2014-07-03

Investigating the One-on-One Master-Apprentice Relationship: A Case Study in Traditional Craft Apprenticeship

Isaac W. Calvert
Brigham Young University - Provo

Investigating the One-on-One Master-Apprentice Relationship:

A Case Study in Traditional Craft Apprenticeship

Isaac W. Calvert

A dissertation submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

Russell T. Osguthorpe, Chair
Jerry L. Jaccard
A. Legrand Richards
David D. Williams
Stephen C. Yanchar

Department of Instructional Psychology and Technology

Brigham Young University

July 2014

ABSTRACT

Investigating the One-on-One Master-Apprentice Relationship:
A Case Study in Traditional Craft Apprenticeship

Isaac W. Calvert
Department of Instructional Psychology and Technology, BYU
Doctor of Philosophy

Governments around the world are calling for a revival of apprenticeship on a large scale, emphasizing the value of the one-on-one, human interaction between master and apprentice and the teaching involved in that interaction. Although a broader historical view of apprenticeship shares these ideas, certain prominent threads within recent educational research have done a great deal to deemphasize them. Some go so far as to overlook the master-apprentice relationship altogether, assert that masters simply do not exist, and claim that apprenticeship learning happens without any teaching at all. In response to these claims, the researcher took part in an autoethnographic case study, participating himself in a two-year apprenticeship under a master violinmaker. Analysis from the case suggests that the one-on-one master-apprentice relationship plays a key role in apprenticeship learning, that mastery is embodied in individuals rather than in communities alone, and that a master's teaching does in fact make a difference to an apprentice's learning.

Keywords: apprenticeship, teaching, role of human teacher, traditional craft apprenticeship

ACKNOWLEDGEMENTS

I would like to thank the members of my committee, friends, family, and colleagues. Without the help of those around me, I know that completing this dissertation would not have been possible. I would like to especially thank the master under whom I apprenticed, who has graciously asked that his name not be mentioned. Without his kindness and generosity in taking me in as an apprentice, I would neither have learned how to make violins, nor have been able to conduct this study. I also wish to recognize the hand of the Lord in my work. Above all, without His divine help, none of this, nor any other endeavor in my life, would have been possible at all.

TABLE OF CONTENTS

LIST OF FIGURES

Preamble

The department under which this dissertation was written is called the Department of Instructional Psychology and Technology. Many branches that fit within the category of "educational research" play a significant role among both students and faculty in the department. Some of these branches include educational measurement, assessment, instructional design, creativity, innovation, computer programming, blended learning, evaluation, psychology, neuroscience, and educational philosophy. While many diverse branches of educational research find a home in this department, educational anthropology and autoethnography are rarely included among them. In addition, many of the questions asked in the department focus on designable aspects of instruction, rather than on something inherently unscalable and difficult to quantify, like apprenticeship. Naturally, when a study's subject and methodology are so unusual to the department with which it is associated, the following question arises: what does this research have to do with Instructional Psychology and Technology? In the following preamble, I will clarify the relevancy of this study's subject matter, methodological approach, and academic significance to the department.

Instructional

At the heart of this study is the question of whether instruction, especially human instruction, plays any role at all in one of the most historically and contemporarily ubiquitous educational institutions extant today: apprenticeship. If learning is all that matters, and can and does happen without any kind of instruction (let alone human instruction), then the intentional design of that instruction, one of the pillars upon which this department is founded, would seem both superfluous as well as futile. Defending the importance of instruction to learning is, in

essence, defending the value of this department, its value to the world of academia, and the associated contributions of its research agenda to the world of educational practice generally.

Psychology

Completely eliminating teaching from learning in educational research could also run the risk of marginalizing the role and importance of human interaction in many educational scenarios, not only those that many have already begun to spuriously declare as obsolete, such as apprenticeship. Dismissing the dynamics of human interaction between a teacher and a learner would certainly, whether for better or worse, impact educational psychology. Entire elements of psychological research that consider human interaction, rather than individual human behavior in isolation, could also be marginalized and excluded from informing the future of instructional psychology altogether. Any psychological construct specifically involving instruction, or the intentional effort of a person or persons to assist others to learn, could also cease to be a relevant issue to learning altogether. In short, studying the unique dynamics in the master-apprentice relationship allows room for a broader consideration of what psychology could offer the world of education.

And

The *and* in our department's title implies that, while instruction may have both psychological and technological dimensions, it is neither psychological nor technological alone. It at least appears to be, instead, a dynamic combination of both. In the midst of careful study, instruction becomes a complex amalgamation of still so many other factors that including each in the title of any department would be overwhelming, to say the least. But, by including at least more than one dimension of instruction in its title, this department seems to both acknowledge and espouse the idea that instruction is, at least to some degree, holistic. That is to say that it

cannot and indeed does not involve only one factor or variable at a time in complete isolation from the rest. Rather, it involves a sometimes frustratingly complex whole, making its investigation and study both challenging and complicated. One of the principle elements that makes instruction so intricate is that it involves, at least to some degree, human beings, whose personal traits, associated variables, and very natures seem to be the most holistic of all. At the very heart of traditional craft apprenticeship, the primary subject of this investigation, is this very kind of holism—that all things, technology and psychology included, play their part, and that no one of them in isolation would be sufficient to bring about the complex, multifaceted type of learning that crafts such as violinmaking demand of those who dare master them. In this way, studying traditional craft apprenticeship highlights the holistic elements of instruction implied in the very name of our department. In turn, this could give a more historically grounded understanding in both psychology and technology to those whose research may both inform and drive new educational technologies in the future.

Technology

When the term *technology* is used today, many immediately think of digital communications technologies such as smart phones, laptops, and the internet. Technology, however, has another, much broader historical definition. According to the Oxford English Dictionary, the first and most ancient definition of the term originally meant "a treatise on a practical art or craft." It was not until one hundred years later that the term came to mean, "the branch of knowledge dealing with the mechanical arts and applied sciences" (Oxford English Dictionary, 2013). In other words, today's notion of digital technology does not exist in isolation from this richer historical context. Seen from this perspective, digital technologies are inherently connected to both art and craft. From the carpenters of antiquity to the computer programmers

of modernity, masters and apprentices have taught and learned their crafts using tools and technology of all sorts. Studying craft apprenticeship affords a broader understanding of how technologies both ancient and modern are involved in the dynamics of instruction generally.

Introduction

The term *apprenticeship* often inspires musings of bygone days in which teachers, rather than teaching classes by the hundreds, taught the one—in temples, workshops, and homes all around the world. The image of a determined and often overzealous apprentice at the feet of a patient and sagely master crisscrosses between cultures and throughout recorded history. Before civilization, sons apprenticed under fathers and daughters under mothers, sharing a relationship and teaching that even then seemed more than social transmission or utilitarian survival alone. Despite the advent of formal schooling in antiquity, Egyptian priests continued to mentor their successors, Greek philosophers took apprentices as personal pupils, and ancient Hebrews learned at the feet of Rabbis. To those who studied under them, each of these ancient masters was the living embodiment of the content and skills they imparted to those who would listen. In short, without priests, there was no religion; without philosophers, there was no philosophy; and without Rabbis, there was no law.

The idea that a human master is the embodiment of a craft, profession, or tradition is not new, nor did it die with the ancients. Throughout the Middle Ages and into the Renaissance, trade guilds continued this tradition of teaching so that the secrets and beauty of their crafts would continue into the future. Many of the world's greatest pianists today can trace their apprenticeship lineage back to Liszt, demonstrating an unbroken line of the embodied mastery that only the great pianists of former ages are said to have had. Even today's contemporary entertainment media recognize the ubiquitous appeal of the close bond shared between master and apprentice. One need only mention the phrase, "Wax on, wax off" to recall the relationship between Mister Miyagi and his temperamental protégé, Daniel-San. It seems clear, then, that apprenticeship has played a significant role in history, and that it continues to do so today. But

what is it about apprenticeship that has made it last so long, especially since so much has changed since antiquity? Technologies as old as the written word and as new as the Smartphone offer humanity options apart from apprenticeship. So, why is it still around? What does mastery as embodied in a living, human master really contribute to education? Is there something unique about the way one human teaches another that simply cannot be delegated to another instructional medium? And, perhaps most important of all, what is really going on in the master-apprentice relationship that has been and continues to be so valuable that, despite the near impossibility of its scalability, organizations and individuals return to apprenticeship time and time again to ensure the perpetuation of their traditions, culture, and personal knowledge?

Traditional craft apprenticeship has been defined as "an agreement between a skilled person and an unskilled person, whereby the unskilled person learns to practice a specialized craft" (Coy, 1989a, p. 3). Although many assert that such traditional craft apprenticeships are disappearing (Guile & Young, 1999) and have no place in the modern economic and technological milieu of today (Sennett, 1998), apprenticeships not only continue to play a key role in contemporary education (Gamble, 2001), but major efforts are underway in many countries to reemphasize apprenticeship as a socially and economically viable alternative to traditional university education (Doel, 2011; Tant & Sherlock, 2011). There is even evidence of an increasing demand for this kind of traditional craft apprenticeship by employers in the workplace (Keep & James, 2011), professors at research universities (Rogers, Kranz & Ferguson, 2012), professional musicians in conservatories (Nerland & Hanken, 2004), and government specialists on the integration of college-age youth into the workforce (Fuller & Unwin, 2007). The newest literature in this most recent revival of apprenticeship often cites the uniquely intimate, one-on-one relationship between master and apprentice as one of its most valuable

characteristics (Dolphin & Lanning, 2011; Fuller & Unwin, 2007; Hoover & Oshineye, 2009; Nerland & Hanken, 2004).

Some of the most prominent learning theories associated with apprenticeship in educational research, however, do not consider the master-apprentice relationship in the same light. From what has been termed the "renaissance of apprenticeship" in educational research in the 1980s (Lave & Wenger, 1991), there arose two main interpretations: cognitive apprenticeship (Collins, Brown & Holum, 1991; Rogoff, 1990) and legitimate peripheral participation (Lave & Wenger, 1991). Rather than highlight the one-on-one master-apprentice relationship, cognitive apprenticeship (Collins et al., 1991; Rogoff, 1990) moved toward a more scalable model with only some of its traditional characteristics in order to accommodate the exigencies of the American public school system. This shift diminished the scholarly perspective of traditional apprenticeship by deemphasizing the one-on-one, master-apprentice relationship and assigning restrictive and historically inaccurate attributes (see Coy, 1989a; Eby & Arrowood, 1940; Rorabaugh, 1986) to traditional apprenticeship to make room for its own reworked, and more easily scalable, cognitive version.

On the other hand, while Lave and Wenger's work did much to highlight the importance of learning by doing, their legitimate peripheral participation framework further deemphasized the importance of the master, intentional instruction, and the one-on-one master-apprentice relationship, all of which are key elements of a broader historical perspective on traditional craft apprenticeship (Coy, 1989a). Regarding mastery and the master-apprentice relationship, they took "a decentered view of master-apprentice relations," saying "that mastery resides not in the master but in the organization of the community of practice of which the master is part." To justify this stance, they cited a single case of North African tailors in which it appeared that

apprentices "engaged in a common, structured pattern of learning experiences without being taught," while admitting that the reason it seemed this way was because "there is very little observable teaching" (Lave & Wenger, 1991, p. 92) in such a situation.

In taking this stance, they moved "the focus of analysis away from teaching and onto the intricate structuring of a community's learning resources." This decentralization of the master-apprentice relationship is precisely the gap that this study seeks to address. Because legitimate peripheral participation has been given so much attention among educational researchers and theorists generally (it has been cited in over 37,000 scholarly articles), its assertion that mastery is a disembodied notion that belongs to the whole community of practice rather than to individuals has given rise to the spuriously associated idea that master teachers and their deliberate teachings are no longer important. This study, at least in part, seeks to address this idea in its investigation of the value and dynamics of the one-on-one master-apprentice relationship.

In short, some of today's most prominent educational research on apprenticeship asserts that a master craftsman neither embodies mastery nor intentionally teaches anything to anyone. From this perspective, teaching, the master, and the master-apprentice relationship are of little, if any, importance. However, there is another perspective from which to view these notions. As many scholars affirm that craft knowledge exhibits both tacit and explicit dimensions (Coy, 1989a; Dilley, 1989; Polanyi, 1962; Rorabaugh, 1986; Williams, 1981), it is clear that deliberate instruction would be difficult to observe by a detached third party not personally involved in the intimate process of tacit and explicit knowledge sharing. However, to assume that a certain phenomenon does not exist simply because it has proven difficult to observe within certain methodological paradigms (e.g., third-party interviews, quantitative surveys) would seem not

only inconclusive, but indefensible as well. Using anthropology's apprenticeship method along with autoethnography would allow the researcher to personally experience what it means ontologically to share tacit and explicit knowledge in the context of lived experience. Such an approach would shed more light on the degree to which a master intentionally teaches in traditional craft apprenticeship than other, more peripheral research methods may have done until now.

Research Questions

1. What is the nature and dynamic of the one-on-one, master-apprentice relationship?
2. What importance does embodied mastery play in this relationship?
3. Does the master, as one who embodies mastery, actually teach in a one-on-one, traditional craft apprenticeship, and, if such teaching occurs, what are the dynamics and evaluative elements of this teaching?

Literature Review

The literature review that follows is made up of three main sections. The first is an outline of the importance of studying apprenticeship in educational research today. In the second, I offer a definition of traditional craft apprenticeship, with an individual subsection specifically dedicated to the terms *traditional*, *craft,* and *apprenticeship,* and outlining the historical background and current theoretical perspective of each. Lastly, I review some of the most prevalent theories on apprenticeship that come from educational research in an effort to justify and give proper context to the subject matter and research methodologies undertaken in this study.

Why Study Apprenticeship?

Although no single definition of learning is universally accepted among educational researchers (Schunk, 1991; Shuell, 1986), many consider *interaction* between the learner and some other entity to be at least one necessary characteristic of learning (Holmberg, 1983; Jung, Choi, Lim, & Leem, 2002; Merrill, 2002; Reigeluth, 1983). Some assert that learning is enhanced not only by the productivity of such interaction, but also as it occurs with particular persons and agents (Sheremetov & Nunez, 1999). Such interaction is, certain researchers maintain, "one of the most important components of learning" (Jung et al., 2002, p. 153).

For much of Western education's history, it seems as though a lack of technological variety has inherently linked educational interaction to face-to-face, human instruction (Hobart & Schiffman, 2009). Nevertheless, human interaction has remained an integral part of education despite mankind's capacity to communicate by alternative means, such as the written word, which has been around for thousands of years. More recently, however, an unprecedented variety of innovative communication technologies has provided dozens of new ways for a learner

to interact with instruction (Bates, 1995; Goldin & Katz, 2009; Hillman, Willis & Gunawardena, 1996; Moore, 1993), making human-to-human interaction, once the primary means of instruction, only one option among many (Moore & Kearsley, 2011). This leaves many educators today to question the present and future value of human teachers and face-to-face interaction in education (Dowling, 2003). One larger purpose of this study is to address this question within the more specific context of traditional craft apprenticeship.

Despite what seems only a recent concern with technology replacing human interaction in education, alternative modes of instructional communication have existed since antiquity. Hobart and Shiffman (2000) divide the Western intellectual tradition into what they call three *information ages*: literacy, numeracy, and the computer revolution. In the pre-literate world, communications technology was such that human interaction was an almost inescapable part of teaching and learning (Eby & Arrowood, 1940). The principally oral communicative capacities of ancient, pre-literate peoples made communication between physically present persons a necessary part of teaching and learning. Such communication in pre-literate societies may be identified today as synchronous, face-to-face instruction (Hillman et al., 1996). Later on, pictographic representations of oral communication in Egyptian hieroglyphics and Mesopotamian cuneiform began to allow lived experience to be abstracted into information, removing it, in essence, from what Hobart and Shiffman (2000) call the *flux of experience*. With the development of the Phoenician and Greek alphabets, which were further removed and abstracted from lived experience, information could be more richly and precisely communicated through reading and writing in a way that did not require the communicators' physical presence (Diringer, 1968).

In other words the advent of literacy, beginning with the pictographic phoneme representation of cuneiform and hieroglyphic, and continuing on to later, more abstract alphabetical counterparts manifested in Greek and Phoenician, also marked the arrival of asynchronous communication to teaching and learning. In *Phaedrus* (Jowett, 2005), Plato records a conversation between Socrates and Phaedrus concerning the virtues of writing, which was a cutting-edge communications technology at that time. To those who advocated and used reading and writing as a means of teaching and learning, Socrates is recorded to have said

> You give your disciples not truth, but only the semblance of truth; they will be hearers of many things and will have learned nothing; they will appear to be omniscient and will generally know nothing; they will be tiresome company, having the show of wisdom without the reality. (p. 72)

In short, with literacy came the capacity to represent things independent of synchronous interaction, the value of which was so important to Socrates and (by association) Plato that they were openly suspicious of its merits as a didactic tool.

The list-making and classificatory approach to teaching and learning heralded by the age of literacy soon gave way to numeracy, through which ideas could be further abstracted into numerical equations in which entire concepts could be reduced to mere letters concisely expressed in algebraic simplicity. This allowed the teaching and learning process to be abstracted even further from the human-to-human level of interaction characterized by Hobart and Shiffman's (2000) *flux of experience*. Whereas writing expressed ideas whose meaning could at least be approached through the lens of human experience, the level of abstraction allowed for in the age of numeracy was such that its ideas were more easily explained through mathematical symbols than by written or spoken language. This sort of reductionism, famously

associated with the work of men like Diderot and d'Alembert, manipulated abstract ideas through mathematical equations, pushing teaching and learning toward a kind of information exchange even further removed from human-to-human interaction than literacy had been.

The most recent of Hobart and Shiffman's (2000) information ages is described as the computer revolution, which represents another move further away from the necessity of human-to-human interaction in teaching and learning. It began with inventions such as the telegraph, radio, and the telephone, each of which allowed for a new type of synchronous communication that did not necessitate the immediate, physical presence of those taking part in the interaction. Television brought with it an unprecedented new array of asynchronous interaction that, instead of relying on a traditional notion of literacy associated with one's capacity to interpret the written word, communicated ideas almost independent of it. In doing so communications technology began to function on the basis of a new kind of literacy, one in which the capacity to read the written word was no longer the only alternative to speaking with someone in person. The personal computer and the internet have expanded the communicative options of instruction even further (Jung et al., 2002), making room for an unprecedented number of new learning interfaces that no longer need human interaction in order to function.

The idea of replacing the need for face-to-face, human interaction in education is by no means new. But there are those who illustrate it as such today, especially with the advent of online education. Despite claims that the human-centered model of education is being irrevocably disrupted by online alternatives (Christensen, 2011), one-on-one, face-to-face interaction continues to characterize much of the learning that goes on in formal, informal, and professional learning environments (Dowling, 2003). Looking more specifically at the realm of

one-on-one human interaction in teaching and learning, three principal subdivisions come to the foreground of educational research: tutoring, mentoring, and apprenticeship.

To give further context and clarification, Figure 1 compares the essential characteristics of several prominent instructional scenarios with the instructional interaction of traditional apprenticeship as outlined by Fuller and Unwin (1998).

	Prolonged	Central Means of Learning	Formal/ Contractual	Intentional (Both Teacher and Learner)	Master Must Be at Mastery Level	Human to Human
Apprenticeship	√	√	√	√	√	√
Tutoring				√		√
Mentoring	√					√
Lecture		√		√		√
Classroom		√	√	√		
Solo Computer Work (i.e., Google Search)		√				

Figure 1: Differentiating instructional interaction frameworks from apprenticeship (see Fuller and Unwin, 1998).

Although some of these other instructional scenarios may involve some of the outlined characteristics, only necessary characteristics are marked. Thus, while tutoring can be prolonged, it does not have to be in order to be considered tutoring, and is therefore not marked in that category. The table clearly illustrates that the kinds of interactions in large lectures and

solo computer work share very few of the necessary characteristics of one-on-one, human-to-human interaction.

However, two instructional scenarios, namely tutoring and mentoring, can be compared more closely to apprenticeship than the others. Nevertheless, neither tutoring nor mentoring share several of the central necessary characteristics of apprenticeship, especially traditional craft apprenticeship. First, the literatures surrounding tutoring and mentoring describe both as being primarily supplementary; that is, their current instantiations function primarily as appendages to other, more central educational or occupational systems (Ehrich, Hansford, & Tennent, 2004; Ireson, 2004; Powell, 1997). Within this peripheral role, tutoring and mentoring do not necessarily lend themselves to the holistic and situated consideration of teaching and learning as directly as apprenticeship (Lave & Wenger, 1991). Apprenticeship itself is characterized as a primary educational interaction that addresses education holistically (Egan & Gajdamschko, 2003), rather than being a supplementary one that may only address it partially or compartmentally.

Second, current literature surrounding tutoring and mentoring includes asynchronous, online interaction (De Smet, Van Keer, & Valcke, 2008; Lim & Cheah, 2003), intelligent tutoring systems (Rosi, Stankov, & Glavinic, 2000), and e-mentoring (Headlam-Wells, Gosland, & Craig, 2006), which can decentralize the face-to-face, one-on-one, human relationship under investigation in this study, and which is at the heart of traditional craft apprenticeship. On the other hand, apprenticeship has generally avoided scalability through such technology-mediated variations in favor of preserving the "close ties and intimacy" characterized by the close, personal interaction at its core (Nerland & Hanken, 2004, p. 180).

Third, this study's theoretical perspective aligns with Lave and Wenger's assertion (1991) that

> Various forms of apprenticeship seem to capture very well the transformative possibilities of being and becoming complex, full cultural-historical participants in the world—and it would be difficult to think of a more apt range of social practices for this purpose. (p. 32)

While mentoring and tutoring do address one-on-one teaching and learning, their associated bodies of literature do not focus on these situated, transformational, and holistic considerations (Powell, 1997). Lastly, the type of tacit, craft-oriented knowledge characteristic of traditional craft apprenticeship (Polanyi, 1962) further supports the significance of the one-on-one relationship between master and apprentice (Gamble, 2001).

What is Apprenticeship?

This study focuses specifically on traditional craft apprenticeship, rather than apprenticeship generally. As such, the terms may need clarification at this point. The following section breaks the phrase into its three component parts, explaining the significance and relevance of each to the larger research questions at hand.

Traditional. The use of the term *traditional* in this context is used as a means of differentiating the traditional perspective of apprenticeship of those most recent re-workings of apprenticeship constructed by educational researchers beginning largely in the late 1980s. This is not to say that these new ways of seeing apprenticeship are completely devoid of traditions nor that traditional apprenticeship is somehow archaic. Traditional apprenticeships include those that occur in the antiquated shops of traditional violinmakers, just as they occur in the modern labs of computer programmers.

Craft. Given that craft and craft knowledge play a key role in the dynamics of traditional craft apprenticeship, especially within the tradition of violinmaking, the definition of *craft* itself requires some clarification. The earliest use of the term *craft* in English reaches back to Orosius, a ninth century Christian priest and student of St. Augustine of Hippo. Around the year 893 AD, Orosius wrote his noteworthy *History*, in which he used the term *craft* to denote strength, power, might, and force (Oxford English Dictionary, 2013). This early definition of the term seems only tenuously connected to the notion of craft we espouse today. However, the connection, albeit faint, is an important one. The idea that an ordinary person can have the capacity to create something beautiful and even useful from something relatively ordinary and without practical functionality—a violin from a tree, a statue from stone, or pottery from earthen clay—brings with it a sense of that power and might with which Orosius coined the term all those centuries ago. In some ways, it is just such a sense of might in our ability to craft objects of beauty and utility from unorganized material that sets us apart from more primitive forms of life.

