers.

The Museum Learners Club also enabled participants' identities to reach a point where they imagined themselves in the world around them. Not only learners in a school, they had become learners in museums and in the surrounding community. They connected to a world that was inhabited by varied institutions, primary resources, historic collections, experiences with professionals and learning activity outside the class. Their understanding was broader than the curriculum as evidenced by an exchange I had with their teacher, Jayne.

> Jayne: I could measure their learning according to the class rubric, but they got different things than the kids [in class] got from reading books. I think they certainly have a flavor of the era and had specific information about it and got *more*. For instance, they know what an archive is and they know the difference between an archive and museum.
>
> Susan: They certainly did understand what those institutions were all about.
>
> Jayne: Yes, which the other kids did not.

The MLC participants used imagination to transfer knowledge to other situations. One example of many occurred when Fiona discussed her archive experience with her grandfather. Another instance of imagining was exemplified by the presentation of the project that allowed the MLC to disengage from their community of practice, enter the classroom community and look back on what they had accomplished. They brought their knowledge to outsiders, crossed boundaries and saw themselves in a new way, as members of multiple communities of practice. They were also introduced to a broader world where people with varying abilities abound. They were directly involved on a

regular basis in social interaction and problem solving with learners who were unlike themselves.

The Museum Learners Club enterprise extends to the alignment mode of belonging through my research that entails the broader purpose of social inclusion, inclusive education, and advocacy for these things. MLC participants knew this, but may not have adopted this as part of their identities in the same way I did.

I stretched to align with a greater purpose by proposing that the MLC program continue for the fall term on a larger scale. I sought broader implications for learning, for museum learning, and for social inclusion. The extended program included the entire class of 26 students by dividing them into four Museum Learners Clubs, each guided by a community coordinator. With the fall project, we extended beyond the original community of practice and made the Museum Learners Club portable in a larger context. I could now see that the concept could be utilized by entire classes and even whole schools.

Chapter 7   Aftermath and Implications

The ethnographic study in Chapter 6 reveals the positive effects that the Museum Learners Club can have on learning for an inclusive group of students in a prototypical school-museum partnership. Extending the program during the fall term was a test to see whether or not the MLC would work on a larger scale. It fit into the classroom teacher's focus on action research and into my desire to shape an ongoing collaboration with museums. The fall program falls beyond the scope of this thesis yet I have included a brief discussion of it here as prelude to final considerations of the limitations and implications of my research.

Extending the MLC

The extended program materialized after extensive discussion about ways to coordinate theme work, Sunshine State Standards and museum collections. The teachers and I talked about incorporating the Museum Learners Club on a more systematic basis, as one way to confront many learning challenges they encountered, not just autism. It could be considered as an action research project that would fulfill desires that the school district had for improving teaching methodology. Parents that I spoke with also endorsed the idea and volunteered to help with transportation. Holly's mother felt that we should develop what she termed an "MLC protocol" that would involve the entire school.

I scheduled four full days of museum visits (one per month) and planned agendas that would coincide with the fall themes of "Butterflies," "Meteorology," and "Early

Florida History". We viewed exhibits at the Florida Museum of Natural History and its Butterfly Rainforest, The Brogan Museum, Museum of Florida History, Mission San Luis, and the Lake Jackson Mounds. We used museum-led and self-guided tours, pre- and post-visit materials and the types of exercises the original MLC had incorporated. The classroom teacher, associate teacher, Mr. D and I met to discuss community of practice and constructivist strategies for learning. The four of us would be community guides. The students were separated into four Museum Learners Clubs that consisted of diverse learners some of whom were diagnosed with autism, some with ADD, ADHD, unspecified learning disabilities, and dyslexia. There was at least one autistic student who presented tantrum-like behavior. Each group included "typical" and "atypical" learners.

The teachers were excited about the project and about using learning methods that were not common in the classroom. We viewed the fall project as a "museum learning laboratory" that would change the field trip culture and even the culture of the class. We would not only learn at museums but our museum learning would carry over into the classroom. The students were enthusiastic about participating. They wanted to name their learning clubs and develop what they learned into a final term project just as the first MLC had done in the spring. They created monikers that connected to museums and the class themes. We decided, as a composite of MLCs, to follow a similar routine of museum visits in which each club would act by itself. We then designated a day after each museum trip for broader reflection and sharing among clubs. The periods of reflection with the entire class revealed that each club retained and understood multiple concepts from learning in museums.

The group I led called themselves the "Calusa Cult," borrowing the name of an early Native American group.[1] The Calusa Cult included seven students: three girls and four boys, aged 11 and 12. None of the students in the group were from the original MLC, but three out of seven had significant learning challenges. One girl had dyslexia and had difficulty with reading. One boy, suspected of suffering from fetal alcohol syndrome, could not read. Another boy displayed severe autistic characteristics. He could not easily communicate with others and preferred to remain isolated. He was inflexible and had difficulty transitioning from one activity to another. He could not understand abstract concepts; the teacher called him "word literal". The four remaining students were what you might term average; however, one girl was very quiet and reserved.

Regardless of the challenges we faced, the Calusa Cult had many positive outcomes. As the term progressed, I could see the same increase in participation and transformation of identities as I had witnessed in the spring. By mid-term, "MLC" had become part of class jargon. By the end of the term, students were assembling writing and drawing projects they had made during our time together for their portfolios.[2]

Students worked in harmony together. Various students emerged as leaders, taking over my position of guide. For instance, one girl who was a fluent reader shared her expertise with the two who had reading challenges. The shy, reserved student, who never contributed in class, began to ask questions. Her questioning increased as did her knowledge sharing and, by the end of the term, she was one of the most vocal participants in the program—a marked difference from her reticence in the regular classroom.

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[1] The Calusa were Native Americans living in southwest Florida before and during Spanish contact, about 500-1750.

[2] This charter school does not rely on grades but counts the term-end portfolio as a manifestation of learning achievement.

I saw the MLC format work in the most difficult situations with the autistic student who tried to avoid social contact. A couple of times when we were visiting museums, he became rigidly uncooperative and would not join in any activity. The teachers referred to his behavior as a "meltdown". With individual attention and incremental guidance back into the group, the impermeable wall he had erected slowly gave way. The small steps he took may not have mitigated his behavior in the long run, but it allowed him to participate with his fellow students.

The classroom teacher and I continually reviewed and reflected upon our progress as action research demands. At the term's midpoint, we realized that we needed to improve our efforts at orientation, fostering interaction and coordinator coaching. The new teaching associate was unsure of her role as facilitator. The most challenged learners were not being served as well as we had intended. Some clubs were reverting to familiar field trip behavior that excluded group participation. I instituted more refined orientation sessions for museum visits and wrote out detailed explanations of constructivist pedagogy that community coordinators could use with the situations at hand. Since we were not developing term-end projects, I substituted exercises such as concept mapping that would act not only as learning experiences but as activities that would foster interaction. These measures helped, and by the time of our final museum encounter we saw significant progress. Everyone involved was acclimating to the unique way of learning, marginal students were brought into the fold, and the museum-school collaboration was producing new understanding about curricular themes in science and history. Teachers, parents and students praised the program for the fresh outlook it provided on learning and museums.

Drawbacks of the Research

Although the MLC was successful, there are drawbacks to this thesis in theoretical and practical areas. Extended discussion and theorizing on the physical aspects of learning, the dichotomy of individual and participatory knowing, and the notion of authenticity would have added weight to my convictions about the MLC as an optimal frame for learning. Practicalities curbed the development of a sustained community of practice, direct connections with autism researchers and museum educators, and exploration of a more ethnically and demographically diverse group of research subjects. Moreover, I could have introduced additional relevant areas of museum studies research and evaluation measures.

During the fieldwork portion of my study, I closely considered matters of bodily comfort and physical needs; however, in my intellectual concerns I gave negligible mention to physical and biological aspects of learning. I constructed my research framework by focusing on personal and sociocultural aspects of learning when biology and physical setting are equally significant. As sociologist Marcel Mauss points out in his essay on the person, "there has never existed a human being who has not been aware, not only of his body, but also at the same time of his individuality, both spiritual and physical".[3]

The physicality of learning is explained in the museum studies literature most adroitly by Falk and Dierking who contend that the realities of the physical world play a

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[3] Mauss, [1938] 1935: 3. Mauss also wrote a seminal essay on the power of bodily functions in his 1934 "Techniques of the Body".

central role in learning.[4] In Falk and Dierking's "Contextual Model of Learning",

learning is understood as an integrated experience involving personal, sociocultural *and*

physical contexts. Certainly my research subjects were concerned with the physicality of

learning, especially considering sensory and motor functioning issues that are

characteristic of autism spectrum disorders. Adding information about the bio-physical

aspects to my theoretical constructs, research framework and pedagogy would have

completed and strengthened the MLC model.

Falk and Dierking also cite Vygotsky as an influence in their learning model, not

only in a sociocultural vein but also in a bio-physical sense. They write: "Vygotsky

approached cognition from a biological and evolutionary perspective, feeling that the

emergence and transformation of forms of mediation had benefited humans and increased

their survival as a species . . .".[5] Although Vygotsky worked in the first half of the

twentieth century, his research is becoming more widely known and increasingly

influential.[6] Vygotskian constructs such as scaffolding, interaction, and collaborative

learning that entail social, cultural and physical aspects are re-emerging in much learning

research including that in the museum field.[7]

The physical aspect of learning also entails a sense of agency that is aligned to

Polanyi's belief in personal knowledge and contentions about the structure of tacit

knowing. In his examples of how personal knowledge plays a part in learning skills, such

as riding a bicycle, Polanyi introduces biological aspects to a learning situation. Personal

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[4] Falk and Dierking, 2000: 53-58.
[5] Ibid: 43.
[6] Jarvis et al, 2003: 36-38.
[7] Falk and Dierking, 2000: 43-46, 95. Examples of the use of Vygotsky in museum literature include Csikszentmilhalyi and Hermanson, 1994: 156; Roschelle, 1995; Hooper-Greenhill, 1994; Roberts, 1997; Leinhardt and Knutson, 2004; Davis, 2005; Astor-Jack, 2007; and Rennie and Johnston, 2007.

knowledge encompasses physical skill in these instances, thus indicating the power of individual action and tacit knowledge. These qualities of knowledge that arise from individual agency—the personal, tacit, and biological—parallel what constructivists claim as prior or existing knowledge that a learner brings to a novel situation. It is this knowledge that is built upon and transformed during the participatory activities of a community of practice.