The historical precedents for using *craft* to describe the work of a community as well as that of an individual are equally legitimate. Later usage of the term included ideas like intellectual power, human skill (as opposed to art occurring in nature), and even magic. Again, herein lie several key points in the consideration of craft. First, that the separation of intellectual skills, accomplishments, and professions that exists today in the modern Western philosophical paradigm is only a fairly recent development. Throughout history, an educated mind has been just as valuable as educated hands. Many, in fact, did not consider them isolated traits or pursuits at all. Not until modernity was the concept of craft isolated from general artful skill to apply only to what some see as isolated, quaint, and assumedly obsolete creative pursuits or hobbies (Sennett, 2008). Second, these antiquated definitions of *craft* suggest that the art of

human hands was (and perhaps still is) somehow qualitatively different from that which occurs in nature. This again serves to support the notion that human mastery and human teaching, rather than automated versions of the same, play at least a unique, if not indispensable, role in education.

Lastly, the associated use of the term *magic* within this English etymology of *craft* intimates that the capacity to create such art goes beyond that which can be isolated into variables and explained away by scientific investigation. People throughout history have considered the ability to organize commonplace materials into something extraordinary to be a form of almost mystical power. If the ability to create the extraordinary from the ordinary was seen as something so powerful as to be mysterious and almost magical, then it stands to reason that the ability to pass on such knowledge and skill to another would be just as magical, if not more so. Seen in this light, isolating parts of the communication of such skill from the holistic experience of being in the presence of a master seems almost counterintuitive.

Equivalent uses of the term *craft* in other languages shed more light on its core meaning. The German term is *Handwerk*, which suggests the necessary embodiment of *craft* as, in essence, doing or making something with one's hands (Sennett, 2008). The symbolic connection with one's hands also brings to light the intimate connection between the craftsman and his or her work, emphasizing the personal nature and dedication associated with *craft* generally. *Handwerk* also denotes a trade or business, again linking the concept of *craft* to the act of doing or making something associated with one's work. This again hearkens back to the idea of craft knowledge as being holistic, incorporating one's passions with education and work. The French use the term *artisanal*, which links the concept of craft to the individual making or doing the craft. While this idea may seem simple, it emphasizes the idea that *craft* is not something that

animals, machines, or even computers can do. Rather, *craft* is specifically and necessarily a human endeavor and, in the end, involves the relationship between an individual and his or her work. The Russian term *mastersvo* applies not only to domains traditionally associated with *craft*, but also with the work of doctors, writers, etc. (Sennett, 2008). Understanding these terms lays the foundation for understanding the inherently holistic nature of the pursuit of *craft* itself. Sennett (2008) emphasizes that at the heart of *craft* is the unification of head and hand, mind and body, knowledge and skill, and that separating these parts of the whole person (if even possible) would be detrimental to the very nature of *craft* itself.

The idea that there are both explicit as well as tacit dimensions to craft knowledge is embedded throughout much of the literature on craft itself. Beginning in medieval times, most notably in Theophilus' *On Divers Arts* from the twelfth century and Cipriano di Picolpasso's *Three Books of the Potter's Art* in 1548, craftsmen began writing down and publishing their explicit trade secrets. Adamson (2010) cited the following statement by Joseph Moxon in one of the earliest published English books on craft:

> I thought to have given these Exercises, the Title of *The Doctrine of Handy-Crafts*; but when I better considered the true meaning of the Word *Handy-Crafts*, I found that *Doctrine* would not bear it; because *Handy-Craft* signifies *Cunning*, or *Sleight,* or *Craft* of the Hand, which cannot be taught by Words, but is only gained by *Practice and Exercise*. (p. ix)

It seems as though, as Adamson (2010) put it, Moxon realized that "he was writing discourse about something fundamentally non-discursive" (p. ix). That people can write explicitly about craft shows that it has some explicit dimension. But these writers' admission of the inadequacy

of their words to describe their crafts without doing them personally also highlights the necessary tacit dimension of craft.

One of the principal characteristics that sets craftsmen apart is a nearly obsessive devotion to their craft and their peculiar attention to detail within that craft (Sennett, 2008). Referring to this rather unique characteristic as the conscience of craft, Green (1985) stated that

> to possess a conscience of craft is to have acquired the capacity for self-congratulation or deep self-satisfaction at something well done, shame at slovenly work, and even embarrassment at carelessness. (p. 6)

The formation of this sense of conscience in craft marks, in essence, a change of character, perhaps even of one's very nature. Mills (2002) further commented

> The laborer with a sense of craft becomes engaged in the work in and for itself; the satisfactions of working are their own reward; the details of daily labor are connected in the worker's mind to the end product; finally, family, community, and politics are measured by the standards of inner satisfaction, coherence, and experiment in craft labor. (pp. 220-223)

At the heart of this change in the formation of a conscience of craft is a change in one's evaluative criteria. This is not to say that all of the changes that occur on an individual's journey to becoming a master craftsman are explicit. There are certainly varying dimensions of explicit and tacit evaluative criteria that one adopts in this becoming process. Despite this, it remains clear that there is a change in the nature and dynamics of one's evaluative criteria when one becomes a craftsman.

This change, however, is not limited to the content area of the craft itself. Rather, this alteration often extends beyond the limits of the craft in question into the holistic evaluative life

of the individual more generally. This type of change in the evaluative criteria of master and apprentice, both within the specific domain of their craft knowledge as well as in their lives more holistically, could shed specific light on the value of the master-apprentice relationship, the presence, value, and dynamics of intentional teaching within that relationship, as well as the dynamics of one-on-one human teaching more generally. For these reasons, this study will also consider the evaluative dimensions of apprenticeship teaching and learning.

Apprenticeship. Egan and Gajdamschko (2003) call apprenticeship "the first and most ancient conception of the educator's task" and "the most common in human cultures across the world and…almost the exclusive mode of instruction in hunter-gatherer societies" (p 83). According to this perspective, the concept of apprenticeship as a means of education has significant impact both horizontally, in that it spans across cultures and languages all around the world, and vertically, in that it begins in antiquity and extends throughout recorded history to the present day. Lave and Wenger (1991), however, saw the term *apprenticeship* as problematic and elected to use the term *legitimate peripheral participation* instead of endeavoring to "rescue" apprenticeship from what they termed its "historical and sociocultural baggage" (Lave & Wenger, 1991, p.1).

Again, this is where Lave and Wenger's conceptualization of apprenticeship departs from the broader historical perspective. For them, apprenticeship as a term refers to more of a metaphor of learning than any specific mode of instruction or concrete instantiation of educational practice. In other words, from an anthropological perspective (carried over from Lave's extensive background in that field), apprenticeship is seen as a ubiquitous cultural phenomenon that is, for all intents and purposes, everywhere and nowhere at the same time. Seen in this light, apprenticeship is something that happens as part of everyday activities—a

branched-off manifestation of the broader cultural phenomenon of social reproduction. Such a view can overlook the personal perspectives of individuals as they experience the dynamics of the master-apprentice relationship in a prolonged, one-on-one scenario. In this paper, apprenticeship is defined as a much more specific phenomenon and practice and, as such, is investigated on a much more microcosmic level to emphasize and highlight the human experiences and perspectives involved on the individual level in an apprenticeship scenario.

Other researchers have built upon the metaphorical conceptualization of apprenticeship espoused by Lave and Wenger (1991). Following this more abstracted line of thinking with regards to apprenticeship, Rogoff (1995) stated

> This metaphor extends the idea of craft apprenticeship to include participation in any other culturally organized activity, such as other kinds of work, schooling, and family relations. The idea of apprenticeship necessarily focuses attention on the specific nature of the activity involved, as well as on its relation to practices and institutions of the community in which it occurs—economic, political, spiritual, and material. (p. 142)

Seen from this point of view, apprenticeship permeates nearly every aspect of lived experience as human beings are involved in, as well as attribute personal and shared meaning to, everyday activities. Despite these claims, however, it is not my intention to propose traditional craft apprenticeship as a general theory of learning. Rather, these broad perspectives serve to demonstrate the universality of apprenticeship in history, as well as the cross-contextual generalizability of many of its core precepts.

More specifically, Fuller and Unwin (1998) assert that apprenticeship consists of three essential characteristics. First, it functions within a prolonged, contractual framework, or an agreement involving some degree of formality in which "reciprocal rights and obligations"

between a master and an apprentice are enumerated (Fuller & Unwin, 1998, p. 154; Gospel & Fuller, 1998). Although the relationship between master and apprentice is not always bound by the remunerative obligations typically associated with that shared by employer and employee, the apprenticeship relationship is both more prolonged and more formal than similar one-on-one instructional scenarios like mentoring and tutoring.

Second, it centers itself around "the social and cultural aspects of going to, and being at, work," which inculcate both master and apprentice with a sense of becoming, rather than only doing or knowing the subject or task in question (Fuller & Unwin, 1998, p. 154). In this sense, traditional craft apprenticeship goes beyond the sociocultural progression of participation emphasized in legitimate peripheral participation (Lave & Wenger, 1995), as well as the cognitive and metacognitive processes highlighted in cognitive apprenticeship (Brown, Collins, & Newman, 1989).

Finally, apprenticeship encompasses both "formal and informal on and off-the-job learning experiences," thus purposively involving more aspects of a master and apprentice's life than that which occurs during work sessions alone (Fuller & Unwin, 1998, p. 154; Gospel, 1995). In drawing on such diverse reservoirs of life experience, this key facet of apprenticeship emphasizes a more holistic approach to both teaching and learning as becoming.

As the terms apprenticeship, master, and apprentice are used commonly throughout, a brief historical overview of apprenticeship in general will serve to clarify their meanings in context. Ethnographic studies into the lifestyles of present-day indigenous tribes offer insight into what some of the most ancient learning scenarios of human civilization may have looked like. As such, these studies show that the central means by which learning takes place among such tribes (and, by inference, once took place among primitive, ancient cultures as well) is

through apprenticeship (Eby & Arrowood, 1940, p. 70). It is also noteworthy that such apprenticeships appear most especially among members of different generations within the same family unit. Eby and Arrowood (1940) also state

> The importance of incidental instruction and of learning through ordinary life situations where there is no intent to teach is another lesson impressed by primitive life. The phrase 'education is life' takes on meaning as the close connection between the fine and practical arts and the place of both in education and in culture are studied among primitive people. (p. 33)

Informal apprenticeship characterized a large part of learning among ancient, primitive peoples. And although the sociocultural informality of such apprenticeship at the cusp of pre-history does not reflect the formal, contractual nature of its later instantiations, it serves to illustrate the importance of intimate human interaction in early teaching and learning. Examining the earliest of ancient apprenticeships would suggest, then, that one of the central characteristics of apprenticeship lies in the intimate, human interaction allowed for and cultivated by the unique qualities of the master-apprentice relationship.

In traditional societies, apprenticeship was associated with rites of passage, and the rituals associated with initiation into both apprenticeship as well as mastery are still well known in the industrialized West. Such practices, many of which suggest an almost sacred overtone (Reagan, 2004), highlight the importance of apprenticeship learning among primitive peoples. Learning a craft or trade has traditionally gone hand in hand with learning about becoming an independent adult (Lane, 1996). Among primitive peoples, the closeness between master and apprentice was so unique that, as mentioned earlier, the majority of such apprenticeships occurred within the family unit. It can be inferred, then, that the master-apprentice relationship in primitive cultures,

most nearly resembles the closeness and intimacy most often associated with the relationship between a parent and child. Rather than only characterize the apprenticeship relations among primitive peoples and cultures, such closeness continued to play a key role in the development of master-apprentice relationships throughout history following the advent of civilization as well.

Civilization did not eliminate apprenticeship as it had been practiced among primitive peoples. Ancient Egypt continued to use apprenticeship, despite developing such a rich academic system of general schooling by means of a powerful priestly class (Eby & Arrowood, 1940). The intimate nature of one-on-one apprenticeship was an essential part of an ancient Egyptian cultural understanding of education in general. The ancient Egyptian word for education, in fact, was *sochpr*, meaning "causing to become". Eby and Arrowood (1940) further state

> The thought was that the father caused the son to become a carpenter, a physician, or an army officer, as the case might be. Education was, accordingly, an apprenticeship in all the affairs of life under the guidance of the father or of someone who took the place of the father; it was not the separate acquisition of the tools of learning, or of a certain amount of information. (p. 72)

Hence, the creation of formal schooling at the dawn of civilization in ancient Egypt did not replace apprenticeship, but rather acted as an auxiliary system to it.

Education among the ancient Hebrews was also based on apprenticeship, with the unique characteristic that it focused primarily upon the family as the absolute center of that apprenticeship learning. Eby and Arrowood (1940) clearly state

> By the most positive command the Mosaic Law required the father as head of the family to instruct the children. Here it is clear that the family not only was to be the instrument

> for the instruction of children in morals and vocational activity, but it was to play its part in training them in the great national tradition, and in the law of the Lord. (p. 118)

Known generally to Biblical history as the patriarchal age, teaching and learning happened in much the same way as it had among the ancient Egyptians in that it involved apprenticeships, often within the family. As mentioned earlier, these apprenticeships were not set up as an opportunity at learning a specific trade or skill set in isolation. Rather, they were meant to be a complete education, involving morals, vocational skills, religious study, and (most especially in the case of the Hebrews) the passage of national and cultural heritage from one generation to the next.

Education among the Greeks took a drastic turn away from practical, hands-on experience in favor of the formal institutions of the arts, philosophy, and so forth. Despite this departure, however, the cultural apprenticeship that had been a central role of the family remained in force throughout this period of history as well. Fathers and mothers taught their children, despite their attendance of school, the ideals of cultural practices among their people (Eby & Arrowood, 1940). And although apprenticeship in manual labor goes altogether unmentioned in Greek writings, unless on occasion to mention its unworthiness of a true Greek citizen, apprenticeship in other areas of study flourished. Plato's ideas were made famous in their contrast to those of Socrates, under whom he had carefully studied as an apprentice, and so on with Aristotle and Plato. In fact, the whole notion of a *pedagogue* in the ancient world arose from this type of Greek teaching culture. In this way, apprenticeship learning continued to flourish despite the advent of formalized, state-run schooling within the Hellenized world.

In early medieval Europe, especially in the eleventh century, saw a flourishing of personal interaction in many educational situations. Regarding this kind of individual human contact in education at that time, Vaughn and Rubenstein (2006) stated

> The individual achievement that seems to have characterized the earlier schools gave way to 'schools of thought' or disciplines to be identified with specific callings. They found in their eleventh-century world an environment in which human achievement could reach its peak in unfettered creativity. The later twelfth and thirteenth centuries may have produced grander architectural monuments and more flamboyant personalities, but they also laid the groundwork for regulations that could quickly stamp 'heresy' on innovative thought and restrict inquiry with stringent rules. The eleventh century, on the other hand, was subtler, less restricted and thus freer, more emotional, more personal, more humane, and thus, quite possibly, grander in its achievement. (pp. 15-16)

In this way, it seems clear that the human ties characteristic of apprenticeship played a central role in early medieval European education. And as those personal ties continued to typify instructional interaction, the freedom, creativity, and humane character of education referred to by Vaughn and Rubenstein was allowed to blossom.

However, this focus on personal, social contact between students and teachers soon gave way to more institutionalized and, consequently, more detached forms of education in the centuries that followed leading into the high Middle Ages. Educators of this era are commonly thought to have valued the written word and its study more highly than face-to-face communication. And while it is true that textual analysis and reading were highly valued during this period, human-to-human orality still played a key role in education, as Münster-Swendsen (in Vaughn & Rubenstein, 2006) stated

> High medieval scholastic culture, while cherishing textuality, was based upon face-to-face encounters and a direct, oral transmission of knowledge. The everyday cultural practices of the schoolmen, for whom texts were essential, were indeed still primarily oral. Thus what is extant in textual form are only fragments and glimpses of this culture of presence." (p. 310)

Thus, in an era when educators placed such immense value on the highest technology available at the time (namely, the written word), they still recognized the timeless value of the oral communication and transmission of knowledge, tradition, and skill.

In later medieval Europe and into the Renaissance, apprenticeship learning occurred largely within established guilds that gave their members certain civic and institutional privileges, with apprentices normally serving under masters of their craft in the form of indentured servitude (Baillie, 1956). For example, Leonardo da Vinci himself apprenticed under Verrocchio for ten years starting at age 14 prior to establishing his own studio. Nicholl (2004, p. 54) states that da Vinci's apprenticeship "was certainly an education, though it took place in a workshop rather than an ancient university, it taught skills rather than intellectual accomplishments, and it was conducted in Italian rather than in Latin."

In the sixteenth century Coménius, although considered by many as the father of formal schooling in Western education (Palmer, Bresler, & Cooper, 2001), continued to advocate the kind of teaching and learning that is at the core of apprenticeship. Regarding the essential nature of this type of education even in school settings, he stated (Coménius, 1992)

> Artisans do not hold back their beginning apprentices with theories but put them immediately to work. One learns to forge iron by forging, to sculpt with chisel in hand, to paint by painting, to dance by dancing, etc. Consequently, students in schools should

> learn to write by writing, to speak by speaking, to sing by singing, to reason by reasoning, etc. Schools should be workshops overflowing with energetic activity where one could thus verify through practice the truth of the proverb that 'One learns by doing.' (p. 184)

In other words, despite the growing proliferation of formalized schooling within the Western educational paradigm, those at its foundation fought hard to preserve the core values and dynamics of the apprenticeship system that had been at the heart and foundation of teaching and learning since antiquity.

Gradually, however, traditional trade guilds (which were the seat of traditional apprenticeship) slowly began to decline from the sixteenth century onward, until what was tantamount to their overall demise in the wake of industrialization and the machine age. During the same period of history and at nearly the same pace, the concepts of art and craft, trade and profession slowly began to separate from one another (Aldrich, 1999). Whereas before, concepts such as art and craft had been part of an intrinsically holistic understanding of creativity in human endeavor generally, they soon became separate and distinctive vocational pursuits. And just as the trade of an artisan became an almost entirely different class of work from the profession of a businessman, so too did the artisan become socially and culturally separated from the businessman in the course of history. Seen from this perspective, whereas the capacities to think and to make, to combine the concrete with the cognitive, were once inseparable, having an educated mind became much more important to Western civilization than having educated hands.

And as modern education in public schools and especially universities spread throughout the Western world, the master's role in a traditional apprenticeship setting became more and more relegated to "a combination of college-based modules, institutional training and workplace

experience" (Gamble, 2001, p. 185). In other words, while certain elements of apprenticeship survived despite many of these historical changes, the role of the master was systematically dispersed and shared among many people, institutions, and systems, allowing the time-honored master-apprentice relationship to slowly dwindle with the passage of time. However, although the organized guilds of tradesmen slowly disappeared, apprenticeship itself continued as medical students completed residencies, new lawyers became junior partners in law firms, and craftsmen continued to learn one-on-one from a more experienced colleague. Although systematic changes and paradigm shifts occurred within Western educational culture, the most fundamental elements of apprenticeship survived, sometimes even "underground," as it were, going largely unrecognized and underutilized among institutionalized education.

Speaking of apprenticeship as specifically considered within the British system, Clarke (1999) stated, "It is often assumed that apprenticeship is timeless, that it has existed for ever and a day in the same form" (p. 25). However, there are several frameworks through which to view apprenticeship, from both an historical as well as a theoretical perspective. Snell (1996) suggested the following:

> When historians consider 'apprenticeship', they often generalize in terms of three extended periods. These may broadly be characterized as that of 'guild apprenticeship', let us say from about the 12th century to 1563, with the state underpinning much practice; the period of statutory apprenticeship, from 1563 to 1814 (with guilds slowly attenuating); and finally a great diversity of forms which might be summarized as 'voluntary' apprenticeship, often agreements between employers and unions, from 1814 to the present day. (p. 303)

In the field of education, Western education's history is often principally depicted in relation to the industrial revolution. As a result, systems of teaching and learning are characterized as either pre- or post-industrial. Through this erroneous lens of history, apprenticeship may seem like a technique of the past that gave way to industrialized education, an innovation of the past that will soon give way to something new. Whatever the future of education holds, apprenticeship was not the only way to teach and learn in the pre-industrial world. Civilizations as early as ancient Egypt knew about and used school systems much like those used today in post-industrial Western civilization (Eby & Arrowood, 1940). However, such systems did not replace apprenticeship altogether. It survived and thrived through the ages as a viable and valuable form of education for the poor and the affluent, for men and women, and for adults and children.

Although the apprenticeships explored in this study deal principally with the pursuit of the artistic skills associated with shop craft, this study's findings are not intended for apprenticeship that deal exclusively within the fine arts. Despite the prevailing perception that apprenticeships both traditional and modern were and are chiefly concerned with manual skills, apprenticeships have also played a significant and often central role in the professional training among doctors and lawyers in medieval Europe (Aldrich, 1999). Additionally, medieval Europe saw little or no distinction between art and craft (Polanyi, 1958) – apprenticeship crossed over all of these disciplines, and different instantiations of its practice are to be found spread throughout them.

Theorizing Apprenticeship

In order to describe the theoretical foundations upon which this study's concept of traditional craft apprenticeship rests, I will begin by illustrating the most significant theories of apprenticeship and their associated books, articles, and authors in greater detail. These will

include Collins, Brown, and Holum's (1991) initial article on cognitive apprenticeship and Lave and Wenger's (1991) significant work on legitimate peripheral participation. After illuminating the main points of these theories of apprenticeship, I will clarify the difference between these versions of apprenticeship and the traditional notion of apprenticeship I espouse in the course of this paper. Although these theoretical perspectives have been highlighted earlier, this section will serve to substantiate earlier claims in greater contextual detail.

Cognitive apprenticeship. Although apprenticeship has played a significant role historically, its personalized, one-on-one nature has recently given rise to doubts concerning its utility amidst current demands for scalability, efficiency, and generalizability in education. Partially in answer to such concerns, Brown, Collins, and Newman (1989), followed shortly thereafter by Collins, Brown and Holum (1991), proposed what they called cognitive apprenticeship, a reworking of the traditional concept of apprenticeship, in order to promote cognitive skills that characterize the current information age. In juxtaposing their theoretical restructuring of apprenticeship with its more traditional counterpart, however, the authors only briefly touched upon the nature of traditional apprenticeship itself before illustrating the advantages of their reworked version. In doing so, they may have unintentionally steered generations of educational researchers away from traditional craft apprenticeship for spurious reasons.

The authors defined their reworking of traditional apprenticeship as a return to some of the concepts and characteristics of apprenticeship, while doing so within an overall structure than can be carried out within the typical American classroom (Collins et al., 1991). They characterized traditional apprenticeship as an instructional paradigm in which those things that are to be taught and learned are explicitly visible, physical, and tangible. The difficulty of

applying aspects of the apprenticeship tradition to modern-day schooling, they maintain, is that many of the activities characteristic of the modern Western classroom are primarily cognitive, citing such examples as reading comprehension and problem solving. Such activities are not physically visible, per se, and are thus not as obvious to the learner as the physical skills associated with traditional craft apprenticeship. In essence, because the processes of thinking are invisible and so not obvious to the learner, cognitive apprenticeship is a way to, as they succinctly put it in the title of their article, "make thinking visible." The overall purpose of this article on cognitive apprenticeship was to create a space for the "synthesis of schooling and apprenticeship" (Collins et al., 1991, p. 1), rather than to investigate the value and dynamics of the apprenticeship tradition in and of itself.