Supporting the prominence of personal and prior knowledge, this thesis argues that transformation of individual identities is paramount to learning. In the socially mediated MLC, however, identity transformation can only take place within a place of engagement through increased participation. The seemingly dichotomous nature of personal agency and collective learning needs careful elucidation in every reference. Simply put: what we know is individual; how we learn is participatory. The community of practice framework enables three modes of belonging that include learners' individual and joint actions: engagement (what learners do together), imagination (how learners see themselves in the world), alignment (how learners contend with a larger world outside the community). As their identities transform, learners experience singular and collective progression. Increased discussion of the complex relationship between the individual and the group would help alleviate the contradictory nature of the personal-social dichotomy.

This thesis could be further clarified with attention to theories of authenticity. I have used the terms "authentic situation" and "authentic activities" to describe what occurs in the MLC community of practice. I borrowed these terms from Brown, Collins, and Duguid's work on situated cognition that differentiates school activities from activities that take place in a culture, practice or domain outside of school. Brown and his

co-authors view the classroom as a decontextualized culture of its own making that engenders "inauthentic activity".[8] Divorced from the classroom culture, the MLC was more easily able to operate in what Brown terms the ordinary practices of the cultures associated with the quotidian community or "authentic activities".

I realize that the MLC was designed with a structure that sometimes paralleled that of the classroom. Regardless of the MLC's intended flexibility, what I deemed as authentic activity may not have been truly authentic all of the time. Including a study of authentic functioning, descriptions of which may be found in many disciplines, could make clearer distinctions between classroom and MLC activities.[9]

One of the most significant drawbacks of this thesis involves the learning framework itself. In theory I devised and cultivated a community of practice according to Wenger, but in reality it did not adhere to his parameters. Due to time and resource limitations and because it was a new concept for the school, participants moved in and out of the MLC practice and community according to its availability. They may have identified with it, but it was a fleeting concept directly accessible only during times of engagement that I scheduled. When they were in the regular classroom, the MLC did not actively exist. The trajectories of MLC identities were stifled when the participants lost their opportunities to interact in the museum learning community. This was due primarily to the inevitable failure of true collaboration with a school that is operating on cross purposes to a socially mediated learning situation. I can foresee a more fully operable MLC located within a museum school where museum learning is integral to classroom

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[8] Brown et al, 1989.
[9] See Kernis and Goldman, 2006: 284, for an overview of authenticity and how authentic functioning is characterized in a variety of ways.

learning and can be sustained through a more faithful museum-school hybrid where guided participation is omnipresent.

In turn, the MLC did not completely encompass all modes of belonging set out by Wenger. Even though participants devised strong identities within a place of engagement, albeit an intermittent one, we could have gone farther with Wenger's notions of imagination and alignment. The MLC participants were just beginning to imagine themselves as members of a practice in a world greater than the classroom. They had not reached true alignment with greater purposes. A longitudinal study would have indicated how identity evolves to the point of alignment.

Another notable limitation of this research concerns its connection with autism research. I identified autism learning interventions, such as SCERTS, that could have been integrated with the MLC; however, I was unable to bring them to bear during my research period. Collaborating with a scholar or practitioner in the field of autism or communication disorders would have added strength to my convictions about inclusive and participatory learning for those on the autism spectrum.

I can also see how a more direct connection with museum educators would have benefited the effort, and this is something I plan to do in the future. For this study, I discussed my theoretical and practical approach with museum educators and sent them a summary of my work; however, my primary focus was on informing and pleading my case to school administrators, teachers and parents. At some points during our tours with museum educators, the approach to learning taken by the MLC was at odds with the pedagogical styles of our guides. The successes I enjoyed could have been enhanced with

more sympathetic museum programs. As Hooper-Greenhill states, "Museums should plan for the interpretive strategies and repertoires of their users".[10]

Regrettably, the core MLC research was performed with Caucasian students of similar backgrounds and economic circumstances. This was unfortunate, especially in light of my commitment to inclusion. The school, regardless of its attempts to reflect the demographic realities, has a lower than average incidence of minority students when compared to other public schools in the city. The project that continued in the fall semester gained increased diversity because it included the entire class of 26 students with several African-American students, an Indian-American student and at least one from an impoverished household. Even though I found that autistic students who had not previously participated in class were readily acculturated into the MLC, the lack of cultural diversity may have skewed results as those who are marginalized may not have participated as readily as the privileged few I was able to study. The MLC experiment would have been better served had it included a range of participants from distinct racial, ethnic, and economic classes.

There are numerous related subjects to explore that would enrich the MLC experience. Among them are object-based learning, Gardner's theory of multiple intelligences, Csikszentmihalyi's notion of flow, and experiential learning.[11] These and other areas of research within and without the museum studies literature could be tied to the MLC approach for even greater evidence of learning.