However, this argument could be misinterpreted so as to lead theorists and practitioners to further distance themselves from traditional apprenticeship because of weaknesses that, in the end, may only have been spuriously associated with traditional craft apprenticeship in the first place. In advocating the value of harkening back to traditional apprenticeship, the authors stated, "Apprenticeship was the vehicle for transmitting the knowledge required for expert practice in fields from painting and sculpting to medicine and law" (Collins et al., 1991, p. 1). Many aspects of these fields, especially medicine and law, however, are not visible, and are comprised of many cognitive activities. One cannot advocate a reworking of traditional apprenticeship because it cannot address cognitive skills, while citing highly cognitive fields like law and medicine as examples of traditional apprenticeship. In doing so, the authors rely on flawed logic to pull educational theorists away from traditional apprenticeship in favor of a new version thereof.

The authors further innumerate three ways in which cognitive apprenticeship differs from its traditional counterpart. Rather that demonstrate their differences, however, each of these points highlights the similarities between cognitive and traditional apprenticeship. The first point asserts that cognitive apprenticeship is new because it involves areas of study that are not physical, tangible, or observable. Again, traditional apprenticeship has been associated with the so-called invisible skills of fields like philosophy, law, and scholarship for hundreds of years. Furthermore, what the authors describe as the singularly physical processes of craft apprenticeship have been shown to involve invisible cognitive processes (Coy, 1989a) as well. So, the process of "making thinking visible" has been characteristic of traditional apprenticeship all along, and unites these two approaches instead of differentiating them. Second, the authors claim that tasks in traditional apprenticeship arise solely from the exigencies of a working environment, and that instruction, as a result, is not designed or structured by the master. On the contrary, this type of intentional instruction designed apart from the exigencies of workplace demands characterizes craft apprenticeship centrally (Coy, 1989a; Williams, 1981). Finally, the authors contend that traditional apprenticeship does not require the transfer of skills as cognitive apprenticeship would. However, case studies in European (De Munck & Kaplan, 2007), Asian (Singleton, 1989), African (Dilley, 1989), and North American (Rorabaugh, 1986) traditional craft apprenticeship show that masters tend to demand skill transfer from their apprentices (Coy, 1989a; Williams, 1981).

Because of these characteristics, intended as differences, but in fact similarities, it seems as though cognitive apprenticeship argues for the integration of traditional apprenticeship principles into the contemporary education system, rather than introducing a new type of

apprenticeship altogether. This seemed to be the case, at least, when Collins, Brown, and Holum (1991) argued the following:

> Even in domains that rest on elaborate conceptual and factual underpinnings, students must learn the practice or art of solving problems and carrying out tasks. And to achieve expert practice, some version of apprenticeship remains the method of choice. (p. 3)

Apprenticeship, they contend, is the best way to learn the art and practice of any domain of knowledge. This teaching and learning of an art, as they put it, is one of the core definitions of traditional craft apprenticeship (Rorabaugh, 1986), and seems no different from the cognitive reworking thereof proposed in their own cognitive apprenticeship model.

At the same time, however, cognitive apprenticeship does highlight the importance of traditional craft apprenticeship by examining some of its central characteristics: namely, modeling, scaffolding, and coaching (Collins et al., 1991). It is crucial to note that the authors highlight the central value of the master in each of these interactive teaching and learning strategies, which is central to traditional craft apprenticeship. In describing modeling, they state

> In modeling, the apprentice observes the master demonstrating how to do different parts of the task. The master makes the target processes visible, often by explicitly showing the apprentice what to do. (p. 2)

Illustrating scaffolding, the authors note that, "scaffolding is the support the master gives apprentices." They go on to describe coaching as when

> The master coaches the apprentice through a wide range of activities: choosing tasks, providing hints and scaffolding, evaluating the activities of apprentices and diagnosing the kinds of problems they are having, challenging them and offering encouragement,

> giving feedback, structuring the ways to do things, working on particular weaknesses. (p. 2)

It is clear, then, that, although the authors propose a move away from the master-apprentice relationship, their own writing confirms its centrality to the notion of traditional craft apprenticeship.

It is also apparent from their writings that part of being a master in this type of relationship is to deliberately instruct the apprentice. Whether such instruction is visible or not, this kind of conscious instruction not only goes on in an apprenticeship, but, at least in the eyes of Collins and his colleagues, characterizes one of its most central values and dynamics.

In summary, theorizing about apprenticeship, I do not share the view of cognitive apprenticeship that isolated cognitive abilities must be approached so differently from craft skills as to merit a complete reworking of traditional apprenticeship altogether. The isolation of the cognitive domain brings along with it assumptions of the acquisition metaphor of learning, Cartesian dualism, and the internalization espoused by Vygotskian sociocultural learning theory, all of which are at odds with the agentive perspective upon which a more traditional notion of craft apprenticeship is based (Polanyi, 1962).

However, there are several key admissions that Collins and his colleagues make about traditional craft apprenticeship that support this agentive view. First, in their description of the valuable methodologies that they adapt from traditional apprenticeship, they repeatedly refer to the central importance of the master giving deliberate, albeit difficult to quantify and observe, instruction to the apprentice. The master-teacher is important, they say, so that "learners have continual access to models of expertise-in-use against which to refine their understanding of complex skills" (Collins et al., 1991, p. 2). This supports the traditional notion that it is a

learner's access to a human master or masters, and not just the disembodied idea of collective mastery, that is one of the most valuable aspects of traditional apprenticeship.

Legitimate peripheral participation. Lave and Wenger (1991) offered another noteworthy perspective on apprenticeship teaching and learning in five case studies involving apprenticeship to illustrate their legitimate peripheral participation framework. Many educational theorists have associated Lave and Wenger's work with apprenticeship learning specifically. However, such a strict association goes against what the authors originally intended. Although Lave and Wenger began by specifically examining traditional apprenticeship, the work that resulted was a reconceptualization of learning in its broadest sense, not specifically intended as a new way of seeing apprenticeship only. In their own words, Lave and Wenger (1991) stated that, "Our initial intention in writing what has gradually evolved into this book was to rescue the idea of apprenticeship" (p. 29). Despite describing the beginning of their work as uniquely oriented towards a revitalization of apprenticeship, which was a significant research topic at that time, they went on to say

> Our historical-cultural theory of learning should not be merely an abstracted generalization of the concrete cases of apprenticeship—or any other educational form…It is not appropriate to treat LPP as a mere distillation of apprenticeship, an abstracting process of generalizing from examples of apprenticeship. Indeed, turned onto apprenticeship, the concept should provide the same analytical leverage as it would for any other educational form. We wanted above all to take a fresh look at learning." (pp. 37-39)

In other words, while legitimate peripheral participation is certainly a seminal work on situated and embodied learning theory, many educational researchers go against the specific intentions of the authors when they associate it with apprenticeship learning specifically.

Upon close examination, it is clear from Lave and Wenger's writing that their new learning theory was not intended to apply specifically to apprenticeship at all. On the contrary, they justify their selection of apprenticeship case studies by saying

> Various forms of apprenticeship seemed to capture very well our interest in learning in situated ways - in the transformative possibilities of being and becoming complex, full cultural-historical participants in the world—and it would be difficult to think of a more apt range of social practices for this purpose." (p. 32)

It seems as though Lave and Wenger's research changed in the course of time. While it began as an attempt to rescue the concept of apprenticeship, it quickly changed to a series of case studies in apprenticeship as a means by which to illustrate a theory of learning that would emphasize holistic, situated transformation within communities of practice.

So, rather than being a fresh theoretical viewpoint on traditional apprenticeship, legitimate peripheral participation was intended to be a general theory of learning. Seen in this light, whatever its authors may say about traditional apprenticeship may not necessarily represent an effort to understand or describe it. Rather, it may be a way to view apprenticeship in order to promote a particular view of situatedness, community-oriented practice, and embodied participatory learning. This is not to say that Lave and Wenger's analysis of the apprenticeships discussed in their book is by any means dishonest or inaccurate. It is only to say that, as their purpose in examining these case studies was to illustrate a new learning theory that would apply to any scenario just as powerfully as it would in another, they may have run the risk of

emphasizing certain elements of traditional apprenticeship while overlooking others that may not have been as well suited to illuminating their new theory of learning more generally.

It is this point of view that gives one cause to wonder about some of the elements that legitimate peripheral participation openly deemphasizes. Among these are three of the foundational pillars of traditional craft apprenticeship generally, as well as some of the key reasons why many argue for the revival of traditional apprenticeship today (Doel, 2011; Tant & Sherlock, 2011). These three elements are the importance of the one-on-one master-apprentice relationship, the notion of master as living embodiment of mastery, and deliberate instruction as a key element in the course of an apprenticeship. These are not only characteristics of the picture history paints of traditional craft apprenticeship (Eby & Arrowwood, 1940), but are also central to the theoretical stance of this study.

While Lave and Wenger addressed the social characteristics manifested in group apprenticeship situations, it leaves the question of what it means ontologically for one individual to learn from another largely unaddressed. In describing this focus, they stated

> We emphasize the significance of shifting the analytic focus from the individual as learner to learning as participation in the social world, and from the concept of cognitive process to the more-encompassing view of social practice. (p. 43)

From this, it is clear that Lave and Wenger intentionally moved the focus of their study away from the individual toward the community. This shift may not have been because apprenticeship is inherently community-based, but may have been done in an effort to explore the idea of community learning and legitimate peripheral participation more generally (Lave & Wenger, 1991).

Teaching, or intentional instruction, was also deemphasized in legitimate peripheral participation. Again, Lave and Wenger (1991) stated that they were addressing questions of how apprentices might engage in a common, structured pattern of learning experiences without being taught, examined, or reduced to mechanical copiers of everyday tailoring tasks, and of how they become, with remarkably few exceptions, skilled and respected tailors. In one of their preliminary case studies on tailors in North Africa, with whom Lave herself had worked for quite some time prior to the publication of legitimate peripheral participation, it seemed as though no intentional teaching had occurred. However, later on they state that one of the primary reasons why they focused on learning rather than teaching was because "researchers insist that there is very little observable teaching (Lave & Wenger, 1991, p. 92), and that this assumption justified their stance that "the more basic phenomenon is learning" (Lave & Wenger, 1991, p. 92). However, when apprenticeship is viewed in light of Polanyi's conception of craft knowledge as significantly involving the tacit dimension (Polanyi, 1962), it quickly becomes obvious that deliberate teaching of such tacit knowledge would be difficult to observe as a non-participating third party. Nevertheless, simply because a phenomenon has been difficult to observe physically from the perspective of a detached, third-party researcher, it does not necessarily mean that it does not exist. Within the apprenticeship methodology, which allows researchers to experience what it means ontologically to share tacit knowledge, the teaching phenomenon, which has historically comprised half of the apprenticeship equation, as it were, may come to light more clearly.

Finally, rather than acknowledge the importance of mastery as manifest in a master, Lave and Wenger (1991) stated

> To take a decentered view of master-apprentice relations leads to an understanding that mastery resides not in the master but in the organization of the community of practice of which the master is part. Similarly, a decentered view of the master as pedagogue moves the focus of analysis away from teaching and onto the intricate structuring of a community's learning resources. (p. 94)

Again, it is precisely this decentralization of the master-apprentice relationship that this study will investigate. Because Lave and Wenger's work has been given so much attention by educational researchers, its peripheral declaration that mastery is a disembodied concept belonging to the whole community instead of to individuals has allowed for the spuriously related notion that master teachers and their deliberate teachings are unimportant.

At the same time, however, it is certain the Lave and Wenger did a great deal to broaden the concept of learning by doing throughout their study. Many of these concepts support the theoretical framework of apprenticeship as presented traditionally (see Coménius, 1992). For example, their general movement away from internalization "as an unproblematic process of absorbing the given, as a matter of transmission and assimilation" (Lave & Wenger, 1991, p. 47) created a space in which to more clearly discuss learning by doing, or situated learning. Theorizing about learning in this way demands what they called a "broad view of agency" (Lave & Wenger, 1991, p. 50), which is compatible with a broader, historically grounded conceptualization of apprenticeship.

A traditional theory of apprenticeship. This study does not follow any of these re-workings of a historical notion of traditional craft apprenticeship. Rather, it espouses a traditional perspective on apprenticeship which, as its name suggests, rests upon the broader historical understanding of the apprenticeship tradition as illustrated earlier. Three key elements

make up the heart of this traditional notion of apprenticeship: first, that the master is the living embodiment of the content; second, that the one-on-one, master apprentice relationship is centrally important to the sharing of craft knowledge; and third, that a critical part of the master's role is to deliberately teach his or her apprentice.

This point of view is centrally based on the idea articulated by Pratt (1998) when he stated

> The content and teacher are fused as one, signifying the inseparability of teacher and content, within context. In this perspective, teachers are expected to embody the knowledge and values of their community of practice. They are an extension of the values and knowledge as lived or practiced within that community. Therefore, what they know (and wish to teach) cannot be learned in any authentic way if it is abstracted or removed from the place of its application, that is, its context. (p. 43-44)

As explained here, this view is not necessarily at odds with the idea of cognitive apprenticeship that learning by doing requires sharing ways of knowing and thinking about a problem (Collins et al., 1990). Nor does it deny the importance of the larger community of practice to the apprenticeship system as a whole proposed by legitimate peripheral participation (Lave & Wenger, 1991). Rather, it resurrects the idea, as Courtney (1999, p. 2) articulated so well, that the apprenticeship perspective "sees a much closer relationship between teacher and content, with the teacher in a sense being the living embodiment of that content."

This perspective also relies heavily upon Polanyi's (1960) description of apprenticeship and tradition as vehicles for sharing tacit knowledge. He stated

> An art which cannot be specified in detail cannot be transmitted by prescription, since no prescription for it exists. It can be passed on only by example from master to apprentice.

> This restricts the range of diffusion to that of personal contacts…It follows that an art which has fallen into disuse for a period of a generation is altogether lost. These losses are usually irretrievable. (p. 53)

There is a clear emphasis here not only on the powerful centrality of the personal, physically present master-apprentice relationship, but on the importance of that one-on-one interaction over any other means of presumably prescriptive knowledge transfer. Highlighting the specific domain of violinmaking pursued in this study, Polanyi (1962) went on to say

> It is pathetic to watch the endless efforts—equipped with microscopy and chemistry, with mathematics and electronics—to reproduce a single violin of the kind the half-literate Stradivarius turned out as a matter of routine more than 200 years ago. (p. 53)

Not only does this notion of the intimately personal nature of sharing tacit knowledge pertain to traditional craft apprenticeship generally, but it seems as though violinmaking is an especially ideal craft in which to study the value and dynamics of this kind of master-apprentice relationship in light of this perspective.

The idea that both teacher and learner, master and apprentice, are agents is centrally important to this perspective on traditional craft apprenticeship. In this light, both master and apprentice are ontologically the same, and as such share in the difficulties and joys of what it means to be an agent, meaningfully participating in the world (Yanchar, 2011). The assumption that both teachers and learners are agents plays a significant role in investigating the potential value that human-to-human interaction brings to apprenticeship, and makes room to investigate the value of the qualitative dimensions of education so characteristic of human experience generally. Hence, while these theories of agency do not explicitly relate to apprenticeship per se,

the agentive theoretical grounding they provide is inherent in the nature of apprenticeship itself, especially when considered through the broader, historical lens illustrate earlier.

This paper also seeks to addresses, in part, this ontological question by illuminating the components of meaningful human teaching and learning in an apprenticeship setting. It further represents an effort to more fully illustrate the insights that traditional apprenticeship learning can offer current educational researchers and practitioners. Again, traditional craft apprenticeship here refers to apprenticeship in the broadest historical sense in order to include its manifestations from both pre and post-industrial ages. It is important to note that this paper does not seek to address the economic, sociocultural, or political implications that a scaled apprenticeship system would have upon society as a whole, although such efforts are being made in significant ways by many governments today (Doel, 2011; Tant & Sherlock, 2011). Rather, it seeks to understand more fully the advantageous characteristics that apprenticeship could offer the current body of literature on educational theory and practice.

A growing body of literature has recently emerged to take apprenticeship beyond its traditional association with occupational and trade learning (Brown, Collins & Duguid, 1989; Guile & Young, 1998; Lave & Wenger, 1991; Teles, 1993). While allowing apprenticeship to serve as a fresh lens through which to view learning at different levels in a variety of subject-matter areas, this movement has also had a tendency to characterize all learning as a type of apprenticeship (Guile & Young, 1999). Indeed, once taken, such a perspective of learning "can be used to conceptualize both the process of learning and the practices, tools, and resources that support learning" (Guile & Young, 1999). It is not the intention of this study to characterize all learning as only a type of apprenticeship in an effort to promote cognitive apprenticeship (Brown et al., 1989), legitimate peripheral participation (Lave & Wenger, 1991), or Vygotskian

sociocultural learning theory (Vygotsky, 1978). Rather, it seeks to use the unique one-on-one, human-to-human interaction that can happen in craft apprenticeship learning and teaching to illustrate the potential value that such interaction brings to this larger question within education generally.

Craft apprenticeship represents an embodied manifestation of the idea that learning can involve more than just information transfer or skill acquisition. De Munck et al. (2007) assert that "apprentices are inculcated into the way of life associated with the trade and are introduced to the norms and values of the social group, class, or trade to which their master belongs" (p. 4). Thus, apprenticeship is not only important for learning in general, but also contributes to a meaningful and uniquely human process of sociocultural involvement in the world. The purpose of this paper is to explore apprenticeship in this deeper sense, specifically investigating the meaningful human experience of apprenticeship rather than only a theoretical framework of the same. Because there is a significant precedent for considering apprenticeship as a process of "becoming a person with a distinctive agency in the world" (Ainley & Rainbird, 1999, p. 2; Ranson, 1998, p. 21), and studying human-to-human interaction certainly requires full disclosure of one's ontological stance towards what it means to be human, this study views learning as agentive.

While a mechanistic interpretation of human learning has largely characterized serious scholarly research in the field of educational psychology and philosophy (e.g., Delprato & Midgley, 1992; Gardner, 1985; Leahey, 2003; Robinson, 1986; Rychlak, 1988), many have argued that such an approach fails to address the rich, human elements of the learning experience that make it so meaningful (e.g., Bandura, 1986; Bruner, 1990; Colaizzi, 1978; Giorgi, 1989; Rychlak, 1988, 1994). In order to address apprenticeship learning in the more meaningful sense

of human experience mentioned briefly above, this study seeks to approach it through an agentive lens, an account of human learning compatible with the philosophical premises of Polanyi's (1962) concept of tacit knowledge. While this study specifically investigates traditional craft apprenticeship from an agentive standpoint, it is not intended as a case study in agentive learning theory in itself. Rather, agency is mentioned briefly here only in that it provides an ontological foundation for a methodological focus on the participatory action characteristic of craft practices, as opposed to only highlighting cognitive process in isolation.

Summary

In summary, traditional craft apprenticeship is centrally characterized by a uniquely intimate, one-on-one, master-apprentice relationship. Although many of the most prominent learning theories associated with apprenticeship have deemphasized this relationship, it has historically been at the heart of apprenticeship since antiquity. And this relationship has not been the only key characteristic of apprenticeship marginalized by more contemporary educational research on the subject. Teaching on the part of the master, and the importance of the master to the apprenticeship process, have also been significantly deemphasized. Some have even gone so far as to say that teaching plays no role in the process at all. An investigation into the nature of the master-apprentice relationship, as well as the dynamics of the master's embodies mastery and teaching within that relationship, would inform educational researchers more clearly regarding the value of apprenticeship in educational models of the future. In a time when educational technology has grown to such a degree so as to make such interaction only optional, knowing the value of such interaction, and the associated dimensions and dynamics of human teaching within that relationship as well, could inform the direction of educational research in the future.

Method

Study Overview

This study emerged from some of the questions raised by my first doctoral project on violinmaking apprenticeship. That study began as part of an advanced topics course on qualitative inquiry in the Department of Instructional Psychology and Technology at Brigham Young University. As such, it began without a specific theoretical lens in mind through which to analyze the emerging data. Rather, its beginnings were characterized by rigorous adherence to generally accepted qualitative research standards and record-keeping practices (Lincoln & Guba, 1985). From this relatively open-ended research methodology arose a larger question than that study could address. While that original study was only intended to investigate the potential merits of apprenticeship learning as viewed through the lens of embodied familiarization (Yanchar, Spackman, & Faulconer, 2013), it presented apprenticeship as a unique lens through which to view the value of one-on-one, human-to-human interaction in the teaching and learning process.

The present study includes historical and theoretical research concerning the nature of apprenticeship and human-to-human interaction in education, coupled with ethnographic fieldwork exploring these ideas in practice (Macdonald, 2001). The historical exploration focuses on examples within different time periods and traditions to identify qualities of human-to-human interaction in teaching and learning within traditional craft apprenticeship, rather than being an exhaustive overview of all related historical events (Armenta, 2009; Ntarangwi, Mills, & Babiker; 2006). Such examples will draw on academic, personal narrative, and cultural sources. This historical overview not only provides an understanding of the rich history of craft apprenticeship, but also clarifies the current body of apprenticeship theory, which is largely

characterized as a reworking of traditional apprenticeship. Understanding the current apprenticeship literature in this light will also highlight how this study fills a unique gap in the academic conversation involving individualized, personal interaction as well as craft apprenticeship itself. The study utilizes phenomenological (Giorgi & Giorgi, 2003), and ethnographic (Mills & Morton, 2013) approaches. Conversational interviews (Kvale, 1996) were conducted, along with participant observation (Atkinson & Hammersley, 1994).

Using purposive criterion sampling (Patton, 2001) in search of a craft master under whom I could apprentice, I inquired after an apprenticeship with a violinmaker, who will from this point on be referred to under the pseudonym Wade Pingree. As I had already apprenticed under him for an earlier project, I was able to work under his direction once again to build a cello for this study. While building a violin and a viola from scratch represents a pinnacle of wood craftsmanship (Sandys & Forster, 1864), building a cello is different enough to merit a separate apprenticeship altogether. As I have already apprenticed under this violinmaker, the current apprenticeship will not start from scratch as the other did. Because of this, the current apprenticeship may not emphasize the rites of passage typical of the first stages of an apprenticeship (Graves, 1989), as I have already passed through many of these in the course of my first apprenticeship with him. Considered in this way, the current apprenticeship project may be termed a traditional journeyman-apprenticeship (Rorabaugh, 1986), rather than a beginning apprenticeship in a strict sense. However, with his permission, documents, recordings, artifacts, and narratives are included from the previous project that are relevant to and may provide background for the current study.

Autoethnography as Method

Due to the experiential nature of craft teaching and learning, as well as the level to which I am involved in the study within the apprenticeship field method, this study will also utilize autoethnography. Autoethnography draws on all of the richness of a traditional ethnographic methodology, but also adds the self-reflective narrative characteristics of autobiography (Ellis & Bochner, 2000). Chang (2007) states that

> Autoethnographers vary in their emphasis on the research process (graphy), on culture (ethno), and on self (auto)…Autoethnography should be ethnographical in its methodological orientation, cultural in its interpretive orientation, and autobiographical in its content orientation. This implies that self-reflective writings deficient in any one of these ingredients would fall short of 'auto-ethno-graphy' (p. 208).

In other words, autoethnography is not a complete turn away from studying others in order to uniquely focus on the experiences of the researcher as the only subject of interest. Such a research paradigm would actually not qualify as a fully valid or in-depth autoethnography, but simply as an autobiographical sketch (Chang, 2007). Rather, autoethnography includes all of the rigorous research standards normally required in qualitative or ethnographic studies generally (Lincoln & Guba, 1985), but adds to that richness the depth that comes from a highly self-reflective and introspective researcher.