The definitive measure of learning known as Generic Learning Outcomes (GLOs) that has become a standard in the U.K. is also relevant to the MLC research and inspired

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[10] Hooper-Greenhill, 2000: 123.
[11] For these related subjects see, for example Paris, 2002; Gardner, 1993 and 2006b; Csikszenthihalyi and Hermanson, 1994; and Dewey, 1938.

it from the beginning. Based upon an interpretive approach to social learning, just as the MLC was, the GLO criteria could have been used to reinforce my findings. It is clear to me that the five generic outcomes—1) knowledge and understanding; 2) skills; 3) enjoyment, inspiration, and creativity; 4) attitudes and values; and 5) action, behavior, and progression—were ubiquitous in the MLC. Since my theoretical base depended so heavily on Wenger, I used a final analysis based upon degrees of participation and transformation of identities, choosing to forego a detailed analysis of GLOs. The GLOs format could also have been applied and my results fortified.

Finally, I think I could have formulated and expounded upon alternative uses for the MLC concept. These could include work with any small diverse groups that visit museums such as families and friends. Individual museum users who fall on the autism spectrum might also benefit if museum staff employed guided participation techniques of the MLC constructivist community of practice pedagogy. My role as community coordinator provided the bonding agent between one learning genre (the school's) and another (the museum's); however, my role here is done. The MLC concept could live on without me if that role were to be assumed by museum educators. I failed to discuss this possibility here.

Regardless of its imperfections, the MLC made the best of the existing situation. The fieldwork demonstrated how to work together; negotiate a museum visit; cope with differences; approach tasks; build new relationships and redefine old relationships; and jointly solve problems by building on a variety of ideas in a collaborative way. It proved to be a viable learning framework, a solution for inclusive learning in museums, and a way to strengthen the museum-school learning partnership.

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Implications of the Research: Museums and Schools and Their Relevance

Although my fieldwork concentrated on a singular Museum Learners Club, results yield wide-ranging implications for museums and the museum-school correlation. On the local level, I found that museums have a beneficial effect on learning, especially when a well-organized collaboration between a school and museums is established and a community of practice is instituted. On a state and national level, the research addresses universal mandates placed upon museums and schools. Museums face demands to be relevant to all sectors of society, further public service, and demonstrate educational value. Schools are beset with challenges to educate a diverse population under the constraints of large class sizes, insufficient funding, and unprecedented emphasis on standardized tests. With a growing incidence of autism spectrum disorders, all educational institutions are faced with questions about how best to serve this population marked by social and communication deficits.

The productive outcomes of the MLC far surpassed the traditions of typical museum field trips that have been regarded by the subject school and others as relatively ineffective. At the very least the MLC provides a useful method for effective field trips with an interweaving of purposes between class curriculum and museum resources. If sustained, it has greater potential to make a profound impact on a diversity of museum learners.

Promotion of Social Inclusion

The Museum Learners Club is based on the premise that all people should have equal access to learning resources, not only in a physical sense, but in an intellectual

sense. Museums have gone beyond their cultural roles as keepers of our heritage to accept this ethical responsibility for social inclusion. Museums possess settings that are uniquely suited for inclusion and, more specifically, inclusive learning. This is perhaps their greatest attribute. Inclusive learning is a powerful tool that combats exclusion by bringing about abilities and confidence to engage with society.[12]

Museums also operate within a complex social web to further the wellbeing of communities and provide for different learning modalities.[13] They can affirm the abilities of autistic learners and others like them that might once have been labeled as outcasts or are still underserved. They can even assume a therapeutic role.[14] The Museum Learners Club is a vehicle museums can adapt for these purposes.

Schools have a similar responsibility for social inclusion. In recent decades, the practice of special education has been expanding to incorporate methods of inclusive education and differentiation. New directives require schools to meet the needs of and provide appropriate education for all pupils. Where schools fail in this regard, institutions such as a museum-school partnership utilizing the MLC framework can offer the desired alternative.

From its theoretical roots, my research endorses the museum's role as exponent for "a more egalitarian and just society".[15] Michael Polanyi's philosophy and epistemology are directly tied to democratic ideals and fit with museum notions of anti-authoritarianism, post-colonialism and social inclusion. Polanyi believed that objectivism is related to a loss of confidence in the ideals of a free society and explained how true

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[12] Hooper-Greenhill, 2007: 85.
[13] Sandell, 2002a: xvii and Hein, 1998: 164-168.
[14] Silverman, 2002.
[15] Hooper-Greenhill, 2007: 1.

knowledge is influenced by its personal and tacit dimensions. Using Polanyi's ideas, I developed my study with the premises that all learners contribute personal judgment and knowledge to the community of practice and that there is no authoritative or objective truth to which they should be subjected. I would argue, as Hollins does, that "this type of research fits into the wider agenda of creating an equal and fair society for all".[16]