The unique, participatory nature of a traditional, craft apprenticeship (Coy, 1989a; Williams, 1981) lends itself to certain elements of both subjective personal introspection (SPI) (Rod, 2011) and autoethnography (Ellis & Bochner, 2000). Because the question regarding the value of human-to-human interaction is of both academic import to the field at large, as well as of personal significance to me, I took introspective field notes throughout the apprenticeship to

highlight my own perspective as it developed. SPI was specifically selected because the self-reflective introspections that characterize this method "are decisive, not only comprising the narrative of the research, but also illuminating the deeply personal and subjective nature of qualitative research" (Rod, 2011, p. 10). Holbrook (2005) explains further that, "SPI amounts to a form of participant observation or observant participation in one's own life. In effect, SPI constitutes a sort of autoethnography via which the author enjoys privileged access to the relevant phenomena of interest" (p. 45). Such an interpretation of autoethnography involves the researcher's own lived experiences in a way that works closely together with the importance of lived experience (Canniford, 2005). Jorgensen (1989) further asserts that researchers using this method are able to question themselves and describe their results much more critically than if the data had not been principally constituted of their own lived experiences.

Apprenticeship as Field Method

Apprenticeship teaching and learning involves the sharing of tacit knowledge (Polanyi, 1962), craft secrets (Dilley, 1989), rich cultural and sacred traditions (Dow, 1989), moral character (Coy, 1989a), and conscience of craft (Green, 1985). This type of interaction implies a deep relationship between master and apprentice (Williams, 1981). Speaking about the unique ways in which apprenticeship itself approaches the idea of teaching and learning, Coy (1989a) stated

> [Apprenticeship] is personal, hands-on, and experiential. Apprenticeship training is utilized where there is more to performing the role at hand than reading a description of its content can communicate. Apprenticeships seem to be associated with specializations that *contain some element that cannot be communicated, but can only be experienced.* (pp. 1-2)

This idea of the central importance of experiencing learning in its present practice was also supported and emphasized by Lave and Wenger (1991) when they stated that, "The generality of any form of knowledge always lies in the power to renegotiate the meaning of the past and future in constructing the meaning of present circumstances" (p.34). It is apparent, then, that the very institution of apprenticeship rests on the idea that certain elements of knowing, learning, or becoming must be experienced in the present rather than only communicated in a general or isolated way. Such present, lived experiences are not only a key part of traditional craft apprenticeship, but are central to both the teaching and learning that goes on within it. If researchers investigating apprenticeship as a phenomenon of interest actually believe this about apprenticeship (namely, that it must be experienced rather than just communicated in a way isolated from that experience), then the only way to fully understand the value and dynamics of both teaching and learning within an apprenticeship is to actually participate in one.

This method relies heavily on the merits of participant observation in order to study the phenomena of teaching and learning in traditional craft apprenticeship. Describing the goals of the participant observer, Kluckhohn (1940) stated

> Participant observation is conscious and systematic sharing, in so far as circumstances permit, in the life-activities and, on occasion, in the interests and affects of a group of persons. Its purpose is to obtain data about behavior through direct contact and in terms of specific situations in which the distortion that results from the investigator's being an outside agent is reduced to a minimum. (p. 331)

Participant observation allows the researcher to have a role especially related to the phenomenon in question, giving him or her special access to information that is both deeply detailed and highly accurate. In making this role clear and explicit to those naturally involved in the

community, the researcher also invites the members of that community to be critical about possible biases in his or her work (Coy, 1989b). All of these advantages come to an investigator who is willing and able to occupy some kind of indigenous role in the field surrounding the phenomenon of interest.

Coy (1989b) describes the following as characteristics of the ideal indigenous role for an ethnographic researcher that would provide him or her the maximum benefits of participant observation while also minimizing its typically associated difficulties:

1. One in which learning is the principle purpose of the researcher's natural role, while teaching is the natural way in which experienced members of the community would normally interact with someone in that role.
2. A role that will make as little impactful change on the community's structure as possible while trying to elicit explanations and teachings from its members for the purpose of outside research.
3. A role that is intimately connected to one becoming a member of the community in a legitimate way, so as to allow the researcher access to the community's knowledge and understanding in the most natural way possible without an invasion of privacy, propriety, or customs.

Apprenticeship, it would seem, fits these criteria very well, making it an ideal form of participant observation in general. Following this line of argument, Coy (1989b) contends that

> Apprenticeships provide roles for anthropologists that closely fit the criteria outlined above. These are roles for individuals who are seeking to learn cultural and technical skills. Apprentices usually have a minimal impact on the social system while they are the focus of socialization and education. (p. 117)

In essence, apprenticeship as an ethnographic methodology presents itself as an ideal form of participant observation by naturally emphasizing its strengths while avoiding many of its pitfalls. Furthermore, there exists a significant precedent for using apprenticeship as a field method in anthropology (Chernoff, 1980; Cooper, 1980; Tedlock, 1982). However, while there is a rich tradition of apprenticeship methodology being used to study cultural phenomena, it does not have a significant precedent in educational anthropology. The closest example of apprenticeship study in educational anthropology has been in Lave and Wenger's (1991) work with apprenticeships. The important distinction here is that while they studied apprenticeships in depth, they did not employ apprenticeship as a methodology. This is another of the unique offerings of this study: it represents a new effort among educational researchers to utilize the qualitative apprenticeship methodology in order to study the apprenticeship itself as the phenomenon of focus.

Data Gathering

The study will encompass one case of a contemporary instance of traditional craft apprenticeship teaching and learning within a violinmaking workshop. A case so closely related to the arts has been selected because research suggests that the craft-oriented disposition of such fields particularly emphasize the master-apprentice relationship (Jørgensen, 2000). The demands on both master and apprentice to perform, produce, or otherwise craft quality products as part of their interactive relationship can also have the potential to cultivate a particularly strong, human bond between them (Nerland & Hanken, 2002). This may not always be the case, as the development of such a positive relationship depends greatly on the agency of both master and apprentice. Naturally, where the potential for cultivating a deep, positive relationship exists, it is often accompanied by a similarly powerful risk at creating a negative relationship. In this way,

focusing on apprenticeships in these subject areas may allow for a closer look at the unique potential of the human-to-human relationship, whether positive or negative, as discussed.

The violinmaker has been both an apprentice as well as a master in both formal and informal educational environments. After studying for one year with a Polish violinmaker, he returned to the United States, taking on several apprentices himself over the years. His perspective, however, would uniquely focus on the traditional European roots of apprenticeship learning, and would come from his recollections of the past, as he is currently retired. This point of view also offers a mixed perspective of the value of human-to-human interaction in apprenticeship both within and outside of formal academia. Because the master violinmaker's last apprenticeship was the subject of the project that led to this dissertation, interviews focused on his experience as an apprentice in Poland, his past experiences having taken on several apprentices throughout the course of his career, as well as his current experience as a master violinmaker working with me in constructing a cello.

The data were gathered in the course of constructing a cello. This process took three months. Three to four-hour work sessions took place four times each week, from Monday to Thursday. The master violinmaker was interviewed formally periodically throughout the duration of the apprenticeship. The first of these interviews focus on broad questions regarding the nature of his experiences with apprenticeship and how he came to be involved in apprenticeship study generally. Such questions aimed to create a narrative account of apprenticeship so as to situate and give context to the more detailed questions that followed in subsequent interviews. The first interviews (accompanied by introspective field notes) were followed by debriefing and reflection. Following the transcription and preliminary analysis of these responses, specific questions were formulated for the second interview. These questions

were more focused on the value of human-to-human interaction within the experiences shared in the first interview. Subsequent interviews were focused on the relationship between narratives and discussions from the interviews and the lived experiences in the apprenticeship work sessions. As the master felt more comfortable speaking informally in the shop, we conducted interviews on the shop floor.

This pattern of participant observation in the work sessions at the shop combined interviews with the master and personal field notes continued throughout the duration of the apprenticeship study. Each interview and work session was audio recorded and transcribed. Self-reflective, narrative field notes were kept via audio recordings immediately following each work session. The data also included photographs taken at work sessions, videos taken of particularly action-oriented steps in the process, as well as artifacts built in the shop during the apprenticeship itself.

Data Analysis

Recordings from work sessions, interviews, discussion, and dialogues were transcribed and coded thematically looking for similarities and contrasts (Spradley, 1979). These themes principally focused on some of the following areas of inquiry, although the open-ended nature of this ethnographic method was open to other areas of discovery as well:

1. the value that human-to-human interaction brings to teaching and learning in apprenticeship
2. the unique dynamics of the human-to-human, master-apprentice relationship
3. experiential evidence suggesting the presence of intentional teaching between master and apprentice
4. the dynamics and values of that intentional instruction

5. the interplay between the explicit and tacit, or the focal and subsidiary dimensions of craft knowledge as related to the intentional teaching of the master
6. the evaluative elements on the part of both master and apprentice in negotiating trade secrets, rites of passage, desire to learn, desire to teach, etc.
7. changes in evaluative criteria in the course of developing conscience of craft

Because each work session and interview was immediately followed by a narrative self-reflection as the principle source of field notes corresponding to each day of work at the shop, the resultant data sets were analyzed in pairs of qualitative fieldwork and researcher introspection. Thus, significant events in the course of this apprenticeship were seen through the lens of direct, lived experience as recorded in the audio-recordings from the shop as well as post-experiential, personal narrative and reflection. These themes will be presented at the end of this study in a narrative format.

Although this study's principal methodology is based on autoethnography and apprenticeship methodology, these approaches are combined with ethnographic and phenomenological methods. The interplay between these methods results in both master and apprentice (in this case, Wade Pingree and I) playing the role of autoethnographic researcher. As such, this methodology relies on each of us participating in subjective personal introspection about the apprenticeship process, intentional instruction, evaluative dynamics within the master-apprentice relationship, etc. In this way, interviews were more collaborative than one-sided, becoming more dialogical than interrogative only.

Autoethnography's principal value is its unique ability to investigate human phenomena in rich, narrative, personal detail. As I researched my experience as an apprentice, this type of contextual richness was linked to my perspective as an apprentice, not only as a researcher.

However, as master's teachings are one of the principal inquiries of this study, dialogue from work sessions and interviews invited Wade to ask introspective questions of his own practice as a master violinmaker. Acting as a co-researcher, as it were, he not only participated in personal introspection, but also interpreted data in what may be termed a type of developmental member-checking process. His role also included analysis and interpretation of my actions and role in the dynamics of the master-apprentice relationship in much the same way in which I analyzed and interpreted his role and actions from my perspective. This process, in turn, allowed both my personal perspective as apprentice as well as Wade's perspective to come to the forefront of the data and its resultant discussion.

Qualitative Standards

I followed generally accepted qualitative research standards (Lincoln & Guba, 1985) throughout the study for the sake of enhancing trustworthiness and strengthening transferability. These standards included negative case analysis, member checking, transcript review, prolonged engagement, triangulation of data, progressive subjectivity checks, maintenance of an audit trail, and persistent observation and thick description. As the study progressed, Wade and I reviewed emergent themes and transcriptions to establish trustworthiness through member checking. I also used triangulation throughout the data-gathering process, including interviews, work session audio recording analysis, artifact analysis, peer review, etc. I also kept an extensive audit trail through audio files and text documents of each interview, work session, field notes, relevant artifacts, etc., which I will make available upon request. Prolonged engagement was also part of the study as I spent significant time on discussion, peer debriefing, field notes, and data analysis of transcripts and audio recordings. Peer debriefing occurred throughout the study meetings with the committee chair, periodic discussions with other members of the committee, as well as

further discussion, editing, and revision efforts by these committee members throughout the study's synthesis and upon its conclusion. Persistent observation also allowed for the creation of rich description of the data for the sake of transferability.

Pilot Study Results

The following section outlines some of the most significant data gathered during the pilot study associated with this paper. The data are organized into seven previously-mentioned themes. It is appropriate here to mention some of these most noteworthy findings not only in order to highlight the way these findings spilled over into the realm of teaching, but also to illustrate the kind of research discussion that is anticipated in the current study.

Theme one: Traditional human apprenticeship treats learning as becoming. In this study, I, as the apprentice, worked closely with the master violinmaker in a traditionally personal, one-on-one environment. In doing so, I was invited to encounter unfamiliarity in many situations that did not directly relate to the primary learning outcome of constructing a violin with which I had set out at the start of the apprenticeship. The master and I exchanged personal life stories throughout each day at the shop and in doing so learned and taught lessons of patience, respect, and the importance of good craftsmanship. The past experiences, subjectivities, and viewpoints with which I approached encounters with unfamiliarity were enriched, rather than hindered, by those of the master. This apprenticeship, then, was about the master guiding me as his apprentice to *become* a violinmaker, rather than only teaching me the skills, terms, and facts involving his craft. This becoming process involved an actual change in the way I meaningfully participated in the world. In short, traditional human apprenticeship can help learners and teachers *become* something new in their encounters with the unfamiliar, as opposed to only learning skills or facts.

Theme two: The desire to teach is just as fragile and important as the desire to learn. A large part of this study's narrative centered on the moment when I realized that the master violinmaker no longer had any desire to make violins, let alone to teach the complex art of violinmaking to someone new. It was then that, as stated earlier, the apprenticeship became less about learning from the master and much more about finding ways to motivate the master to make violins again and, most especially, to teach violinmaking to me as his apprentice. In the course of the study, however, this idea seemed the exact reverse of what is normally discussed in modern educational research about motivation theory. Motivation, as examined in the literature, deals almost exclusively with learner motivation. The question seems to have always been, "How can we best motivate the learner(s) to want to learn the things we as teachers are already more than willing to teach them?" However, the question of the teachers' motivation has rarely, if ever, come to the forefront of this discussion.

If both teacher and learner (or master and apprentice, as the case may be) are considered to be agents involved in a meaningful world in pursuit of things that matter to them and that the natures of teacher and learner agency are ontologically identical, then it follows that both teacher and learner face the problem of motivation in a similar way. The motivation of an agent—what I have often referred to in this study as *desire*—is much more rich and difficult to manage than a motivational stimulus-response chain. It is instead a deeply human experience, and as such may be best addressed in human terms. Helping an agent to have or find a desire to learn or teach involves encouragement, invitation, and patience as enabled by their human relationship. One agent can help another confront a lack of desire to learn or teach because he or she has ontological experience with this kind of agentive, dispositional action. I suggest in this study that, although the principle that an agent is uniquely (but not exclusively) capable of helping

another agent to find the desire to teach or learn, there seems to be no one method that works for everyone, nor for every situation. In the course of my apprenticeship, I was able to help the master violinmaker find a desire to make violins again, therefore, because of his ontological familiarity with the difficulties of finding the desire to learn (or teach, for that matter) from his own past experience. Further, the deeply personal relationship between master and apprentice allowed each of us to encourage the other so as to nurture our desire to learn, teach, and progress together in our work.

Theme three: Failure is a key element of apprenticeship learning. Apprenticeship learning is about more than simply avoiding failure. In this regard, it is about creating an environment in which learners can richly explore the unfamiliar without the looming fear of failure impeding such an effort. On several occasions in this apprenticeship, I was left alone with a tool and a task, only to shamefully admit to the master upon his return that I had not only failed to complete the task, but had also broken the tool he needed to finish it. I expressed a certain degree of fear in admitting such failures to the master violinmaker. However, whenever I did so, I was surprised to learn that not only was the damage to the tool completely repairable, but that the master himself had nearly always done something similar in the course of his own work. In this way, I learned not only that failure was a normal part of the learning process and had been for my teacher as well, but also that my understanding of and familiarity with a tool or process was enhanced and enriched by such experiences with failure.

Theme four: Encounters with unfamiliarity involve powerful human emotion. Encounters with unfamiliarity can be more than just the process by which a detached observer faces a moment of confusion. Rather, these are intensely human experiences, often characterized by distress, doubt, or a sudden lack of desire to continue learning. In this case study, examples

of such encounters with the unfamiliar occurred as I accidentally broke important tools or made mistakes that ruined projects representing weeks of work. In these encounters, I felt surprised, alarmed, and often emotionally jarred not only by the encounters themselves, but also by the choice to move forward in exploration despite them. The most striking encounter of this kind occurred, again, when the master violinmaker told me that he would not teach me violinmaking. This encounter devastated me and sparked concernful involvement on my part, propelling me toward the purposive study that eventually helped convince the master violinmaker to teach me violinmaking later on. Thus, not only are such encounters accompanied by human emotion, but it is that very emotion that has the potential to add meaning and impetus to the learning process itself.

Theme five: Apprenticeship acts as a catalyst for holistic inquiry. The one-on-one nature of traditional apprenticeship offers a fully embodied, holistic learning experience to both master and apprentice. Instead of reigning in the learner to adhere to a rigid, methodical structure in his or her own inquiry, apprenticeship allows for exploration to occur in many settings and through a variety of means. This open structure encourages learner autonomy and builds the capacity of both master and apprentice to grow in ways that a more rigid instructional atmosphere might not. Some prescriptive instructional theories propose a "tried and true" means by which to guide any learning scenario, without taking into full consideration the disposition of those involved or the context in which the learning takes place. While apprenticeship allows for a holistic learning experience, it is not marked by a complete lack of structure. Rather, apprenticeship's recognition of both master and apprentice as active contributors in deciding what is to be taught allows for a fluid, developmental learning structure that is constantly customized by the intentional, dispositional action of all involved.

The apprenticeship explored in this study fostered holistic inquiry through its open and flexible structure. This type of structure was made possible by the unique relationship that developed between me and the master which, in turn, allowed for constant discussion about the direction and progress of the project itself. The violinmaker had learned from his master in a customized way that focused on autonomy and flexibility. Due in part to this background, the violinmaker in this study taught me as his apprentice in a similar way. At the conclusion of each project, the master would ask me what I would like to make next, allowing me the opportunity to actively contribute to the structure of my own learning. Because of this openness, I was able to learn from the master in person, talk with other experts, explore resources on the internet, begin a workshop of my own, etc. Thus, the unique relationship between master and apprentice that this unique scenario afforded enhanced and enriched the learning experience by encouraging a holistic approach to learning in general.

Theme six: Traditional apprenticeship emphasizes embodied, practical involvement. Embodied familiarization emphasizes the importance of the whole person being practically involved in the learning process, as opposed to only one's mind or hands, for example, in isolation. A few weeks into the apprenticeship, the master said, "Nothing is really hard. It's just unfamiliar." In saying so, it was clear that violinmaking for him was not a cognitive exercise alone. Rather, it was a fully embodied experience in which being physically present was essential to becoming familiar with tool use, the rich meaning of terms, and so forth. The master did not chisel, for example, with his mind and his hands alone. Chiseling involved back pain, sweat on his brow, proper lighting on the project, smelling the wood, and reacting to the variations in its grain. In other words, nothing short of one's fully embodied involvement in the work would facilitate the kind of familiarity insisted upon by the master violinmaker. This type

of meaningful, fully embodied familiarization in the practical art of violinmaking is precisely the kind of learning fostered by a traditional apprenticeship.

Theme seven: The master's openness about his or her mistakes encourages learning. The apprenticeship process involves many mistakes on the part of the apprentice. In this study, I accidentally broke tools, dulled blades, cut my hands and nearly ruined projects. Upon making each of these mistakes, I faced a critical moment in which my discouragement could have persuaded me to leave the project entirely. In each of these moments, however, the master took the time to tell me a story about a similar mistake he had made, often recently, in his own work. The master's openness in sharing his own mistakes gave me as his apprentice a sense of belonging by helping me feel like I was not alone in making mistakes in my work. This sense of belonging and meaningfully mutual motivation is characteristic of traditional apprenticeship in general.

Future research directions from preliminary study. Upon its conclusion, this initial study on apprenticeship gave rise to more questions than it did answers. At that time, I thought that future research could have specifically explored learning as embodied familiarization in other case studies outside the realm of apprenticeship to investigate this theory's applicability to a variety of learning situations. But that sort of direction may have led me away from the human teaching that I had worked so hard to find a place for in the field. On the other hand, future research could have also explored the unique dynamics that exist within the master-apprentice relationship. This finding had been, after all, by far the most interesting part of my apprenticeship with Wade, and was what caused me to ask more questions than anything else. Although motivation theory had addressed learner motivation extensively, there was still so much to be explored when it came to the idea that both teacher and learner could interact in such

a way so as to enhance one another's desire to both teach and learn. And this, I thought, was a type of mutually agentive interaction that could only happen between humans, which further peaked my interest.

Further research may have also included exploration into the unique role of human teachers in the learning process, especially since this role seemed to have been called into question in the field of educational technology generally. The changing roles of master and apprentice, especially the transition that occurs when an apprentice begins taking on his or her own apprentices, could have also been explored in future research along this same theme. This dissertation, then, represents a continuation of this violinmaking apprenticeship study, following two of its future research suggestions to further examine the unique one-on-one, human relationship characteristic of traditional craft apprenticeship, especially in light of the idea of the master as a living embodiment of the content.

Personal Narratives

Personal narrative serves as one of the central features of ethnography (Mills & Morton, 2013), subjective personal introspection (Rod, 2011), anthropological participant observation (Kluckhohn, 1940), autoethnography (Ellis & Bochner, 2000), and anthropological apprenticeship method (Coy, 1989a), each of which inform this study's methodology. This type of personal narrative gives context to the origins of the study itself, while making the reader aware of the specific subjective stance from which the researcher approaches the phenomenon in question (Canniford, 2005). While personal narratives do play a significant role within academically respectable scholarly writing, the grammar and prose used therein are often distinct from the detached, third-person style that tends to dominate more traditional academic writing (Ellis & Bochner, 2000). One of the principal differences is its use of the first person in

emphasizing the personal perspective of the autobiographical narrator-researcher (Ellis & Bochner, 2000). What follows in this section comprises just such a narrative account, dealing with the origin and implementation of this project and its associated pilot study.

Marduła: The master of my master. On September 27, 1939, Germany invaded Poland. Although the global effects of this invasion are given much more attention in the annals of history, few remain whose lives continue to change because of the events of that fateful day. Most have forgotten, or try to forget, despite promises and vows to the contrary. But the deeds of some still dwell in the hearts and minds of those they have taught in the years that followed. One such was a man named Marduła. Remembered by some as a ski champion, by others as a master violinmaker, and by some as just a cordial, thoughtful old man, his quiet legacy lives on through the people he taught and cared for in the years after the war. The craft mastery that this one man embodied in the crucible of captivity continues to shape the lives of his apprentice-posterity to this day, 75 years later.

In the years before the war, Marduła grew up in a family of fourteen among the Górale people in the Podhale region of southern Poland. And in the Górale culture, carpentry is a way of life, and has been for time out of mind. It has been said that, just as young men in America today learn basketball or football, the young men of the Podhale region learn woodcraft. For them, it's more of a question of identity than of curriculum. At the age of 17, Marduła said goodbye to his family home to build his own from the ground up in nearby Zakopane. Though most everything had to be built from scratch, by hand, he brought one thing with him: a small wooden spoon rack that had been in the family since 1701. They say that pine's color deepens and darkens with age, and by the time Marduła moved into the home and shop he had built for himself, the pine in that spoon rack looked like tar on ebony. Such was the symbol of his

family's genealogy of craftsmanship: engrained in the past, treasured in the present, and safeguarded for the future.

History, however, always seem unkind to those in new homes filled with bright hopes. And such it was for Marduła. His time in the comforts of his newly built home and shop were to be cut short by the Nazi invasion of Poland in the opening stages of World War II. He was captured early and relocated to a work camp where, to the surprise of all but those who knew him best, he reluctantly curried favor with the Nazi guards with his unparalleled craftsmanship. By subjecting himself to what was tantamount to slavery, Marduła made it through the hard years of the war by building some of the finest cabinets and furniture those Germans had ever seen. During his long servitude, Marduła gained just enough freedom in the eyes of his captors to allow him to keep some of the wood scraps from the shop. After collecting enough shards of discarded wood, and stealing forgotten blades from the kitchens, he spent what precious little spare time he had making his first violin. After painstaking months, it was finished, and on a violin born of the exigency of bondage, a fellow prisoner would roam the halls among the prisoners, playing old Polish folk songs and anthems that made battle-hardened, grown men cry.