Not merely for the sake of research alone, I intended my study to enhance learning for the students and adults who were directly involved and to foster similar communities of learners in the future. I hope it will prove useful for others who struggle to find learning solutions. People with autistic spectrum disorders are part of our collective history and integral to our society. As such they should be part of our collective meaning-making and should not be excluded in learning programs. The Museum Learners Club is a framework for diversity and a place where these people can be heard and respected as equal partners. Autistic people themselves have voiced their opinions by forming ad hoc human rights movements, Web sites, listservs and organizations that decry injustices they have suffered.[17] These vocal critics do not want their autistic behaviors denounced; they want help defining and developing their strengths.[18]

Impact Regarding Autism Research

In addition to cultivating learning strengths, the interactive nature of the MLC confronts some impenetrable traits of the autistic learner. It uses apprenticeship methods of scaffolding and guided participation that not only offer a safe arena for improving

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[16] Hollins, 2007.
[17] See Harmon, 2004; http://www.autistics.org; and http://www.neurodiversity.com/.
[18] Harmon, 2004.

communication and social skills but also help the autistic brain to think dynamically.[19] Stimulating dynamic intelligence increases the ability to solve complicated problems and develop meaningful relationships.[20]

Until recently, autism research has measured static knowledge to determine outcomes. "As a result, we have no idea whether any treatments increase the odds of an [autistic] child having a real reciprocal friendship, thinking in more flexible, adaptive ways, getting a job, living independently, or getting married some day".[21] In contrast, the Museum Learners Club coincides with new social learning research appearing in the autism field. It measures outcomes in degrees of social change. Results indicate that even stubborn autistic characteristics can give way as learners gain identities in participatory situations.

Mirroring recent recommendations of autism researchers, the MLC format works with individual differences and inclinations; focuses on social skills including the capabilities to attend, engage, and interact; and offers small group learning and one-on-one contact. With the drastic increase in the incidence of autism, the MLC and programs like it may increase the chances for happier relationships and more productive problem solving for a world inhabited by a significant population of challenged learners.

One of the biggest contentions in the discourse on autism concerns the preponderance of behavioral approaches to learning and "curing". Behaviorism fundamentally tries to change autistic people. My sociocultural approach provides an option consistent with the aim to confront oppression and marginalization of people with disabilities, especially regarding their rights to be respected as they are and speak for

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[19] Gutstein, 2009: 147-148.
[20] Ibid: 15-34.
[21] Ibid: 149.

themselves.[22] It complements and furthers social inclusion because in the constructivist community of practice everyone is equal and has an independent personal knowledge.

The MLC research also helps advance the social model of disability and emancipatory research. It is allied with a human rights ideology that "asserts that disabled people are systematically discriminated against by a disabling world, which is designed to suit non-disabled people".[23] It fights exclusive practices through a format that provides equal access to participation for all members.

Museum Studies, Interdisciplinarity and the Theory-Practice Divide

This work contributes to museum learning research and helps bridge the gap between theory and practice. As Rice has pointed out, "Museum education has traditionally been a very practical field that rarely articulates the theories underlying its practice".[24] My thesis and concomitant field research were strongly united with their theoretical underpinnings and demonstrate the efficacy of theoretically based practice. They were undertaken with the belief that theory and practice can be conceived on the same level. My position as reflexive researcher and the action research approach that spawned the Fall MLC program, inherently promises the congruence of theory and practice.

The Museum Learners Club underscores the multidisciplinary nature of museum research. I intend to be what Hooper-Greenhill terms a "border-crosser"[25] by rooting my research in philosophy, sociology, ethnography, and education (progressive,

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[22] Gallagher, 2004.
[23] Hollins, 2007.
[24] Rice, [1998] 2002: 224-225.
[25] Hooper-Greenhill, 2000: 140.

constructivist and inclusive). The interdisciplinary matrix includes theories both familiar and unfamiliar to museum studies. With dependence upon constructivist principles, Vygotsky's social constructivism and the notion of social learning communities the Museum Learners Club furthers the sociocultural view of learning for museum research. It also brings to museum research the profound ideas of tacit and personal knowledge of Michael Polanyi who is often quoted by not always thoroughly read,[26] but whose philosophy underpins much sociocultural research. It unravels Etienne Wenger's complex theory of communities of practice which I suspect is also often quoted but not often thoroughly read. The emphasis on Wenger adds to the museum studies discourse a view of the interrelationships of learning, identity, imagination and alignment and what they portend for museums. Lastly, the use of ideas from knowledge management and organizational learning cement the importance of tacit knowledge and introduce these lines of thought as complementary to museum research.