Wade Pingree: The master. He started out as a cellist without a cello. In his years as a student, he always borrowed one from the school. But when he took up his post as head of the music department at Rockford College, there was no provision for instrument rentals. By a fortunate circumstance, he came in contact with local businessman Wes Yates, who kindly loaned his unused cello to Wade. But when he had to move for work, the cello left with him, and Wade was once again left without an instrument of his own. He finally found one in his price range at a garage sale but, as most items in a garage sale, it wasn't in working condition. So, he had to do his best to repair it. After having little success tinkering with it in his shop, he sought

out a local violinmaker for repairs. After that bit of observation, he did a little more work on it himself. Of this first encounter with violinmaking craftsmanship, Wade himself said, "I did a little more work with it. It was not a good cello at all, but that's how you learn. It's a good one to practice on, right? No pressure."

It was precisely the need for crafting a better cello than he could afford that introduced Wade into the violinmaking world. The seeds of a passionate hobby, if not a new career, had been planted. In a recent conversation about passion for craft and the arts, Wade and I talked about how he pursues his passions:

> Apprentice: You know that feeling when you find something that you feel so excited about that you can't really think about anything else? Like, when you don't have to think about anything, you think about it. You daydream about it. And when there's nothing else that you have to think about, you think about it. And, if you weren't careful, you'd do this thing so much that other aspects of your life might fall out of balance.
>
> Master: Isaac, there's nothing in my life that I have ever chosen to pursue that I haven't felt that way about.

And so it was that, with this kind of passion, he started repairing violins. He took courses at nearby universities, sought out chances to do repairs for local school districts during his summer breaks, and did essentially all he could to learn without a teacher. But it wasn't enough. The depth and intricacy of this ancient craft seemed too much for any one person to just jump in and learn without any craft experience.

And so, having done all he could do, he met up with his friend Matthew Chambranovich, who had just returned from a trip to his native Poland. While he had visited his relatives there, walking through the lonely mountain town of Zakopane, he saw a little old man building a violin

through the double doors swung wide to his shop. So he stopped, spoke with him for a bit, then purchased a violin from him. Upon his return to Illinois, Matthew placed that very same instrument in Wade's hands. It was the best craftsmanship he had ever seen. And whether it was the instrument itself or the quaintness of the story behind it, for Wade, that moment was pivotal, even magical. In his own words, that singular moment "immediately sparked my interest. From that moment on, I didn't want to do anything else in this world but to build a violin."

He began to think quickly. "Does this guy build cellos?" he asked. "Yes, he does," Matthew replied. So Wade rushed to send an empty cello case to Poland, asking Matthew to commission a cello from this Marduła who had made the violin that had kindled his already passionate desire to make violins into a wildfire. After receiving a letter saying that his cello was ready, Wade packed his bags for Poland to pick it up in person. Ideas about the future had already been growing in his mind, "Could this be my chance? If I found a way, would this Marduła teach me this craft that has been running through my mind and heart for so long? Is there a way for this dream to become a reality?"

At last, in May of 1980, he arrived in Zakopane, Poland, then behind the Iron Curtain. He took in the picturesque scene of hand-built cabins lining the winding streets nested at the feet of the beautiful Tatra Mountains. The moment had come to meet Marduła, the master himself. He didn't find him waiting at the door, nor resting in a chair, nor reading at a desk. He was, as was his way, working—calmly yet determinedly—in the same shop he had built with his own hands so many decades earlier. He was short, barely over five feet tall, but there was, he later described, a peculiar power about the man that was almost tangible. Wade spoke no Polish, and Marduła no English. But they made do with what little broken German they spoke in common. As Marduła presented him the cello, whose craftsmanship carried that same mystical quality that

had permeated the violin he had seen in Illinois not so long before, he realized that the same inexplicable quality resided in this man. It wasn't just the process of craft, nor alone the beautiful products he created by hand. It was also, in large part, just him. He, in his own humble, quiet, yet confident way, personally embodied his craft and the mastery thereof. It was as if the power Wade had felt in Matthew's violin was only a shadowy reflection of who this man was and the craft mastery he did not just possess, but actually was—in how he spoke, how he worked, and how he treated people.

That day, in that shop, Wade finally gather his courage to ask, "Marduła, if I ever found time away from my teaching position in America, could I come study violinmaking under you? As you apprentice?" When Wade told me what happened next, tears filled his eyes. He told me that Marduła smiled up at him and said, without any hesitation at all, "Absolutely! Come whenever you like, and stay as long as you like." That moment of generosity was all Wade needed. His resolve grew with the hope that, if he could somehow work the miracles of time off and funding, Marduła would teach him.

After years of work, he finally found his way back, and studied under the master for an entire year. Because living in a communist country was no place for his family, his wife and children stayed at an apartment in nearby Vienna, as he left each week to work in Poland, returning to visit them every chance he had. In that time, Wade's relentless determination and desire to learn were something that the master had never seen before, for in the same time it would have taken the average apprentice to make one violin to completion, Wade made two violins, two violas, and a cello. When he returned home, he continued to make instruments, but took no apprentices of his own for many years.

It was then that his first apprentice came along. Already an experienced woodworker,

this 17-year-old persuaded Wade to teach him violinmaking in exchange for training in other elements of woodcraft with which Wade himself was unfamiliar. After this exchange, his first apprentice went on to study violinmaking professionally, and the apprenticeship was over almost as soon as it had begun. Next, he took on an apprentice who was not as skilled. In fact, his second apprentice had had no experience in woodworking at all, so the process of teaching him was much longer, and did not carry the same benefits that the first apprenticeship had brought. So, perhaps as a result of this experience, he decided he wouldn't teach anyone violinmaking ever again, and eventually lost the desire to make instruments altogether. This lasted a little more than a decade, until I came along.

For better or worse, I did come along. I had met Wade on a study abroad program through Brigham Young University in Jerusalem, and we had become fast friends. And when I had asked him one day if he would be willing to teach me violinmaking, he readily agreed. But, unbeknownst to me, he had made that decision already not to teach violinmaking again. So, we began. I made everything you could imagine, but nothing to do with violins. And every time I mentioned that possibility, Wade changed the subject, became quiet, or seemed to simply not hear me. At last, he confessed that he had no desire to make violins again, let alone teach anyone. But after much persuasion, he relented.

In some ways, I still wonder if my persistence seems like a gift that renewed his desire to undertake his favorite craft, or more like an annoyance that forced him to do something that he never wanted to do in the first place, let alone another time. When I asked Wade in an interview how he saw my apprenticeship, all he would say was, "Well, Isaac, you just *really wanted* to make violins." And, though it may sound hard to believe, it was so good to even hear him say that, for it took me almost an entire year to convince him of that one idea. And after all of that

effort, his passion for violinmaking is now rekindled. He is making more instruments than me, has reached new heights in his expertise, and shows no signs of slackening his pace whatsoever.

My story as apprentice. When I was in high school, music was my life. I went early to school every day to play in music groups that no one else wanted to be in, and I stayed at school well into the evening afterward to play in the pit orchestras for school musicals. During the school day, most of my classes involved music in some way. When I wanted to spend more time on music, I took required academic courses at the local community college over the summer so that I would have more free class periods to dedicate to more music courses during the regular school year. When I wasn't at school playing or singing, I had a job sight reading piano music at a local music teacher's studio. Music was my everything—so much so, in fact, that I see now that I was neglecting family, friends, church activities, and just about everything else—all in the name of music.

Although my 17-year-old self would never have believed it, there came a time when music was no longer the center of my life. After my first year of college, I went on a two-year service mission for The Church of Jesus Christ of Latter-Day Saints in the Dominican Republic. During my mission, I became so focused on teaching and serving the Dominican people, not to mention learning the peculiar dialect of Spanish they spoke, that music became only one aspect of an increasingly diverse and well-balanced life. After all that time, I returned to Brigham Young University, only to find that studying music as intensely as I had before that time was uncomfortable, unnatural, and almost lifeless. In a word, music had become passionless. And no matter how long I spent in the practice room, I couldn't find that all-encompassing obsession for it that had once been at the very center of my life.

It's difficult to illustrate how difficult this season of my life was for me. I was practicing the piano four to six hours every single day, and to be honest, I can barely remember anything else I did during those long and lonely days. Being in a cramped practice room in the basement of a the fine arts building on campus day after day, doing something whose emptiness was only emphasized by the passage of time didn't really help my already growing fear that music wasn't what I wanted to do with my life. All that I had worked for throughout high school, and all that I had selfishly (and, looking back, I would say stupidly) sacrificed so much for had turned into something that, instead of filling me with a continually renewed zest for life as it once had, was sucking the life right out of me. It was during this sad time, repetitively reminding me of my lost passion and what few skills I had in other areas, that I prayed like I had prayed for little else before. I prayed to know what to do, now that music was, well, whatever it was. On the one hand, I prayed with the hope that the Lord would restore my love for music as it once had been. On the other, I asked Him to help me find some other direction to go, despite my not knowing hardly anything other than music, as I had devoted so much of my life to it up to that point.

The answer that came was nothing like what I had expected. As I prayed particularly hard one evening, I had the thought to go to the Jerusalem Center for Near Eastern Studies for a semester study abroad program. Following a series of miracles too long to mention in detail here, I arrived later that year in Jerusalem, and met the man who, unbeknownst to me, would one day teach me how to make violins. His name was Wade Pingree. In the months that followed, we became fast friends, despite a near fifty-year difference in our ages. His friendship meant a lot to me at that time when I was struggling so much to find purpose and meaning in my young life.

I was only 22 then, and I had a lot to learn: certainly more than what I could find in a classroom, even if it was in Jerusalem. My friendship with Wade soon became more of a

mentorship, because it seemed as though our lives had been so similar. Although his love for music had led him to pursue an education in organ performance all the way to the doctoral level, it was not his only passion. I still remember being completely baffled by that idea. It seemed totally foreign to me that anyone who was that skilled in music could be passionate about anything else. I had always been taught that only an unrelentingly exclusive dedication to the art and craft of musicianship was enough to succeed in the dangerously unpredictable career of a professional musician. And all those whom I had known to have this kind of success had in fact dedicated themselves to music in such a way, uniquely focusing on the pursuit of music, while leaving nearly everything else aside. But Wade didn't live like that. He loved so many things, and made time to pursue them as hobbies, side-jobs, or anything else he could think of. Music, though it was his career, was not the only source of fulfillment in his life. These were all ideas that he shared with me and my dear friend Steven, a fellow student at the Jerusalem Center, as we walked the ancient streets of the Old City of Jerusalem day after day.

That time changed the course of my life. Wade and others had opened my eyes to the idea, as obvious as it may sound to most, that there was more to life than just music. And when I came back to school after that semester abroad, that is exactly what I sought to find out for myself. I took courses in Spanish because of what I had learned on my mission, Hebrew because of my time in Jerusalem, public speaking because I had always longed to teach more confidently, and the list went on. All the while, I kept music as my major only as a convenience. Because I had already finished so much of the required courses at that point, continuing to study music would allow me to take as many courses as I wanted to explore what other options I would have, while at the same time playing it safe, just in case my passion for music ever came back.

I struggled for some time at the end of my undergraduate education in deciding which path I would eventually pursue. In taking so much time to discover my other options about what to do for a career, I had finally acquired some skills outside the realm of music performance and education that would allow me to do so. But I was just as unsure as I ever had been about which of those paths was the right one to follow. In the end, I applied to every different program of interest that I had ever considered pursuing in the course of my undergraduate education. What's worse is that I was accepted into all of them. So, I was left with the same degree of indecision in the face of so many decisions as I had been since before I had left to study in Jerusalem. But in this time, I realized that it was not a bad thing to leave music behind. Had I not met Dr. Pingree, I may never have come to that conclusion. And I think that that was the most powerful part of his influence on my life. He didn't just tell me, as so many others had, that it was okay to just love music, but not pursue it with an uncompromisingly unilateral dedication. He actually lived that way, and was unafraid to show me how he lived as he lived.

So, instead of allowing the guilt of leaving a career as a professional musician to consume me in a moment of such extreme indecision, I was able to make a decision to pursue something that I was really excited about: teaching. I wanted to understand the ins and outs of how people learn, how to teach in a way that would invite the passion and dedication of others to grow rather than flounder, as mine had during my undergraduate degree in music at Brigham Young University. Because although I had associated with some of the finest musicians I had ever met in my life during my time at college, I had been continually let down by their ability to teach. This is not a criticism of the music program at Brigham Young University, nor of the university as a whole. Rather, it stems from a music teacher that I had during my time at Abraham Lincoln High School in San Jose, California. Her name was Miss K, and she taught

me more in the few years I had with her than I learned in the four years I spent majoring in music in college. It wasn't because she was a better musician or performer than any of the teachers at Brigham Young University. On the contrary, she knew how to teach in a way that could motivate her students to change—to inspire in them the desire to become greater than they had ever dreamed possible as high school students. The fact that I had gone through an entire four years in one of the top music programs in the country without learning as much as I had in her classes told me that teaching was in need of some serious help. That was something that I felt I could dedicate my life to. That was something I felt compelled to pursue in a way that music had never quite done for me. I had felt that passion and drive before, but not so much the purpose and conviction.

But when I finally started to really get a feel for the conglomeration of tenuously interconnected fields that make up instructional psychology and technology, I realized that very few people were talking about human teaching at all. A great deal of the interest was on online learning, blended learning, programmatic evaluation, philosophy and psychology and learning only, and the relatively experientially disconnected practice of instructional design. As I looked at other education programs, I saw focuses on policy, administration, public school practice, and a myriad of what seemed to be politically charged certification agendas at work that all touched so little upon the actual practice of human teaching. As I had left so much behind to pursue this passion with a conviction that I had never truly felt before, it would be an understatement to say that finding that no one was really talking about what I wanted to study was a disappointment. Nearly everyone, it seemed, was not only ignoring human teachers and human teaching, but knew that they were ignoring it. This stance was held by some as only a temporary viewpoint, resting on the idea that once we understood learning more deeply, only then would we be able to

study teaching correctly. Others, on the other hand, openly acknowledged their marginalization of human teachers and teaching, advocating programs, policies, philosophies, and psychological paradigms that would replace human teachers with online instructional alternatives whose scalability, from their point of view, would change the entire world. I neither did, nor do disagree with these viewpoints. I only focused on a different piece of the puzzle of human teaching and learning—a piece that I felt completely alone in trying to understand and improve. In the end, it was my first qualitative inquiry course that gave me my first glimpse of hope. Such a way of seeing the world, especially the world of academically respectable inquiry, may just have been the only way (as far as I was able to see it then) for me to study those things that had meant so much to me when I had made the decision to pursue this degree: human teachers, teaching techniques, the difference of teacher and student roles, and the value of student-teacher relationships, and teaching and learning as becoming.

In this second wave of uncertainty in my life, it was Wade Pingree who again came to the rescue, although he didn't know it at the time. As I ran into him one day, telling him about my search, he told me a story about how he had faced a similar situation as he was learning to make violins from a master violinmaker in Poland several decades earlier. On the chance that he might say yes, I asked if he would ever be interested in allowing me to apprentice under him. Very good-naturedly, he said that he would love to teach me about violinmaking and woodworking. So, I conducted my first autoethnographic case study in violinmaking apprenticeship. However, in order to base my study on a viable theoretical foundation, I saw it as a case study in Dr. Yanchar's theory of learning as embodied familiarization. And although the study was principally focused on illustrating learning as interpreted through this theoretical lens, some of

the most interesting findings extended beyond a theory of learning alone into the realm of teaching as well. This, needless to say, made me very happy.

Apprenticeship Stages

This apprenticeship began as part of a pilot study preceding this dissertation. As such, it began in September of 2012, and has continued (part-time, of course) from then until the completion of this paper in the summer of 2014. The apprenticeship, however, did not remain the same throughout that entire period, but proceeded in three main stages: first, the rites of passage; second, the formal apprenticeship itself; and third, the journeymanship. The first several months of work were largely characterized by the master's reluctance to make violins at all, let alone teach violinmaking to anyone in particular. During this stage, I felt a keen desire to prove myself, always striving to do the best work possible in an effort to show him that I was ready for something more complicated. However, we spent most of our time working on simple children's toys, practicing chip carving in poplar, making rocking horses, and other projects that, at the time, seemed completely unrelated to violinmaking in general. Whether completely intentional at the first or not, the countless hours I spent on projects outside the scope of my initial interest acted as something of a rite of passage for me as apprentice. In other words, showing Wade that I had the patience and diligence to work through so many other processes in his shop was a way to demonstrate that I was ready and, for lack of a better term, worthy to undertake such a daunting project as violinmaking.

After convincing Wade to teach me violinmaking, the apprenticeship stage began. I chose to call this stage *apprenticeship* because it was only after that long trial period that Wade finally opened up and allowed me to study the secrets of his craft. Before this stage, Wade had neither the desire to make violins himself anymore, nor the desire to teach anyone, and

understandably so. Violinmaking is a taxing, trying process that requires the upmost patience and care over long, lonely hours in the shop. If that wasn't enough, the thought of doing so while also making time to be constantly interrupted by a novice who had never encountered violinmaking before seems almost impossible, let alone desirable. This stage was largely characterized by the master's overwhelming desire to work, which was matched only by my desire to take advantage of the master's newfound zeal for teaching and learn as much as I could

After making several instruments, I decided it was time to take my craftsmanship to the next level by making a cello. Although theoretically the same as making a violin or a viola, both of which I made during the apprenticeship stage, the cello marks the pinnacle of a luthier's craft—a thrilling mixture of hard work, difficulty, and overwhelming satisfaction. At this point, Wade's desire to work at his craft once again had become more tempered. That is to say, the initial excitement and thrill of doing what he had loved so much so long ago had largely worn off, and the pace of his work settled down quite a bit. He began to carry out projects that I did not recognize, like repairing broken violins, restoring worn-out instruments, and re-hairing bows for local musicians. As I began my cello, I started to delve into new territory for the both of us, improvising and researching methods in cello making that were long-forgotten even to the master. As a result, this last stage became more of a journeymanship than an apprenticeship, per se. Each day, Wade and I worked side by side as we had always done, but this time we were each working on something that the other knew relatively little about. Of course, our roles as master and apprentice didn't change. I still asked him questions, and he still had many good insights and instructions for me along the way. But the feeling in the shop began to be more collegial than tutorial. Although I as apprentice never surpassed Wade as master, and perhaps never will, the feeling of our work together in this last stage certainly felt like something had

changed—as if I, at least in his eyes, had not only grown from pupil to peer, but from friend to son, as well.

To illustrate in greater detail what each of these stages was like, the following section includes one example day from each. A better understanding of many of the themes that follow later on in the results section will depend on a clear vision of what each of these stages was like, both individually as well as in relation to one another. These descriptions are based upon a combination of the recorded work sessions, field notes, and interviews pertaining to that day. Rather than give an exhaustive account of each, the following sections are in a narrative format in order to provide a greater contextual richness to the reader.

Stage one: Rites of passage (September 2012 to March 2013). It was Tuesday, October 23, 2012. I had already been working with Wade for a couple of months at this point, and I made the long drive from my apartment up to his house on the top of the hill overlooking the valley below. I was tired: overtaxed by the burden of full time schoolwork, a part-time research job, and a traditional apprenticeship. It was beginning to be hard for me to find the desire to do much of anything, whether homework, research, or woodwork. And as I drove up that long road once again, it seemed like my whole life was on repeat. I was doing the same thing over and over, day after day, with no change or end in sight. And that road, which had at first been a symbol of getting away from it all and enjoying some precious time alone, making something with my hands instead of throwing away the hours of my day in front of a computer screen, now felt more like that computer screen than I cared to admit.

Weeks earlier, I had come to begin making violins, and instead was given the task to make a wooden mouse. Not a lifelike carving of a mouse, but a simple children's toy in the vague outline of a mouse. On my very first day as an apprentice to a master violinmaker, I

couldn't have been more excited and nervous. I didn't have any tools, and I really didn't know what to expect. I had done some woodworking before with my dad, although looking back on it now I would hardly call what I did woodworking. But I thought I had experience enough to hit the ground running on my very first day, diving right into the secrets of the luthier's ancient craft. I hadn't spoken too much with Wade about my skills, and I wasn't able to show him any pictures of things that I had made in the past. But I felt confident that he would somehow discern what kind of student I was, and what kind of apprentice I would be for him.

Now, much of that excitement had gone. What had once been a reservoir of determination and passion for the work had been drained by countless simple projects, each meant, I still hoped, to hone my basic skills and prepare me for the glorious complexity of violinmaking for which my hands, my head, and my heart all still ached. I parked the car in his driveway. I thought of how grateful I should be that at least Wade was taking the time to teach me something, even if it wasn't what I wanted to learn. At this point, I no longer went in through the main entrance to the house, but lifted up the garage door and went through the basement straight into the shop.

By the time I walked in, he was already working. When he noticed me, he turned and, greeting me, showed me what he was working on. It was a neckerchief tie for the Cub Scouts, meticulously carved to look like a dog lifting its leg in front of a fire hydrant, complete with a string you could pull to lift its leg. Could I tell him what I really thought? That this was more than a little ridiculous, and not at all what I had signed up for? I didn't dare say anything, but instead just laughed at his humorous craftsmanship and kept agreeing to whatever he thought best for me to make next.

After discussing the appropriateness of the pine we chose for the next pair of peeing-dog neckerchief ties, he turned to me and asked, "You're not offended to just do a diddly thing, are you?" What could I say? In my mind, I thought, "No, I'm not offended, but I am completely uninterested, and think that this is a complete waste of time!" But, again, I didn't dare. So, instead, I said, No, no that's great! Anything I can do to learn how to, you know, use those chisels, use those gauges." After continuing to express my willingness to submit to his instructions, and be patient despite my obvious desire to do something else (it's safe to say I didn't do a very good job hiding my emotions on my face), he made the following promise: "In making these, you will teach yourself raw." Statements like these made me wonder if all of this wasn't on purpose, designed as a test of my resolve and patience as a craftsman. If I couldn't make it through this gauntlet of simple children's toys and slightly inappropriate neckerchief ties, perhaps I would never have the patience or endurance to make it through even one violin. At least, I hoped this was his reason for putting me through all of this, because there still lurked in the back of my mind the possibility that this was it—that the entire apprenticeship would be nothing more than toys and ties, and that I would never get a chance to try my hand at a violin.

So, we went to work. It was hard to pay close attention to his instructions, as this most recent piece meant so little to me. I just couldn't see why we were making it at all. What was worse was that he would mention violinmaking occasionally. Perhaps he only made the comparisons to illustrate a point, and violins were something that we both understood in common. But at the time it felt as though he were torturing me, speaking of the one thing that I wanted to do more than anything else on this planet, and was so close to learning how to do, but at the same time was worlds away from ever even starting. He would even go so far as to try and convince me that making these toys was in some way better than making violins. He said,

> When you make a violin, you've got to stick to a certain norm. You know, you can't, you don't have a lot of latitude. If you deviate too far from the norm, it's no longer a violin. You know what I mean? With these, on the other hand, if you make some kind of an error as you're going along, it's not a big deal. Just restructure it. Just change the design to accommodate your error. I wonder if I could have my dog looking out, you know, looking off to the left.

My heart wasn't in it. Even though, on the outside, I heartily agreed with him when he would exclaim, "Oh! Why are we having so much fun?," on the inside, we couldn't feel more differently about the situation.

Luckily, however, the majority of our time was spent either listening to the radio or telling stories. And it wasn't really story telling in equal time. Instead, I mostly listened and muttered words of encouragement like "oh, yeah" or "sure" as he discussed politics, weather, science, the news, history, classical music, and the like. I enjoyed that part of the apprenticeship very much, no matter what we were doing. It was always good to know that we'd never be at a loss for something to talk about. Here is an example of a typical story that he would tell on days like this one:

> Master: And so I had some really top notch training in junior high and high school. Education used to be more dictatorial than it is now. You're expected to behave or else you get punished.
>
> Apprentice: Which do you think is better? Then or now? Or something else maybe.
>
> Master: Well, of course I appreciate some of the opportunities that are available now. But I think that we're missing a certain element of discipline. You know, if we didn't bring home good grades, our parents would go with us to see the teacher. And we would

inquire of the teacher, my parents would inquire, "what's my kid doing wrong" you know? "What does my kid need to do to improve?" Nowadays, if a kid gets a bad grade, very often the parents will go and chew out the teacher. "My kid is smarter than that."

Many of the stories he would tell were from his own life, such as this last one. We grew closer in some ways as he opened up and shared more of his life story with me.

But many of the stories he would share were not always this serious. Some of them were quite funny, and served to break the ice, as it were, and make the apprenticeship situation much more comfortable. He would often tell funny stories or jokes like this one after discerning that I was struggling through a certain part of my rite of passage:

Master: In the Dominican Republic, did you find that people were sort of lax about where they relieved themselves?

Apprentice: Oh, absolutely. They would just, uh, pull over and go to the bathroom on their car tires.

Master. Yeah?

Apprentice: That's how it was.

Master: Well, that was the way it was in Poland. People would go to the side of the road or wherever, or walk into the woods a little bit. I always walked into the woods a little bit to get out of view. But not everybody got out of view. And that used to irritate the wife of the area president.

Apprentice: …couldn't really do much, I guess.

These were the kinds of stories that filled most of our time in the shop. Although at first glance it may seem as though a master in a traditional apprenticeship situation would spend the vast majority of his time explaining and demonstrating the tricks of the trade to his apprentice. This

was certainly not the case in this apprenticeship, especially in this stage. The nature of apprenticeship is that both master and apprentice are working side by side, and the purpose of their working together is not teaching only, but work as well. And work takes a long time, especially when that work is as meticulous and time-consuming as fine carpentry and (eventually) violinmaking.

Occasionally, there would be moments in the shop when the frivolous stories would give way to a moment of clarity of resonant importance. On this day, there was a moment when we were trading tools back and forth, when he said:

Master: Can I use this for just a minute?

Apprentice: Oh, no problem.

Master: This kind of reminds me of being in the workshop with Marduła.

Apprentice: Oh yeah? Trading tools back and forth?

Master: Yeah! (speaks in Polish) Hand me the saw. (more Polish)

References like this gave me hope that the future of my apprenticeship could mean more than just making silly toys, but again, doubt and hope were still playing around in my mind. When I would show signs of wearying of my task, he would say, "Can you see how this is a good teaching tool? On how to use woodworking tools? Because you just have to experiment and figure it out as you go along. There's no right or wrong way to do it, really." Amidst his stories, he would often ask me about various aspects of my life. I got the sense that it wasn't just to fill the time, but that he actually cared about how the rest of my life was holding up with this schedule.

After we had finished a day of work, I got back in my car and took field notes, recording my thoughts via audio recording on the drive home. I was so frustrated and impatient with all of the things he was making me do. Here is part of what I recorded in that mood

> Apprentice: Today he asked me, "Are you offended than I'm asking you to make this toy? This little tiny thing?" And it's like, I'm not offended. No way. And I'm not at all. I'm not offended. And it's not beneath me. Intricate work like that is definitely intricate and helpful to learn how to do. It's just not what I'm particularly interested in doing. I have a goal, you know? And I really want to accomplish it. Oh, I'm just so passionate about the end that I'm…, it's like the journey that he's taking me on to get to that end is not always just pure rapture. I just really want to know how to do this! And so, I mean, maybe – I mean, does he know? Does he realize? What can I do to show him, yes, I'm ready. *Please* take me to the next level!

This day, much like the rest of the rites of passage stage, was characterized by impatient frustration on the one hand, and almost enforced patience and careful craftsmanship on the other. And despite the passage of time, and the many signs that my hope of ever making a violin was slipping slowly away with each toy we made, my desire to make those instruments only grew stronger with the passing days, weeks, and months, until the time finally came when he would teach me.

Stage two: Formal apprenticeship (April 2013 to December 2013). I was surprised to find that he had called me before I was supposed to come over. He really hadn't done that before. I had only convinced him to help me make my first viola from scratch. It seems like only yesterday when all he would let me make was a mouse toy, and now he's calling me because he can't wait to have me come over to work with him. It's so hard to believe. When he

called, he said something like, “Isaac, is there any chance you could come over earlier today? I really can’t wait to get started!” I almost asked who I was speaking with again, just because it was that hard to believe. Of course, I said that I would come over as soon as I could. Finally, I thought, there was hope that he wanted to work on this project as much as I did.

I was sorely mistaken, but in the best way possible. His rekindled passion for violinmaking didn’t only equal my own, but exceeded it. When I came over, he had already been in the shop since early morning, dusting off his old tools and selecting the right wood from which to make his first violin in over a decade. When I entered through the garage that day, as I had always done, he directed my attention to a door that I had never really noticed before. Inside were stacks and stacks of wood, each piece being carefully aged to improve its resonance and tone. He told me that he had kept some of that wood in there for close to 30 years. There must have been enough wood in that closet for at least two dozen instruments, if not more. And when he showed me the wood, it wasn’t in the same spirit of calm, quiet reluctance with which he had taught and showed me so many other things up to that point. He was excited. He was giddy. He wanted to make violins, if it were possible, more than I did.

I brought the wood for my viola, which I had purchased as fast as I could after he decided to help me. But I anticipated something would get in the way. I had always wanted to start right away, whatever project we were doing. Whether it was a spoon rack or a toy, I always wanted to get started faster than he would let me. But today, it was totally different. As I walked in to get started on the joinery for my spruce plates, he was already working, and had no objections to my getting started immediately.

Everything was different. The whole shop felt different. At the risk of over exaggerating the point, it really felt like a cloud of formality had lifted from the shop, the work, and the way

we interacted. We talked more, we laughed more, and I heard more stories than I can even remember. He became more open with his explicit instruction as well. When I had problems with the joining of my plates, he came over, grabbed my plane, and began demonstrating how to execute a proper joint, all the while telling stories and acting altogether as if he were ten years younger.

Despite all of the extra help, however, I was still pretty slow at catching on. It took me several days just to join one set of plates for my viola, a process which would have taken Wade only about fifteen minutes. But his renewed excitement for the craft that had eluded him for so long seemed to give him an almost superhuman kind of patience for me and my novice mistakes. And he never made me feel stupid or unskilled or clumsy in the least.

But it was still work. One of the most important parts of the formal apprenticeship stage to note is that we were both working on our own projects. It was not his sole purpose to teach me as his apprentice, nor was it my sole purpose to learn from him. We both had projects that needed finishing as well. But our time was not divided between working and instruction. It was all one in the same. He worked at his own bench, and I worked at mine. And because of his newfound zeal for the work, we worked well into the evening. Where we had once stopped the moment that Wade wanted to stop for the day, we now worked until I had to go because I had schoolwork to do. He used to walk me to the door, then go about his other business. This day, and all throughout this stage of the apprenticeship, he kept working, only looking up from his work for a moment to say, "Is it time to stop already? Why are you leaving so soon?" It was a complete change from what it had been, and Wade showed no sign of slowing down or letting up in the least.

Stage three: Journeymanship. It had been several months since we had finished the viola. It had taken me some time to write the first portion of my dissertation as part of the prospectus. But after a short sabbatical, I was back in the shop with Wade, working on a cello. But once again, things were very different this time around. His zeal for the work had not gone altogether, but seemed to have been tempered, even honed after its initial revival. Three of the violins that he had made in that short period were in cases upstairs, but parts of the one he had been working on for the past several months were still sitting on his workbench. He still worked just as much as before, but it was more calm, quiet, and calculated. He explained that he wanted to make this violin special, better than any he had made before it. So he was taking his time. On this first day, and throughout this last stage, he would take frequent breaks to play the organ, work at the computer, or make a quick children's toy. But it wasn't that he lacked interest. If anything, his intensity had grown, but the pace of his work had slowed to a meticulous, careful pace.

At the same time, his input about my project changed just as dramatically. On that first day back at work, he didn't tell me what to do. I had to start on my own, planning down the plates to join the top spruce of the cello. It was much harder than before because it was on a much larger scale. But what made it all the more difficult was that Wade wasn't teaching me as I had hoped he would. For some reason, I had expected him to teach me in exactly the same way that he had done before. But he wasn't. It seemed that he expected more from me. The most drastic change was that he wouldn't touch my work. Whereas before he had been more than willing to grab one of my tools and demonstrate proper technique on any one of my projects, now he wouldn't do any such thing.

So, I was left to struggle through a cello in a new way—a way in which so much more was being expected of me all the time. What was more was that Wade had only ever made one cello in his whole career, unlike the forty of fifty violins and violas that he had made in the same time. That cello was part of his apprenticeship in Poland over thirty years ago. So, not only was Wade teaching me in a new way, expecting more from me moment by moment, but he had also forgotten many of the tricks that he once knew about cello making. So, the master-apprentice relationship, thought it never really went away, became more of a master-journeyman relationship. I worked alongside him, and directed my project in much the same way that he directed his own work. Of course, I kept asking for his opinion, for no amount of reading, knowledge, or newcomer innovation on my part could compare with his deep experience.

In this last stage, work was once again limited. On this particular day, I only worked for three hours, from 2:30pm until 5:30pm. After I had tried to join the top plates of the cello the entire day, struggling to make any progress, I joined them with a little of Wade's help, and left at Wade's bidding. As I drove home and recorded my field notes for the day, I expressed my confusion at being treated so differently. It was as if, when I had asked him if I could make a cello with him, he said yes to me as a friend, not as a student, as though it were more of a question of shop space than his expertise. But even though the time was limited, and the interactions more collegial, the master-apprentice relationship, with all of its formality, respect, and asymmetry, lasted through the rest of this stage. And I anticipate that that same relationship will last the rest of our lives.

Results

The following themes will be organized according to the three main research questions presented at the beginning of this study. These sought to investigate the following:

1. the nature and dynamics of the master-apprentice relationship
2. the nature, role, and importance of mastery as manifest in living people as opposed to being shared by communities as a whole
3. the nature and dynamics of teaching in traditional craft apprenticeship

Each section will be accompanied by subsections that detail specific aspects of the research question addressed by that section. These subsections are made up of codes and themes found in and illustrated by quotes taken from field notes, reflections, journal entries, and interviews throughout the course of the apprenticeship. Chronological and contextual ambiguities will be clarified as needed throughout.

One of the principle considerations of this study is to reconsider these central questions from the more personal, humanistic perspective that flows out of the autoethnographic and anthropological apprenticeship methodologies. From the perspective of a researcher, the multifaceted nature of the relationship between master and apprentice in this study's particular apprenticeship have suggested many key insights. As an apprentice, personally involved in this relationship myself, it is difficult to articulate how much my interaction with Wade in the past several years has meant to nearly every aspect of my life. In illustrating the dimensions and dynamics of the master-apprentice relationship in the sections that follow, and in the spirit of autoethnographic research, I will lay a foundation upon these personal, human insights, then hone and clarify them. This will hopefully result in scholarly, thematic conclusions, instead of merely personal anecdotes, so often the risk of unrefined autobiographical data.

The Nature and Dynamics of the Master-Apprentice Relationship

This section will address the nature and dynamics of the relationship between a master and his apprentice as seen through the autoethnographic, anthropological apprenticeship lens

presented in this study. First, I will discuss specific elements the master-apprentice relationship to illustrate its intensely personal nature. Second, I will detail the dynamic that exists between the apprentice's zeal and the master's patience, and how that tension affects the desire of each to work, teach, and learn. Third, I will discuss the distinct role of both master and apprentice, and conclude with a negative case regarding the importance of the community to an apprenticeship situation.

Sharing a personal relationship. The relationship between master and apprentice is intensely personal. To say that my relationship with Wade was more personal than professional would seem almost an understatement. Our familiarity with one another served to enhance our ability to familiarize ourselves with the wood, the tools, and our craft more easily, more effectively, and more efficiently than perhaps we otherwise could have done. Early on in the rites of passage stage of the apprenticeship, Wade walked me to my car at the end of another work day and said, "There's nothing difficult, only that which is unfamiliar." Reflecting upon the implications of that statement, I wrote

> As we walked to the car today, he told me, 'There's nothing difficult, only that which is unfamiliar.' This idea of familiarization is now key. It seems like he's saying learning is just familiarizing yourself with that which is unfamiliar. It's not that anything is difficult. It's just unfamiliar to you. And so, as you participate, you *become*. I mean, *familiarize* comes from *family*. Those two words have the same root, you know? So, *family* means living, every day, and participating, and being, and striving, and failing, and apologizing, and moving on, and moving forward, and love, and respect, and care. All these emotional human aspects are *family* and also tied to familiarization.

We worked together in a way that made our relationship, after passing through so many other stages along the way, almost familial. But it was not always that way. The master-apprentice relationship between Wade and me progressed in three main stages, though these stages did not necessarily coincide with the stages of the apprenticeship itself. It began as a relatively formal and somewhat uncomfortable student-teacher relationship. After some time, we became friends, sharing stories and tools a little more freely than we had done before. Lastly, the dynamics and nature of our relationship resembled that of a father and son more than a master and apprentice, per se. These stages, as well as the emotional, intellectual, didactic, and social changes that marked the progress between them, are the backdrop for the story of the following section. I will first illustrate concrete examples and themes that came on the journey from studentship, to friendship, to family, then outline some of the other important dynamics of the master-apprentice relationship that did not necessarily change with the passage of time as these other dimensions did. To conclude this section, I will consider a negative case concerning the importance and unique role of community in apprenticeship learning, especially in consideration of alternative theories regarding the role of community with regards to mastery, teaching, and the relationships involved therein.

A master's generosity. Generosity is one of the master's principal motives for taking an apprentice. In the very first days of the apprenticeship, I asked him a few questions about his apprenticeship in Poland under Marduła while some glue was drying on a spoon rack we had only just finished. He recounted, only in brief, the story of how he had met Marduła at his door to pick up his recently commissioned cello. In that moment,

> he got very emotional when I asked him to talk about Marduła, the master violinmaker under whom he had apprenticed. He described Marduła's generosity with which he let

him into his home, fed him, and gave him materials to let him make violins, all for free. Nor did Marduła's generosity end there. Among violinmakers, there is an unwritten code that dictates that master artisans do not share their forms and molds. Those templates to the perfectly shaped instruments are always their secrets: symbols of their timeless experience and mastery. But rules such as these seemed not to apply to the old master. Wade explained,

> As I got near the end of my stay in Zakopane, I asked him if he minded if I looked through his patterns. He said 'Go ahead, be my guest.' Now, not every violinmaker would say that. Most of them would say, 'That's my secret. You have to develop your own.' But he said, 'Take anything you want and draw copies of it.' So I got a big sketch book and did a lot of patterns.

This was one of the most unforgettable moments in my apprenticeship. As he looked into my eyes, his welled up with tears, and I felt the love and gratitude that he had for his master in a way only a person could convey. And for the first time, it seemed, I opened my eyes and looked around the shop walls to see them covered in pictures of the old man. Marduła, the master of my master, might as well have been in the shop with us for the almost tangible presence and influence that he exerted there. It was this longing to follow in the footsteps of his master, I believe, that inspired Wade to be so generous to me. For just as his master had done to him, so he, too, was committed to doing for me.

The apprenticeship was unpaid. There was little or nothing that I could have given him, even if he had asked for it. But such as I had, I gave freely. Service, donations of wood, running errands, lifting, and organizing: all these I could do, and did. But nothing I did, it seemed, could counterbalance his generosity to make it all fair. Each day at the shop was filled with statements such as, "Help yourself to what you need" or "Take what you want." But his generosity didn't

stop there. He would often halt in whatever project he was working on at the time to make a toy for a child in the neighborhood, the friend of a friend, or even just an unknown child in his congregation that following Sunday. His generosity was not confined to the microcosm of our educational world. Rather, it extended through every aspect of his life. This made his teachings to me as his apprentice more genuine, more sincere and, in turn, I was all the more deeply inspired to follow his example just as holistically as he was following the example of his master before him.

He gave me of his time. Even when he was sick, he would say, "You know, I'm a little under the weather today. But what can I help you with?" He gave me of his tools. The following reflection was not uncommon at all throughout all stages of the apprenticeship:

> He'll often find two or three of the same thing that he's bought over time, and he'll say, 'Hey, I have a few of these, and I'll only ever use one. Do you want one?' And he was so generous in giving me all sorts of things to take home with me today—his tools that he didn't want. He also said, 'You know, Isaac, don't attribute me giving you these tools to any sort of generosity on my part. I'm just giving you the stuff that I don't want anymore.' And I just keep saying, well, anything I can do to help you clean. At the same time, I don't know that these tools are just junk. I really do think that there are some quality tools that are floating around that he is just kind of handing out to me. I think that in some ways he's trying to clean up, but in others he is being very generous and very kind.

He always tried to pass off his generosity as something less than what it was. But the feeling in the shop betrayed his modesty. He was giving all he had to offer, which was a great deal, to me, a young man whom he had only barely known before undertaking a project that still seems to me

wildly and unjustly one-sided in my favor.

Near the end of the last apprenticeship stage, I began to emulate his example of generosity, offering what few tools and resources I had acquired in the course of my work that he didn't already have himself. But most importantly of all, his generosity tempered my zeal and impatience to progress in my work. In the midst of my most recent fit of impatience during the cello project, I stated, "So, in the midst of all my frustration, I recognize that he's really trying to help, and he's also being very generous with giving me help and materials to make this stuff." The master's generosity harnessed my zeal to work and, at least in part, directed my efforts to a more patient, meticulous craftsmanship. Rather than demand that level of workmanship through controlling assignments or aggressive instruction, he inspired a conscience of craft and masterful patience both by his example and through his endless generosity.

Apprenticeship requires patience. Apprenticeship requires that both master and apprentice be patient with one another, albeit in different ways and for different reasons. Although there is an element of difficulty in many traditional apprenticeships, after about a year and a half of a trying to make violins, I finally admitted, "There's something about violinmaking that is *so slow*. You have to be *so patient*." Patience, although seldom taught explicitly in the course of the apprenticeship, was a major theme of our relationship as master and apprentice. Whereas I had come from a world that seemed to idolize the standards of "better, faster, and cheaper," interacting every day with a craftsman who saw his work from an almost eternal perspective changed all of that. In the first few weeks of the apprenticeship, I had already begun to call my efficiency-oriented perspective into serious question when I recorded,

> That is hard because in a similar way, because until the day we die, there will more and more efficient ways to do things until before you know it, you have forgotten to take and

> make the time to live for want of efficiency. Why not just slow down and live? People have been doing it for thousands of years…thousands of years.

Wade's eternal perspective was such that it almost transcended simple patience in the face of deadlines and the exigency of efficiency. Even at this early stage, his patience had already begun to be part of my heart and mind. The way that I saw the world was already changing. But patience is not a concept to be grasped or a definition to be committed to memory. It requires something more to become part of us. And so it was with me. The following is a story about only part of my journey to gaining this perspective of patience, which I recorded after the first day of the cello project.

> Every once in a while, he would say, 'Oh, don't worry. We're going to start making that cello soon.' Whereas before I was eager to begin, and he would slow things down and say, 'You know what, we're just going to wait on this. We're not going to start on the violin yet. We're going to do a toy, then a spoon rack, and then a box.' I think, for some reason, he was anticipating me being in a rush, like I was. So he said, 'We're not going to start the cello yet. We're going to do it soon. Don't worry.' But I'm happy to slow down. I told him today. I'm not in a rush because I have been in a rush before, and I know what that's like. I know what happens. I'm referring to my second violin project, in which Wade was very hands-off, and I ended up doing the majority of the violin on my own. Now, it was at that same time that, on a more personal level, I was going through a rough time. The semester was over, I didn't have any classes, and my friends were all gone. So, one of the only things that I had to do was this violin. So, I worked on it round the clock. And one day I was planning out the most fragile part of the whole violin, and it snapped. And it wasn't a clean break. Oh, no. It was bad, jagged. I just looked at it and almost

> just started to weep. It was a really hard moment for me. When Wade came home and saw the crack, he immediately soaked it in warm water, and then put it together with his hands exactly as it had been before. And by the time that I came back the next day, it was healed. It looked, for all intents and purposes, as if nothing had ever happened. It was perfect. So from that lesson I learned not to rush. And I learned, at least I hope, patience.

Although Wade certainly didn't plan these sorts of things to happen, this story illustrates the holistic nature of apprenticeship. Somehow, this apprenticeship seemed to seep into every aspect of my life. My challenges, successes, weaknesses, and strengths all came with me to the shop, and when I left at the end of the day, aspects of my shop life came with me into everything else. In the end, apprenticeship involves all of both the master and the apprentice, and rather than attempt to isolate what is taught on the shop floor in an attempt to control and organize it, it embraces the naturally holistic nature of the master-apprentice relationship, harnessing the power in the lives of both master and apprentice to propel forward both their craftsmanship as well as their character.

My apprenticeship, of course, required that Wade be patient with me, my frustrations, my impatience, and my overall lack of skill compared with his level of mastery. The master's patience, then, had little to do with the work, and much more to do with his interactions with me. On the other hand, my patience was tested and tried on all fronts. I was impatient with him when he made me wait to do the next step of a project, impatient with waiting for glue to dry, and even impatient with my own clumsy hands. In this way, my patience was under trial much more than Wade's, even though patience was absolutely required of both of us.

Earning the master's trust. While apprentices must trust their masters implicitly, apprentices must earn their masters' trust, both with regards to integrity as well as skill. When I began as apprentice, it was clear that Wade did not yet know me well enough to trust me. Although we had spent a great deal of time together in the Jerusalem study abroad program, living in the same place and sharing meals together, there was something different about the time we shared working together that helped build trust. It may have begun as something simple. After all, there must be some element of trust between two people in order for them to share sharp tools in such close proximity. But it is plain that Wade and I developed trust for one another as the apprenticeship itself progressed.

Yet, our roles were not the same. He was the master, and I, the apprentice. As such, I as apprentice trusted him implicitly from the very beginning. I had no real choice otherwise. Such implicit trust on the part of the apprentice was a necessary part of asking someone to be my master. One example of the need to trust him came as he helped me with a particularly tricky step in one of our very first projects. As we worked together to glue two pieces that I had already spent so much time on, we had the following exchange:

Apprentice: So, don't extend it all the way down?

Master: Well, it'll stop when it's supposed to.

Apprentice: You've got me all nervous, Wade. It's like the final stages. I can go all the way down? Are you sure?

Master: You can go all the way down.

Apprentice: Oh my gosh…(nervously) oh my gosh.

Master: Yea, you can trust me. Yea, see, there's a stop. It'll stop.