The Museum Learners Club and Emerging Trends

The Museum Learners Club is at the edge of new ideas in learning. Even while traditions persist in schools and other educational institutions, the MLC can be a pathfinder for learning innovation. Its design incorporates several emerging trends, enumerated by Wenger, that address the needs of our interconnected and multicultural world. Two of these are the *horizontalization of learning* wherein vertical relationships give way to horizontal interactions and the *partialization of learning imperative* that emphasizes the ability to participate ("engaged partiality") over individual mastery.[27] A third trend, and the one most significant to the sociocultural view of learning, is an

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[26] Grant, 2007.
[27] Wenger, 2006: 28-30.

emphasis on identity. Wenger contends that learning in the 21st century will be mostly

about identity, claiming that we are moving out of an information society toward an

"identity society". He sees each person as a unique intersection of identities resulting

from a constellation of varying forms of participation in communities of practice.[28]

As the identity trend transpires, we will need to "shift from an industrial model of

education as the *mass production of skills* toward a knowledge-era model of education as

the *customized production of individualized learning trajectories*".[29] We will need to

look at schools as not working alone in the educational field, but as parts of a larger

learning system that involves other locales, other methods and other activities. The

Museum Learners Club is remarkably suited for this because it encourages identity

formation and membership in communities outside the classroom so that learners can see

how to deal with and affect the larger world. I borrow a phrase from Ruth Abram, to

describe the MLC: "We are gathered here to deepen and expand our efforts so that

citizens the world over may know *who* they are, *where* they are going and *what steps* they

must take to get there".[30]

Impact on the Larger World

Stephen Weil suggested that museum professionals reflect and ask themselves

what they hope to do and what they expect to accomplish in an era of increased

accountability. Questions like these should not be answered in programmatic terms, Weil

admonished, but rather by describing how a program intends to make a positive

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[28] Ibid: 32-33.
[29] Ibid: 41.
[30] Abram, 2002: 126.

difference in the quality of people's lives.[31] My study shows that the application of the

Museum Learners Club can make a difference for diverse learners and have further

positive impacts on the world.

I align my work with thought leaders—Peter Drucker, Peter Senge, Howard

Gardner, and Etienne Wenger, to name a few—that view knowledge and learning as the

means to a better future on a global scale. In the overview for his research agenda entitled

"Learning for a Small Planet," Wenger states the following:

> The six billions of us on our small planet are facing a series of daunting
> challenges: a rapidly globalizing economy, entire continents mired in poverty,
> unprecedented cultural confrontations, ecological threats of global proportions,
> diseases that know no borders, and the anxiety that comes from creeping
> uncertainty about our ability to solve our problems. We need to learn. We do not
> have a choice. We need to learn faster and at a larger scale than we know how to.
> Indeed, we seem caught in a race between our ability to learn and the possibility
> of self-destruction.
>
> Our current ways of learning have fallen behind; they are not up to the task. We
> need new models about how to proceed and new visions of what is possible.
> Learning *how* to learn is a key to taking our problems into our hands and solving
> them.
>
> We need a new blueprint for learning how to learn—as individuals, communities,
> organizations, nations, and as an interconnected world.[32]

Facilitating learning through communities of practice answers the need. Wenger

strongly submits that these communities concern more than learning and knowing. They

are about being together, living meaningfully, and developing satisfying identities in a

framework that can bridge all sectors.[33] The Museum Learners Club joins the spirit of

Wenger's research agenda as part of a new discourse derived from social learning theory.

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[31] Weil, 2002: 60.
[32] Wenger, 2006.
[33] Wenger, 1998: 134 and Wenger, 2006.

In his design for education, Wenger describes three-staged modes of belonging (engagement, imagination and alignment) that expand identities into spheres beyond individual learning communities into other communities of the world. Educational design, he contends, must strive to address issues beyond its horizon and ask: What is the world ahead? Where does education lead? The Museum Learners Club gave school children a firsthand experience of what it takes to achieve something on a scale larger and distinct from their everyday learning community at school. It engaged them in activities that had consequences beyond school walls so that they could learn what it takes to become effective in the world.[34] It connected learning to life.[35]

The Museum Learners Club presents a way in which schools can abandon their traditional boundaries and incorporate museums as coequal places for learning. It presents a way for museums to embrace new alliances with schools. It shows how schools and museums can be proactive in expanding identities. As Anthony Giddens writes: ". . . in forging their self-identities, no matter how local their specific contexts of action, individuals contribute to and directly promote social influences that are global in their consequences and implications".[36] More than this, the Museum Learners Club paves the way for the acceptance and inclusion of learners who are diverse, but who all have the right to learn and work in the world with others. I close this paper with the sentiment of Howard Gardner from his treatise on multiple intelligences:

> It is of the utmost importance that we recognize and nurture all of the varied human intelligences and all of the combinations of intelligences. We are all so different largely because we have different combinations of intelligences. If we recognize this, I think we will have at least a better chance of dealing appropriately with the many problems that we face in the world. If we can

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[34] Wenger, 1998: 274.
[35] Hein, 2006: 350.
[36] Giddens, 1991: 2.

mobilize the spectrum of human abilities, not only will people feel better about themselves and more competent; it is even possible that they will also feel more engaged and better able to join the rest of the world community in working for the broader good. Perhaps if we can mobilize the full range of human intelligences and ally them to an ethical sense, we can help increase the likelihood of our survival on this planet, and perhaps even contribute to our thriving.[37]

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[37] Gardner, 2006b: 24.