I doubted the master. At the very beginning, though I had trust in his character and his

craftsmanship, I didn't trust that I could follow his instructions and execute them correctly. But, regardless of my fears, I had to trust Wade from the beginning. If I didn't, I wouldn't have been able or even willing to follow his instructions in any one of the many projects that we began together. A lack of trust on my part may have prevented him from teaching me in the best way he could. This trust, however essential it may have been to the integrity of the master-apprentice relationship generally, was a significant burden to Wade as master. On one occasion, when we were gluing the spruce plates of the cello together, Wade suggested that we do so without clamps, as he had heard that was possible. Despite the opportunity to doubt the validity of Wade's idea to join a set of cello plates without clamps, we had the following interaction:

> I said, 'I trust you, Wade. Whatever you say, I'll do it. I'm no expert here.' To that, he replied, 'Oh, man, now if it doesn't work, it's my fault.' And I thought that that was really interesting. He was being really vulnerable there, and he was saying, 'I know I'm supposed to know everything about this, but what if it doesn't work?'

Not only does the master have the luxury of the apprentice's unconditional trust, but he also carries the weight, the burden, even the responsibility of that same trust on his shoulders. When another person entrusts the development of his or her craft to another person's example and teachings, it ties those two individuals together in a unique way. On the one hand, apprentices are invited to humble themselves trusting their masters' example and teachings. On the other, masters are invited to grow in confidence and ability other budding craftsmen place their trust completely in a master.

Still, masters do not require implicit trust in order to fulfill their part of the apprenticeship bargain, at least in its beginning stages. This quickly became clear in the early stages of my own apprenticeship, as I noted that Wade did not necessarily trust me completely. This is not to say

that Wade distrusted me, or was suspicious of me in any way. Rather, it was made clear to me by the way Wade treated me with regard to his shop space, tools, and complicated aspects of certain projects, that I was not ready to be trusted completely. In the development of trust between master and apprentice, especially in my apprenticeship situation, there were two different kinds of trust that had to be developed: one regarding my integrity, and the other based largely on my skill as a craftsman.

The type of trust based on my integrity came much more quickly than the second, but did not get me very far. What I term *character trust* seems to be easily cultivated in many environments, not just on the shop floor. Because Wade knew me before we began the apprenticeship, he already had a pretty good notion regarding my personal integrity and honesty. Thus, establishing character trust with Wade was more of an effort to demonstrate consistency in what he already knew about my character, than an effort to establish good character standing and trust with someone completely new, from scratch. Because of this, character trust served as something of a stepping-stone to a deeper kind of trust that can only really be shared between human beings who work together, in the same place, and over an extended period of time. This type of trust is something I have come to term *craft trust*.

This second, more personal kind of trust has little to do with one's integrity. In fact, it can exist almost on its own, without the presence of any kind of character trust whatsoever. It is a trust between artisans, whether they be doctors, painters, or violinmakers, and it comes when one sees the other working in a way that is meticulous, clean, and consistently brings quality results. As an apprentice, I started out my studies with Wade having complete trust in him from both a character perspective, as well as from a craft perspective. However, although he may have already had the beginnings of trust in my character and integrity in other situations, I was

completely unskilled in his eyes. Although I did have a great deal of experience as a carpenter, that meant little when it came to violinmaking, which is truly a craft all its own. So, one essential dynamic of the master-apprentice relationship was proving myself to Wade, as his apprentice, that he could trust my hands just as much as he trusted my heart.

Both character trust as well as craft trust were constantly required of the master, but that was largely a choice that I made before beginning the apprenticeship, rather than after it had already started. My trust in Wade increased in both senses, of course, once I saw prove his worthiness of that trust time and time again with each problem and project we faced. Both these types of trust were also demanded of me as an apprentice, and the demand that I have both (especially craft trust) in the eyes of the master increased as time passed. And many of the tasks given to me as an apprentice required that I be trusted both in terms of my character as well as my craft.

One of these instances involved my access to his shop when Wade wasn't home. In the early stages of the apprenticeship, he took a trip to his hometown of Idaho Falls, Idaho, to play an organ concert. I, of course, wanted to work while he was away. So, I showed up at his house, asked his wife if I could use the shop, and finished the clock I was building. When he returned, Wade became angry with me for the first time in our apprenticeship. He did not trust me in his shop without him: not because of my integrity, but because of my lack of skill. As a result, he made me clean the shop the rest of the day to his satisfaction.

Later on, however, and most especially during the course of the cello project, Wade began to trust me more with his tools and shop. He invited me to come by whenever I wanted and, as our time grew short, allowed me to drop by even when he wasn't there. The conclusion of the cello project was marked by his departure to Europe for a vacation. As the time drew

nearer, he admitted to me that he was still debating whether to have an open shop policy while he was away: an idea which, only a few short months earlier, would have seemed completely out of the question to him. In this way, Wade's trust in me, as well as my trust in him, grew throughout the course of the apprenticeship, albeit in different ways corresponding to our asymmetrical roles in the master-apprentice relationship.

An apprentice must be humble. The very nature of apprenticeship demands an apprentice's humility from the beginning. For the master, such humility is a helpful option, but only an option. A discussion of trust between master and apprentice leads well into the importance of humility in the master-apprentice relationship. With the advent and subsequent proliferation of the learner-centered educational paradigm, student humility is left largely unconsidered. Humility is, it would seem, a rather difficult attribute to explicitly or intentionally cultivate in another individual, let alone in a group. However, humility seemed an almost implied and prerequisite characteristic of my apprenticeship under Wade from the beginning. At the onset of the journeyman stage of the apprenticeship, I recorded the following:

> The humility that it requires of an apprentice to seek out a master—a real, human person—and say, 'I can't do this on my own. I need your help. Will you help me?' is really unique in a master-apprentice relationship. What the master then does with that humility is just as important as having a humble apprentice in the first place, because to help a willing apprentice by doing all of his work for him would create a dependent apprentice, and that would be of little use to anyone.

The very act of approaching a master and demonstrating a willingness to begin an apprenticeship is, in and of itself, an act of the deepest humility. It is, in essence, an acknowledgement, on the part of the apprentice, that he cannot do it on his own. I had tried to make a violin on my own

near the end of my rites of passage. But I could not learn the intricacies of the craft without the help of someone who knew, not only in his head, but in his hands, as well. So, I humbly sought out Wade's help, and eventually received it. But once he had me as his apprentice, it was essential that he carefully direct the power of my humility toward good craftsmanship, a proper conscience of craft, and an increasing degree of autonomy and craft trust, rather than create a perennially dependent half-craftsman. As the old Chinese proverb states, "If you give a man a fish, you feed him for a day. If you teach a man to fish, you feed him for a lifetime."

But approaching Wade was only the first step of my humility. I struggled so long to convince him to teach me how to make violins because I was afraid to disturb the balance that my humility had created. I had acknowledged his wisdom, and I certainly didn't want to shake our relationship out of balance because of an unwillingness on my part to humbly submit to his will. And so I proceeded, still enduring little experiences in which my patience, my loyalty, my trust, and humility were all tried together. On one particular day during the cello project, I recorded the following incident that illustrates the continuing process of humility for me as apprentice:

> So, today there was a moment when I was drilling holes for the peg box of the cello neck. I had already begun when Wade said, 'Now, are you thinking about what you are doing?' I hated that question, because it made me feel like a child. But interactions like this one really help soften the apprentice up to receive the guidance of the master. And that's really helpful for me on the apprentice part because, as I humble myself and at time feel as though I were being essentially humiliated, I am better able to be taught.

Although a certain degree of humility is an almost necessary prerequisite to apprenticeship itself, Wade as master took steps to further humble me as his apprentice. This never felt as though it

were a deliberate effort to humiliate me, but instead was an effort to soften my heart and mind in preparation for greater teaching and growth. Because this was done in a one-on-one environment, it was not embarrassing. I had no peers to cause me any embarrassment. I already knew that the master was infinitely more skilled than me, so naturally I did not feel bad to have my abilities called into question in his presence. Rather, I found such occasional chastening helpful in keeping my perspective and my patience as my skills progressed.

Sharing personal stories. Sharing personal stories brings master and apprentice closer together, and helped the master to teach and empathize with me as his apprentice. Of the time that Wade and I actually spent together in the shop itself, over half of it was spent sharing personal stories that seemed, at least at the time, to have little or no specific didactic purpose. However, after closer consideration, it seems clear that the mutual sharing of personal stories served several key purposes. The first, and most general, among them is that sharing stories brought us together. On one particular day during the cello project, I recorded,

> When I walked in, he was going through photos of his mission and his time in Europe. He showed me a photo of himself. It was so funny to see him as a twenty-year-old kid on his mission. I think sharing those things really brings us together.

After sharing about our past or about what we were facing on any given day before work had begun, it somehow felt as though Wade were more human, more approachable, more just like me than I had ever really considered. This human connection made me feel more comfortable around the master, and as a result, I felt as though I was more free to ask questions of him, admit my mistakes, and discuss solutions with him more openly.

Many of the other stories that he shared served a more didactic purpose than those that were simply meant to familiarize ourselves with one another. These stories sometimes came

from his childhood, his memory of lessons he had learned at school, or simply stories straight out of his everyday living. In one such exchange during the middle, apprenticeship stage,

> There was one moment when Wade talked about a famous Hebrew scholar who was discussing the university system. He said that he hated the universities, and that they all just showed off. He told me a story about this Hebrew scholar who was world famous already, but who really wanted to speak better Hebrew. So, he went to the ghetto and the little kids made fun of him because his Hebrew was so bad. And all of his colleagues ridiculed him for going. They said, 'This is so dumb! Why are you wasting your time? Why are you doing this?' And he said, 'No! I want my Hebrew to be good.' And in the end he learned how to speak Hebrew better than anybody else because he talked to these kids in the ghetto. The kids actually spoke it and before he had met them, that great scholar never really had.

This was a story that he had heard in a Hebrew class that he had then only recently taken. This story-lesson came to me at a time when he was trying to illustrate the power of getting your hands dirty and actually doing something in order to learn it, instead of just sitting around and talking about it or thinking about it. This and many other stories filled my days in the shop, inspiring me to develop character traits that I identified in the story, rather than forcing such a decision upon me.

Another of the main types of stories he would tell were those intended to empathize with me. One of the uniquely human aspects of the master-apprentice relationship is that the master is inherently and personally familiar with what it means to actually be in his apprentice's shoes. On one occasion, I explained, "As soon as I make a mistake, this pattern kind of arises where he says, 'You know, it's okay. Let me tell you a story about when I did the same thing.'" Mistakes

were a natural and essential part of my learning during this apprenticeship. In the beginning, my natural reaction was often to feel guilty, embarrassed, or even afraid to tell Wade about it. However, having him there to reassure me in those moments gave me courage to be bolder in my explorations into the unknown. Because he knew what it meant to be an apprentice by his own experience, he was uniquely able to help me overcome the trials of apprenticeship. This type of close-knit support and interaction may not have been possible had I not been working so closely with Wade in this unique, one-on-one setting.

Mutual love and care. Over time, master and apprentice grow to love and care for one another. Because an apprenticeship involves so much time spent working so closely together, the master and apprentice end up talking about many things that have little or nothing to do with the task at hand. So it was with me and Wade. And at times, we would speak about personal matters ranging from foods we liked, concerts we didn't care for, and even trials we were going through. On one occasion, I came to the shop after a difficult day at school, and recorded the following after our work session:

> Going back to how I felt, as time progressed, working with Wade in this context, the frustrations from my school day flowed out of me as I worked. And we talked about it. And somehow, and I do not know how, but somehow he just kind of got it out of me. It was a beautiful thing. He just talked to me. I had the sense that Wade really cared about how I'm doing. That, to me, was more valuable than anything else. He asked me how I was doing and said that it was going to be okay, that school would be okay, not to get myself down, but to move forward. And I was so thankful for that.

It meant a lot to me that Wade hadn't only taken me as an apprentice because he wanted to teach me. He also actually cared about me as a whole person. He asked me questions, listened

intently to my answers, and showed genuine interest in what was going on in my life. This brought us closer together as friends, and I felt more comfortable interacting with him, not only as his friend, but also in asking him questions in the course of my learning.

Friendship and banter. Eventually, formal apprenticeship gives way to friendly banter. When my apprenticeship began, I already knew Wade a little, but not nearly as well as I know him now. Because we were still unfamiliar with one another, and especially because I was unfamiliar with how he wanted things to run in his shop, things were uncomfortable at first. I didn't tell many stories, let alone jokes. At first, I mostly listened as he told story after story. But, after working together, making mistakes together, and resolving little conflicts, we relaxed a little, and began a vibrant friendship. Once I became more comfortable with him, as well as the jargon used around a violinmaking shop, we would often banter back and forth in conversations like this:

> Apprentice: I'll tell you. These ribs are going to be the end of me. They are just taking forever to prepare. I'm going to be sweating bullets when it comes time to bend them, you know?
>
> Master: You'll need to wear a diaper that day…
>
> Apprentice: You're telling me.
>
> Master: …or put on your brown pants.

Because we felt comfortable enough to banter and joke around with one another like this, our friendship grew, as well as my self-confidence. Whereas strict formality made me nervous during critical parts of the crafting process, this new relaxed atmosphere helped me to work more calmly and, in the end, attain better craftsmanship overall.

Building one another's confidence. Both master and apprentice help one another find greater confidence in themselves. The apprenticeship did not benefit me alone as apprentice. There were moments when Wade's confidence flagged a little, too. On one occasion, he advised me not to clamp a section of the cello that normally should have been clamped, and it resulted in a near disaster for the whole project. On that occasion, his confidence ebbed somewhat, because he felt that it was important that I, as his apprentice, completely trust him. On that day, I recorded, "It was interesting to see him struggling to have confidence in his role at the same time that I was struggling to have confidence in mine." I wasn't confident in the process that he had advocated and, because it hadn't worked, he had lost confidence not only in the process, but in himself. However, in the midst of these setbacks, we both continued to support one another. I chose to continue to put my trust in him, and that served to fortify his confidence in himself. At the same time, that boost in his self-confidence invited him to reciprocate, expressing his confidence in my abilities in turn. Thus, the apprenticeship not only benefitted me as apprentice, but Wade as master as well.

A profound love of work. It is essential that both master and apprentice have a deep love of work, both to fuel their work as well as to foster openness between them. An apprenticeship is all about work. Whereas formal education involves a great deal of discussion, writing, reading, and hands-on projects, apprenticeship is centered on long hours in the shop doing hands-on work. It is absolutely essential that both master and apprentice love long, hard work. Violinmaking was a passion for Wade and me, as it had been for his master before him. Describing Marduła's love for work, Wade described,

> Master: Marduła just sat at his workbench and worked his tail off from morning to night. I've never seen such a productive violinmaker. And every night he would look at his

watch and he would swear and say, 'Pshakrev. Yustak piukno' – 'Oh, dog's blood! It is so late! We've got to quit working now.'

Apprentice: I could spend my life here and not do any homework or not do anything else.

Master: Me, too.

Even though my work was not as intricate as Wade's in the beginning, and still isn't to this day, our love of work has united our purpose and energies in the shop. In fact, part of the reason why Wade was so hesitant to start making violins again was because he recognized the power of his love of work. When he gets involved in a project of that magnitude, everything else becomes a lesser priority, and the project completely envelops him. Marduła was that way. I am that way. This nearly obsessive love of work is a bond that unites craftsmen across generations, just as it united me, Wade, and his master before him.

One cannot serve two masters. In the course of his life, Wade has taken four apprentices. I am the fourth, and probably the last. So, while I have only had and will only really ever have one master under whom I began my violinmaking career, he has had multiple apprentices. Our relationship, therefore, dissimilar in that way, or, in other words, asymmetrical. This difference was highlighted to me one day in the following story:

He started talking about one of his former apprentices today. And I thought, 'Are you kidding me? There was somebody else? And our work was comparable? Do you compare me with this guy? Do you think I was better or worse as a craftsman?' I wasn't really mad or anything, but I guess that the connection that we have as a master and an apprentice is so personal to me that I felt like he was betraying me or something weird like that. I didn't want to lose that master-apprentice relationship, you know?

I was unaware that I would get so emotional about something so trivial, but I did. My master

and I had become so close that I felt an intense degree of loyalty to him. He has manifested similar feelings toward me, often saying things like, "I just love having you here."

However, while Wade, as a master himself, can have more than one apprentice, it would be improper for me to have more than one master in the same subject at the same time. Not only would it be difficult to manage time in such an endeavor, but the unique trust and relationship that develops between one master and one apprentice could not happen in the same way. While Wade was an apprentice in Poland, Marduła's son Stashek tried to act as a second master. Each master demanded different levels of craftsmanship from their shared apprentice, and loyalties flew all over the place. This caused so much tension in the shop that it nearly ended the apprenticeship altogether. It was not until Wade was able to defuse the situation and once again have only one master that he was able to progress in his work. Simply stated, there is a powerful degree of loyalty between master and apprentice, and while a master may teach more than one apprentice, an apprentice cannot have two masters.

A dynamic, progressing relationship. The master-apprentice relationship progresses from student-teacher, to friendship, then finally to a father-son relationship. When two people work so closely with one another for such an extended period of time, as Wade and I did, a change in that relationship is almost inevitable. But the change depends on the choices and dispositions of those involved in the apprenticeship. Unless the master and apprentice both choose to continue the apprenticeship and move forward, this deepening of the relationship (and a subsequent deepening of skill, as well) will not occur. In this apprenticeship, both Wade and I chose to move the apprenticeship forward throughout. As we did so, our relationship changed. It began as a slightly uncomfortable and formal student-teacher relationship, which eventually gave way to a more comfortable friendship among co-workers in a shop. After this, personal

experiences, along with budding mutual trust in both our character and skill, led the relationship to resemble that which is shared between father and son. The following subsections will detail what it was like to experience each of these stages and progress between them.

A student-teacher relationship. The master-apprentice relationship begins as a student-teacher relationship. The student-teacher relationship at which this apprenticeship began consisted of rites of passage that I had to pass, each of which tried my patience, caused me deep frustration and disappointment, but inspired me to keep trying to prove myself to the master that I had replaced my novice arrogance with humble, quite confidence in him and myself.

Rites of passage. To move past the student-teacher relationship, the apprentice must submit to many rites of passage orchestrated by the master. The beginning of my time with Wade was filled with tasks that I didn't want to do. I wanted to get straight to the reason I had come to study with him. I wanted to make a violin right away. And even though I would never have believed it then, I now see what he saw then: that I was not ready. But, in the moment, I recorded the following about how these rites of passage seemed to me at the time:

> Why is he making me do this? Because he and I both knew why I was there. I wanted to make violins. It was no secret. And so I was just kind of like, 'Well, let's start', and I think the first day he was making a mouse toy when I walked into his shop. And he said, 'Well, why don't you just make some of these?' And, in a way, he was kind of getting a feel for how I could do it, because he didn't know if I had worked with wood before. And then also it was starting out with some really essential skills; very, very basic and easy. And then we moved forward with more and more stuff that grew in complexity, but sometimes we would go backwards, too. It wasn't just a progressive complexity.

It was never clear how much of these trials were intentional. To some degree, he was certainly

stalling on making violins. But, in many ways he was testing me to see if I had the patience, skill, and tenacity to confront the challenges that a luthier often faces in making his first instrument. Until I proved that he could trust both my character and skill--my heart as well as my hands--we could not progress to the next stage of the apprenticeship, nor to the next stage of our relationship as friends.

Trials of patience. The student-teacher stage of the master-apprentice relationship is characterized by intense trials of the apprentice's patience. From the very beginning of the apprenticeship, my patience was tried more than any other time of my life. I have been in school for quite a long time myself, and it seems to me as though most courses make concessions to students and their level of impatience. It is a rare situation in school indeed in which real patience in demanded of a student. Usually the syllabus dictates a curriculum seemingly designed to accommodate the focus and impatience of the learner. In this apprenticeship situation, it was completely the opposite.

> So, I arrive, and I come into the bottom of the house, which isn't the front door, it's the door to where his shop is. And I'm looking for him, and he's like "I'm up here," and so I go up to where the front door is, and he's making bread. He's kneading dough. And it's like, you know, I'm impressed with this man. I mean, he's making bread from scratch. But at the same time, it's like, let's get started with this woodworking. And he's like, "We'll get to it, we'll get to it. Come and talk to me." So I sat on a bar stool and talked to him for maybe like a half an hour while kneaded bread and put it on cookies sheets to make these rolls. And he made these rolls, and it was like he put them in the oven, and then he's like, "Okay, let's go downstairs." And at first I was very impatient, you know, like, why is this taking so long to talk to me like this and not work together?

When we first returned to the shop after a brief sabbatical between finishing my first violin and starting the cello, we had to spend the first week cleaning the shop so as to make room to make something so much larger than what was normally made in that small space. At first, I was very patient, at least, from my perspective, and more than happy to help in any way I could. Reflecting on this near the end of the first week of cleaning, I said,

> When I came home after the first week or so, everyone was asking afterward, 'Oh, did you start your cello? What does it look like?' No, you don't understand. This is a slow process. I went over there and he said, 'Well, the first thing that we need to do is make sure there's enough room, because a cello is pretty big, so, we're going to need to clean out my closet (which, incidentally, hasn't been cleaned out for like 40 years).'

After the first week, I noticed that my patience, which I had thought was iron-clad by this point, was beginning to wear thin. I started making statements in my field notes such as,

> To be honest, I thought that we were going to be close to finishing cleaning today, but we found more to clean. Today was just helping him clean. It reminds me of the first time that I worked with him and I had to be so patient. And I really do wonder sometimes whether he's doing this on purpose.

Looking back, the whole first stage of my apprenticeship was riddled with trials of my patience. But these trials were necessary before I began to make my first instrument. For if I had begun something as complex as a violin with the level of patience that I had had when I first came to Wade's shop, I would have never made it through the first step without losing all my patience. And even if I had made it through the first step and finished the violin, it would have certainly been a disaster of shoddy, impatient craftsmanship. Though I never would have admitted it at the time, I recognize now that not only were those rites of passage necessary for me to build my

character in preparation for violinmaking, but that I am grateful for those trials as well.

Frustration and disappointment. Trials of patience at this stage often lead to frustration and even disappointment. But these trials of my patience were by no means a sterile phenomenon. Quite to the contrary, I felt just about every spectrum of emotion possible during those rites of passage. I was angry with him. I was angry with myself. I was frustrated with the situation, with my clumsy hands that wouldn't do what I wanted them to do, with the tools that didn't seem to work. I was even frustrated at times with my own frustrations. When I was trying to prove myself worthy of violinmaking, I brought a mandolin that I had made to him, and the following scene unfolded:

> When I took the second mandolin to him, I said, 'Hey, what do you think of this?' And he said, 'You built this?', and I said, 'Yes. I really want to learn to make violins.' I'm trying to prove it to him. And in response, he said, 'It's really heavy.' He was just so negative about it. I was seriously *so frustrated* with him and with the situation. Then I read this in his journal about a time when he had completely finished the outline of his form and Marduła just took a file to it and ruined it and made him start all over because he didn't do it correctly in the first place. In the journal, he wrote, 'Hey! What was this all about?', and I totally understand that. Rarely has Wade ever done that to me and forced me to start over, but he does do it, just in his own way.

As I write and recall this moment, I am reminded of just how devastating and maddening it was to have him hold months of my best work in his hands and only say what was wrong with it.

Overcoming arrogance and pride. This stage seems to be designed so as to help the apprentice overcome arrogance and overconfidence in order to progress. When I started this apprenticeship, I was so confident in my abilities as a craftsman. As I look back now, nearly two

years later, I realize that I knew absolutely nothing. But when Wade asked me to make kid's toys instead of starting right away with a violin, I couldn't believe it. I remember thinking,

> How do I say this? I don't think he knows not only how quickly I am able to learn, but that I have a lot of experience. And I've tried to explain to him, but here's where it gets difficult for everybody. I was kind of insulted by the simplicity of what he wanted me to make. Like, oh my gosh, you're going to make me make these stupid little toys? I don't even like the way they look.