Appendix

Statement of Ethics

Research Project Summary for School Administration and Teachers

Museum Learning Community

A Research Project Involving
Tallahassee Museums and the School of Arts and Sciences

Susan Davis Baldino

<u>Statement of Ethics</u>

This paper describes the ethical practice involved in my research as a University of Leicester PhD student conducting a field study of museum learning in Tallahassee, Florida. As a museum studies researcher in an educational and sociological setting, I have drawn upon established standards, guidelines and codes of ethics of sociological and educational institutions. The bibliography lists sources I have consulted and used in forming my own statement of principles and ethics.

RESEARCH SUBJECTS

My research involves a number of adults and children. Primary subjects are students ranging in age from 10-12 from the School of Arts and Sciences in Tallahassee, Florida. I will study how these students learn in a group setting in museums that I call the "Museum Learning Community". The group may include members of students' families and teachers from the School of Arts and Sciences. Museum staff members may also be affected by my research. The ethical practice that is described here pertains to any and all of these people. I will refer to them as research participants.

RESEARCHER'S AFFILIATIONS

It is important to disclose my personal attachments and associations as the first step in guarding against potential conflicts of interest. I will continue to disclose my affiliations to all participants during the research process.

I am mother to a research participant who is a student at the School of Arts and Sciences. I am an active member of the school community where I volunteer in the classroom and serve on the school advisory committee. I hold a volunteer position as Tallahassee Museum trustee and I am member of various Tallahassee museums that may be involved with the research. I will take care to ensure that my involvement with these institutions does not affect the manner in which I approach and conduct research.

CORE PRINCIPLES AND VALUES

With regard to my research behavior, my primary values are integrity, transparency and communication.

- *Integrity*: I intend to conduct research with the highest degree of integrity and respect
- *Transparency*: I will fully and freely disclose and share methodology, data, and knowledge upon appropriate request

- *Communication*: I will be open and communicative within and without the research community

Adopting principles of the British Educational Research Association I will maintain an ethic of respect for:
- The Person
- Knowledge
- Democratic Values
- The quality of Educational Research
- Academic Freedom

CODE OF ETHICS FOR RESEARCH

1. Research will contribute to the well-being of society
- I will conduct research that is worthwhile for the museum, school and research communities.
- I will act in ways that are justifiable and sound.
- The basic aim of the research is to extend knowledge and understanding about museum learning.

2. Voluntary Informed Consent
- I will seek freely given consent from research participants.
- I will include informed consent from a responsible adult for each young person included as research participant.
- I will explain how and why research is conducted to all research participants, their parents, families, teachers and/or counselors.
- I will disclose the use of recording devices.
- I will respect the rights of consent as I record observations

3. Consideration of Research Participants
- I will respect and safeguard the rights, dignity and interests of all participants.
- The best interests and well-being of young research participants are primary concerns.
- I will be aware of vulnerabilities and disabilities of young people.
- I will carefully handle issues that may arise from special sensitivities, sensory issues, communicatory deficits, and physical and emotional limitations
- I will respect the privacy and confidentiality of all participants.
- Upon publication of research, research participants will remain anonymous.
- I will honor the rights of all individuals, including their right to refuse to participate in any part of the research process.
- I will minimize the impact of the research on normal workloads of participants.

- Research subjects will encounter appropriate subject matter.

4. Disclosures and Potential Conflicts of Interest
- I will be receptive to inquiries from participants about any aspect of the research in which they are interested.
- I will fully disclose personal and professional associations I have with research participants.
- I will approach research in a properly detached manner. Although I will be participant observer and closely tied to the group, I will remain an independent thinker and not allow my personal feelings, opinions and judgments to modify outcomes.
- As well as being participant and observer, I am mother to one of the research subjects. I will not allow this fact to color my conduct, data collection or analysis.
- I will guard against potential conflicts of interest and avoid inappropriate personal gain.

5. Research Results
- I will publish and promote my results according to academic and professional standards.
- I will provide a summary report for all research participants.
- I will make any and all data and analysis available to interested participants or to those who are related in an academic or professional manner.
- I will inform research subjects of potential uses for research data and results.

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Museum Learning Community
A Partnership Project for the School of Arts and Sciences and Tallahassee Museums

Draft Proposal by Susan Davis Baldino
February 3, 2006

The Museum Learning Community

I envision a group that consists of students, teachers, and interested family members who will learn together in museums. The group may consist of 3-4 students on the autistic spectrum and 3-4 of their non-autistic peers, interested classroom and special education teachers and any family members who want to participate. I will be coordinator but will also be immersed in the group as participant and observer.

All members of the learning community will have a voice. Operating as a community of practice we will develop shared interests and common goals. There will be full disclosure on all aspects that concern purposes, goals and parameters of the research. I have devised a possible scheme that I present here but recognize the need to keep it flexible and adaptable.

Goals

There are two specific learning goals I have in mind: learning how to learn at a museum (gaining museum skills) and learning subject matter content at the museum (probably learning history at history museums). This will be undertaken by independent exploration and museum-led programs in various museums. Of course, underlying these goals is the fervent desire to find effective means of facilitating learning for those on the autistic spectrum.

Teachers from the School of Arts and Sciences have set the thematic calendar for the school year 2005-06 and my field research may coincide with the theme, "America: The Second Hundred Years". This would be an appropriate subject for area history museums. Keeping in mind the broad conception of museum education, however, there is a wide range of other possibilities including but not limited to learning social and interpersonal skills, problem solving, values, and appreciation.

Subsidiary goals include advancing the practices of inclusive education for schools and social inclusion for museums; demonstrating the effectiveness of school-museum partnerships in learning; and creating a framework for school-museum collaboration.

Purpose

This project is designed not only for the sake of research, but to directly enhance learning for all participants. I would like it to be an ongoing program for the school and museums in the community and plan to continue as coordinator after the initial field study is complete. If successful, it will foster similar communities of learners in the future.

As an advocate for children with special needs and for inclusive education, I enter into this study with the hopes that it will prove useful for others who struggle to find solutions for students who have difficulty with learning.

Action Research

I will use action research to simultaneously pursue action (change) and research (understanding) with the hope that we will find new and successful learning strategies for students on the autistic spectrum. These strategies should also prove valuable for non-autistic students.

The action research paradigm includes participatory observation and a cyclical process of action, reflection and interpretation. It will take into account the needs and desires of my subjects and provide flexibility and adaptability. It is my fervent desire to have a direct and obvious relevance to and impact on education practice in Leon County.

Tentative Schedule

	March	April	May
Individual Interviews	Wed, 3/8 Thurs, 3/9 Fri, 3/10		
Concept Mapping Group meeting	Wed, 3/15 Thurs, 3/16		Mon, 5/22 Tues, 5/23
Museum Visits	Thurs, 3/30 Fri, 3/31	Thurs, 4/6 Friday, 4/14	Thurs, 5/4 Fri, 5/5 Thurs 5/11 Fri, 5/12 Thurs, 5/18
Group Reflection			Fri, 5/19

Research Questions and Notes on Theoretical Background

I came to this project with several fundamental questions: How do we learn? – and, How can we provide a successful learning environment where students with different learning styles can learn together?

I discovered that knowledge is both individual and collective. Knowing is a personal activity but how we gain new knowledge results from social interaction. As people participate with others in a social community, their prior knowledge undergoes a transformation resulting in new knowledge. This dynamic process is what we know as learning and it can be visualized in the following simplified diagram.

Individual learner	Social Encounter	Result
Personal knowledge→	Knowledge of others →	New knowledge
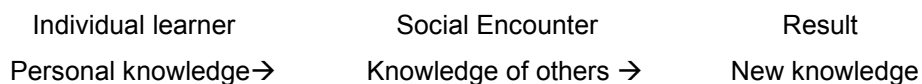
I also found that a transmission-absorption style of teaching, wherein a teacher lectures students in a classroom setting, does not always result in effective learning. Rather than

conceive of the student as being an empty vessel expected to ingest information from an authority, teachers are turning to constructivist methods that view learners as active participants in the learning process. With its forward-looking philosophy, SAS already embraces constructivist theories and practices.

Constructivist theories of knowledge, learning and teaching are being actively employed in museums. Constructivism calls for learner-centered, process-driven, flexible, interactive environments wherein active knowledge construction occurs through assimilation of new information into pre-existing mental structures. A summary of Constructivism can be seen in the following table.

LEARNERS	CONTEXT	CURRICULUM	TEACHING ROLE
Be attentive and sensitive to prior constructions of knowledge and personal knowledge	Ground learning in the real world where context and problems are relevant	Present authentic tasks and use primary sources	Join the learning process as a learner not a teacher
Encourage ownership, self-awareness and a voice for each individual learner	Maintain an active and interactive context that engages all learners and enables multiple perspectives	Activity or project-based learning where process is more important than product	Act as a guide, coach and facilitator, not a preacher controller or dictator
Assure learner control	Place emphasis on dialogue, collaboration, and sharing	Start with the whole, not the parts; emphasize concepts not facts; stress deep understanding	Help students reach their own conclusions through dialogue and negotiation
		Include reflexive practice	

In addition to constructivism, my studies draw upon complementary theories of apprenticeship learning and communities of practice. These derive from age-old concepts of collaborative learning in authentic situations. Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly. Learning arises from communities of practice from participation in social processes Apprenticeships involve ways we learn most naturally, from participating with people around us who know more than we do. The central activity of communities of practice and apprenticeships is learning not teaching

Who I am and What I do

I am involved in the professional museum field in a number of capacities. I developed the museum studies program at Florida State University and now teach museum courses for FSU's Department of History. I have worked in the areas of museum administration, management and governance. Currently I am Vice President of the Tallahassee Museum and Immediate Past Chair of the Florida Association of Museums Foundation.

As a PhD student at the University of Leicester (UK) in the Department of Museum Studies, my research focuses on museum learning, communities of practice, theories of knowledge and social inclusion for museums.

I am mother to a student at the School of Arts and Sciences. It is because of my child that I strive to discover how we may be able to create successful learning partnerships.

For me, the most exciting aspect of my research is that the School of Arts and Sciences was founded with progressive educational ideas and incorporates the type of learning I propose in many ways. I hope I can introduce a new context for learning at SAS, build upon existing practice and help SAS to more fully develop community partnerships with museums.

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