It puts a resigned smile on my face to even admit that I ever thought such a thing. Had I begun a violin with this sort of pride and arrogance, I would never have listened to the patient, consistent suggestions that Wade gave me all along the way, and I may have failed entirely. The rites of passage provided by my master throughout this stage of the apprenticeship, however, helped rid me of this arrogance, replacing it with obedience to my master, patience in my work, and a keen awareness of my own clumsy craftsmanship.

Proving oneself to the master. To get past this stage, the apprentices must prove themselves to their masters as being worthy of greater knowledge and responsibility. If Wade wouldn't teach me violinmaking, I thought, he must have concluded that I wasn't good enough for it. The idea that he wanted to build my character in other ways as well never even occurred to me. Still, at the time, it seemed so clear that all I had to do was build something that would show Wade how good I really was. At this stage, desperately wanting to prove myself worthy to be taught violinmaking, I recorded,

> I'm more than willing to patiently wait and prove myself ready for making instruments. I want that opportunity. I have some hope left, because I'm going to make the guitar and the clock and I'm going to give them to him. I'm going to show him that this is

> something I can do. I'm not like the other students that he's had. This is something that I'm serious about and I can make it happen. I know I can do this. I just need a little guidance that's all. I don't need strict supervision. I don't need that, I just need him to help me as I work. I'll do whatever it takes. I just need to know how. This was violinmaking. This is what it was. I don't know what to do. I've got to convince him he needs an extra push. I'm going to learn it. There's no stopping me. It is just a matter of how. I'm not sure what he thinks about it, but I know one way or another whether it's through him or someone else that I want to do this. I want to do this so bad, so I'm going to.

My desire to make violins was so great that I had to find some kind of outlet for it. If I hadn't found some way to use the energy that had stored itself in my heart, mind, and hands, I'm not sure I would have stayed in that apprenticeship much longer. But the idea that I could prove myself to Wade, even if it was only a small chance, filled me with new hope. I kept working with him in the shop, but I built a small shop next to my bed at my apartment, working deep into each night to make things that would impress Wade and, I hoped, convince him that I was worthy of violinmaking. It took all I had, but it eventually worked. But if he had taught me what I wanted to know right away, I may not have been as grateful for every moment of violinmaking, as I was once I had had to wait so long for it.

Master and apprentice become friends. After I had passed many (but not all) of the rites of passage that Wade had placed in my path, the atmosphere in the shop became much more relaxed. I felt like I was less of a burden to Wade because I could do many of the basic tasks involved in our craft without having to ask him how every other moment. As my skills increased and made me less of a burden, we talked more with one another. He began to think aloud more

often, including me in the evaluative processes of his craftsmanship in real time, as they were happening. And as our relationship grew into friendship more and more, he began to notice my increasing skill, and started to trust me with more information, more craft secrets, and with greater access to more precious tools. The following story illustrates how Wade surprised me by giving me access to a very rare and expensive tool that had previously been out of bounds due to my lack of skill.

> Master: (holding a very expensive and rare ECE Primus jack plane) You'll soon discover the beauties of a wooden plane. It has no drag.
>
> Apprentice: What, this is so pretty!
>
> Master: It is. It has a natural oil in it that lubricates the plane as it slides across the wood.
>
> Apprentice: Look at that!
>
> Master: That is the ultimate right there. Germany.
>
> Apprentice: I was going to say, that's not fooling around.
>
> Master: And this is beech wood. So now you know that we really are friends, because I'm letting you use my prettiest plane.
>
> Apprentice: Are you sure about this?
>
> Master: Why not?

As we became friends, he shared more with me. This sharing, again, included craft secrets, tool access, and increased understanding of how he, as a master, evaluated in doing his craft. In this way, the master-apprentice relationship growing into friendship played a significant educational role in that it allowed for greater comfort and vulnerability between master and apprentice, which in turn facilitated the sharing of further knowledge, tools, and evaluative skills.

From novice to journeyman. Along with the elevation from student to friend, the apprentice changes from beginning apprentice to journeyman. The master-apprentice relationship is asymmetrical. Master and apprentice are not the same, nor do they play the same role. However, in the early stages of the apprenticeship, I really couldn't offer Wade anything at all. It was completely one-sided. But as time progressed, and I supplemented my studies with Wade with my own experience and other study resources, I was able to bring something to the table myself. On the first time this happened, I recorded the following:

> What is really weird now is that this week I went to his house and he had a situation that he didn't know how to encounter. He is trying to plane down this thing and he didn't have the right tool. And I said, 'You know, I think that I have a tool for that.' And he said, 'Oh, okay.' And I handed him this tool that I've got and he said, 'This works really well. And actually, it's amazing!' Then he said, 'You know, I think I am learning a little bit from you now,' which was really weird. And all of a sudden, we were acting a little more like peers, at least for that one moment. Then it went back to him knowing tons more than me.

As I was able to offer tips and tricks to Wade that he had not realized or fully understood before, he came to consider me as more of a colleague than a complete beginner. This gave me more confidence in my work, and also helped me be less afraid to ask questions, as I was now also contributing to the apprenticeship myself. In this way, as our relationship progressed to friendship, and he began to trust my character, I also progressed from apprentice toward journeyman status, and he came to trust my skill just as much as my character. Still, even though I had progressed in this way for a moment, the master-apprentice relationship asymmetry was still very present. He was still the teacher, and I was still the student. And though I may have, as

something of an anomaly, taught him a little something, the fundamental nature of our roles had not changed.

A father-son relationship. The master-apprentice relationship eventually becomes like a father-son relationship. Wade described his relationship with his master as something of a father-son relationship. In fact, their close relationship became so much like that shared between father and son that Marduła's actual son became angry with Wade. He felt as though Wade was replacing him because his father Marduła had grown to love and care for Wade so much like a father would love and care for a son. A similar relationship began to develop between Wade and me during the cello project. Near the middle of that time with Wade, he began calling me "my son" more and more. Yet, it didn't seem like a conscious decision. Rather, it seemed to flow from him naturally as our relationship deepened and progressed through all we experienced together. As the final days of my work with Wade came to a close, he began to call me something I had never heard him call me, or anyone else, before. He called me "chłopie," a Polish word for "boy" or "lad," an endearing, fatherly term that Marduła had used with Wade during his apprenticeship in Poland. The closeness implied in Wade's use of a term that his master had used during his own apprenticeship seemed at the time more fulfilling than any other single aspect of our relationship had been in all our time together.

However, just as a real father-son relationship is not always perfect, so too was our relationship imperfect and even rocky at times as it approached this stage. Field notes from a day near the end of our cello project explain the following:

> This is the father-son relationship I'm talking about between the apprentice and the master. Sometimes the relationship is good, to be honest, and sometimes it's not so good. But that's the double-edged sword that has been in this apprenticeship. It's that I've kind

> of been going on about the amazing value of the master-apprentice relationship, and how it's so important and so unique. It's so like a father-son relationship. It's personal. It's interactive. It's fantastic. But at the same time, it's not all rainbows and sunflowers. There is conflict sometimes: conflict, identify the conflict, resolve the conflict. And I feel like the relationship grows with this process. And that is the unique thing about having the one-on-one master-apprentice relationship. In many ways, I am a child to this man. To allow that to happen to me, I gain a greater degree of access to his teaching, and to his secrets and mastery.

With the closeness of a familial relationship between master and apprentice, there come both advantages and challenges. One the one hand, the master is much more open about his craft secrets, cares a great deal more about his apprentice's budding mastery, and is much more invested in the apprentice's projects. On the other, the closer the master and apprentice become, when feelings of disappointment, frustration, or impatience arise, they are all the more powerful than before.

In my apprenticeship, the advantages that came from growing closer in a one-on-one relationship between master and apprentice outweighed the challenges, without question. Nevertheless, just as in a real father-son relationship, there comes a time when the son must move out of the house and begin a family of his own. A similar moment came in the course of my apprenticeship with Wade. On the very last day of my apprenticeship with him, I was scraping the bottom plate of my cello, when he abruptly rushed over and said, "No, don't do that!" After listening to his explanation as to why he had stopped me so suddenly, I acknowledged his authority, although I disagreed with him in my mind. It was in that moment that I realized that, although I may be afraid of going out on my own without his help, it was time for me to move on.

That is not to say that I had nothing else to learn from Wade. Rather, it seemed as though working on my own would be the best thing I could do for my progress on my journey to becoming a master.

Balancing patience and zeal. The master's patience and the apprentice's zeal balance one another out. Wade's perspective and patience were almost eternal. His patience was matched only by my impatience. I was always so zealous, always ready to start the next step, or finish a project as quickly as possible. And because of this difference, we seemed to be almost constantly at war with one another, although that warfare was never open. Under the surface, I always wanted to move faster than we were, and Wade always pushed me to slow down and take my time. It took me almost two years in the apprenticeship to come to the following conclusion about this tension:

> I recognize that there's a big difference in the way we see things, and I need to change. He sees a violin as a remarkable piece of craftsmanship that should and will last for hundreds and hundreds of years. Stradivarius' violins aren't like a piece of antique furniture that's put in a museum and never touched. These instruments are opened up, strung up, and put to work every day, for hundreds of years. And yet, they last. Violins and violas and cellos—these instruments are remarkable. When he thinks about the craftsmanship of an instrument, he's not thinking of yesterday and today. But I just want to get this done, or I'm going to die! He's thinking this needs to be very well-made because it's going to last for hundreds of years. And so, as I move forward and make this cello, I need to slow down. Even though I can feel these time constraints and pressures, I need to slow down and think about how this is something that's going to last for hundreds of years, and hopefully it will be and heirloom of my family. If I'm going to be putting

> so much time and so much money, and so much of my own sweat and blood and tears into this instrument, why not make it amazing? Why not making it something special? That's where the master-apprentice dynamic is really important. You need each other to balance each other. Because from the master's perspective, you could take forever. You could take years to make a violin or a viola or a cello, and just take every step so meticulously slowly that it would take you forever, because you have this eternal perspective of the master's patience. On the other hand, if you had just the apprentice, it would be, 'Let's get this done right now, and let's just forget about it. Let's just go.' But in the balance, which happens when both people work together, is that you have this youthful zeal pushing you to progress, but this masterful patience slowing you down saying, 'Now, we need to make sure that this is quality craftsmanship.' And the tension of both of those things creates this balance of progress that's ideal.

The eternal patience of the master combines with the relentless zeal of the apprentice to create the perfect blend of energies to foster progress in an apprenticeship. As the apprentice lacks patience, experience, and perspective, the master provides it. And as the master can lose the memory of his youthful zeal for his craft, the apprentice can bring that to the table. Because the master and apprentice work so closely with one another in a one-on-one, personal environment, this balance can result in a beautifully balanced blend of progress, hard work, and diligence that, in the end, helps both master and apprentice immensely.

Tempering unbridled desire. The result of this patience-zeal tension is a finely tempered desire shared by both master and apprentice. The tension that exists between the apprentice's zeal to work fast and the master's eternal patience to do meticulous work does not remain unchanged throughout the apprenticeship. When I began this journey of change, I recorded,

> I feel this tug of war inside of me between the youthful zeal that's characteristic of an apprentice and the masterful patience and eternal perspective that has recently become such a central characteristic of the way I view craftsmanship in general. But even as I say that, I know that one (namely, my youthful apprentice zeal) fuels my desire to work hard, while the other (the masterful eternal perspective of the value and duration of craft itself) harnesses that desire and applies it toward those actions that require a great deal of patient, meticulous work.

At that point, I still didn't understand this specific dynamic of the master-apprentice relationship. You see, I had wondered for quite some time where Wade's passion for violinmaking had gone, but I was asking the wrong question. His passion hadn't gone anywhere. It had only changed into a more mature, refined kind of desire to work. This kind of desire must be honed and refined over a lifetime of craftsmanship. But changing unbridled, apprentice-zeal into the tempered desire of a master is not easy.

> The point is that I've gone from this excessive zeal of apprenticeship, this youthful eagerness to progress and get steps done, and I've shifted and been able to because of Wade's perspective. And in calculating that into my heart and mind, my perspective and my eyes, the way I see things, I've been able to channel that energy into patience. It's really hard to describe, but a craftsman can channel this zeal and energy that's just boiling inside of him. Instead of wanting to progress quickly like a novice craftsman would do, I must have this eternal perspective of patience. The energy it took for me to slow down today and bend these ribs so slowly was enormous. However, I was able to change it in a patient, slow, methodical way as opposed to just wanting to get things done for the sake of getting them done.

The prolonged, personal interaction unique to the master-apprentice relationship allowed for this type of fundamental character change to take place in me as apprentice. So, while both master and apprentice are necessary to this progressive tension between zeal and patience, the apprentice has the responsibility to change in emulation of a character trait already inherently personified by the master.

A fragile desire. The desire to teach is just as fragile as the desire to learn. The most difficult and interesting part of my apprenticeship centered on the moment when I realized that Wade no longer had any desire to make violins, let alone to teach the complex art of violinmaking to someone new. It was then that, as stated earlier, the apprenticeship became less about learning from the master and much more about finding ways to motivate him to make violins again and, most especially, to teach violinmaking to me as his apprentice. Speaking of this moment, I recorded,

> Wade, who had told me he was going to teach me how to make violins, part way through the apprenticeship decided not to teach me. He said, 'I don't have energy to do it, I'm too old. I don't ever want to make violins again; it's over.' And in an apprenticeship situation, fixing that problem was crazy weird. I remember just dealing with my own problems, I was afraid to address it directly. Do I just say, 'Hey, you promised! Tell me how to make violins.' I didn't do that, but I went about it in a different way. I tried to persuade him and press him and do all these crazy weird backwards things. And finally I just had to start making a violin. As soon as I did that, it was like this spark lit up within him and he started wanting to do it. He would take parts of my violin out of my hands while I was working on them and say, 'Oh let me do that real quick.' And he got really excited and totally changed. And now he won't stop, for better or worse.

In the uniquely intimate, one-on-one, master apprentice relationship, both master and apprentice rely on one another for help of some kind. Each of us offered unique help that the other needed, and perhaps could not have offered himself even if he had tried. It is often seen as the teacher's responsibility to motivate and inspire students. The learner is often only given the task of finding motivation within to do assigned work, and little else.

Seldom is the idea put forth that a good student has the capacity, let alone the responsibility, to inspire a desire to work and teach in a teacher. But such was the case in this apprenticeship. An apprentice can, with patience, persistence, and careful hard work, encourage and inspire a master to have a renewed passion for a craft. This is precisely what I did. I asked repeatedly, but to no avail. I showed him that I had the requisite skills, but he wouldn't notice. I went out of my way to build guitars, mandolins, clocks, and even a violin myself before he finally took notice and taught me. But the point of it all is that once he had a desire of his own burning inside of him, everything changed. He worked harder than ever before, longer than ever before, and was more open with me about trade secrets than I could have ever hoped. When one's desire is genuine and comes from within, whether one be master or apprentice, the very nature of the work--teaching, and learning--can change dramatically.

Differing roles. The master and apprentice have different roles. Although both master and apprentice are absolutely essential elements of an apprenticeship, each has a unique role to play. And although one may occasionally do certain things normally characteristic of the role of the other, that does not mean that the roles are completely equal and interchangeable. For example, some would say that because an apprentice occasionally teaches the master, both master and apprentice are teachers, and their teaching roles are identical. The same claim might be made for a master, as well. Some may say that because masters learn, that they are learners in

exactly the same way in which apprentices are learners, and therefore their roles are identical. It has been my experience as an apprentice for nearly two years, however, that such is not the case. On one occasion, he said, "You know one thing you could include in your paper? That a teacher can sometimes learn from a student." Note the use of the word "sometimes" in the previous statement. Although master and apprentice may delegate aspects of their role to one another, such as teaching and learning, the fundamental nature of their role remains largely unchanged in the long run.

A master's role. First and foremost, it is the master's principal responsibility to teach the apprentice. As part of this responsibility, the master's role demands the courage not always to conform to the apprentice's wishes. One of the quickest ways for a teacher to ingratiate students is to accommodate their every whim. If this would have happened between Wade and me, he might have taught me how to make violins on the very first day of our apprenticeship. But one of the most difficult responsibilities of a teacher, and especially of the master in an apprenticeship, is to refuse to conform to exactly what the apprentice wants, in favor of doing something else that you know will be much better for him or her in the long run. After passing through a long period of rites of passage in which Wade had done just that, I related,

> As a master, you need to do this. Oftentimes, the first steps to the road to mastery are much slower and more difficult than the first steps on the road to sufficiency. But a master teacher is someone who is willing and courageous enough to tell the student something they don't want to hear—willing and courageous enough to say, 'You know what? These first steps are not going to be easy as you would think they are. No matter how quickly you get to adeptness in terms of your ability to do something, if you want to become a master, you have to start at that ground level.' And man, the patience and the

time those kind of things require are just astronomical.

Part of the master's role in the master-apprentice relationship is to trust in his or her experience and perspective, and use them to guide the apprentice beyond what he or she can see, toward his or her greater potential. All that I could see in the beginning of my apprenticeship was my need to be able to make a violin. Wade, on the other hand, saw the need for me to build a solid foundation of essential skills so that, when the time finally came for me to make a violin, I would not just be good at it, but exceptional. Sometimes it was hard for me to believe that I was even capable of something like that. But it was part of the master's role and responsibility to see beyond what my limited, novice vision ever could. And I have no one but Wade to thank for my current level of budding mastery, albeit still very much incomplete.

An apprentice's role. Above all, it is the apprentice's role to learn from the master. As part of this, it is the apprentice's role to submit to and support the master, like a child to his father. Without obedience to my master, I could not have accomplished anything in my apprenticeship. Every single day I spent in the shop, Wade would ask me to do something. At times, I could clearly see his reasoning behind asking me to do those things. At others, I could not see any reason at all for him requiring me to do something that I, at times, thought was so trivial and superfluous. Apart from this obedience, sometimes an aging master needs the support of his apprentice. There is a great deal of respect on the part of an apprentice for his master. Some of that support is physical, much like the weeks I spent moving and lifting things to reorganize Wade's shop before beginning the cello project, or when I came to his home to assemble several IKEA bookshelves. But most of the time, such support is emotional, much like the following occasion, when Wade began questioning his obsession over making children's toys to give away all the time.

> Master: I'm going to go show Mary this alligator. This is my eighth neckerchief slide since we've been working together. Haha! I'm still a little kid. I never did grow up. For better or worse, I'm still just a little boy.
>
> Apprentice: You know, C.S. Lewis says that the silliest age is the one that's right in the middle. The only age that people make any sense at is when they're children, and when they're older.
>
> Master: Thank you, that's comforting.

At that moment, I felt a keen sense of fulfillment that I could offer some kind of comfort to my master, even though it may have seemed like a trivial matter in which to comfort someone. I felt that fulfillment because, although it may have only been in a small way, I was fulfilling my role as an apprentice to support the master in his times of need, which are, surprisingly, rather rare.

Negative case: The community's role. Despite the centrality of this relationship, the community still plays a significant role in apprenticeship. The one-on-one, master apprentice relationship is not everything. There is more to learning how to make a violin than just going to one man's shop for an extended period. I had to seek out other resources, and so did Wade when he was an apprentice. After reading his journal from when he was an apprentice in Poland, I recorded the following:

> The one-on-one, master-apprentice relationship isn't all that's going on in an apprenticeship. I cannot truly say that there's no community involvement at all. Of course there is a community. It's very evident as I read Wade's journal that there was a community of practitioners involved. Marduła was constantly having people come over and talk to him and ask him for advice, and there were others from whom Wade could get advice and with whom he could compare his work.

Shortly after reading this, I found that there was a skill I needed to learn that Wade did not know how to do. So, after searching YouTube instructional videos to no avail, I went in search of someone who knew how to sharpen cabinet scrapers. On that day, I recorded,

> Today, it was very interesting to watch myself develop a skill that my master did not have. To see the negative case of the importance of community, but at the same time to recognize that it wasn't just a nebulous community-owned mastery concept, but was instead something I had to go to a specific master to learn in his presence and gain a new perspective.

From this experience, I learned that Wade was not master of every skill that had anything to do with violinmaking. However, I also learned that mastery did not reside as a nebulous, community-owned concept shared by everyone. No matter how much I read about sharpening cabinet scrapers, or how many instructional videos I watched time and time again, I couldn't figure it out. I needed to find an individual, a real human person in which mastery of that specific skill resided, in order to finally learn it myself. So, the community seemed important in that it was a group of assembled masters, each of which embodied mastery of skills, knowledge, and trade secrets, and without whom the community's knowledge would have nowhere to reside.

These examples also illustrate the potential pitfalls involved in an apprentice showing exclusive loyalty to only one master. This type of uncompromising loyalty taken to an extreme could actually prove detrimental to an apprentice's growth in the long run. It was certainly evident in Wade's Polish apprenticeship that he did not take exclusive advice from his master Marduła alone. While he did give Marduła's ideas and comment priority, trusting them more than others with whom he did not share the same father-son relationship, he maintained an openness to the ideas, techniques, and tricks of others within the community. In this way, it

seems clear that, while the master-apprentice relationship plays a central role in apprenticeship learning, an exclusionary loyalty to that relationship could prove unhealthy and even adverse to the growth and development of an apprentice.

Human Mastery

The idea of embodied mastery, already discussed at length earlier, suggests that mastery can be made manifest only inasmuch as there is someone to undertake the daunting task of becoming a master. From this perspective, without such people, there would be no mastery. This, of course, is offered here as an alternative viewpoint to other, community-centric notions of mastery, in which mastery does not reside in people, but it instead an intangible concept shared by all in a community of practitioners, yet embodied, or represented, by no one member of that same community.

In the following section, I explore whether mastery in fact resides in people and, if it does, what the nature and role of that type of human mastery is in an apprenticeship setting. First, I will explore the imperfect, human nature of mastery itself, including how mastery is passed down from person to person between generations. That will lead into a discussion of a human's unique ability to use intuition in craft, as well as consider craft in a sacred light. I will conclude by discussing how a master's character is just as important to mastery as are skills and knowledge, and end again with a negative case regarding the role of mastery in a community.

Mastery is a human quality. In an apprenticeship situation, the master is a person, and the term mastery describes the character, attributes, and evaluative capacities of that person. Attempting to describe the uniquely human qualities of such mastery, I recorded the following near the end of my apprenticeship:

> Mastery is what happens when you accumulate so many individual experiences with surprises in each of them that the surprises that confront you no longer become quite as surprising. So, for example, Wade has bent ribs for nearly a hundred instruments in his life. So, now when he goes through the process of bending a rib there certainly will be surprises. However, because he has done it so many times, and has paid attention in doing it so many times, he has a certain degree of mastery, in other words, deep familiarity with the process to the point where surprises are not as surprising and anomalies are not as anomalous because he's confronted them so much in his vast experience.

It takes an accumulation of imperfect, human experiences to become a master. There seem to be no shortcuts or tricks to speed the process along. Prolonged, purposeful experience in the wake of holistic, human imperfection are all key ingredients to becoming a master over a lifetime.

Human knowledge and evaluation. It takes a human both to master human knowledge, as well as to evaluate in ways only a human can. One example of the necessity of having a human to master inherently human skills presented itself when Wade taught me how to "eyeball" measurements on an instrument. On that day, I related,

> For example, 'eyeballing it' (measuring things by sight) is a skill that only comes after a lot of deliberate, intentional practice. On Monday, I was there at the shop visiting, only to say hello, and he told me, 'Never trust the ruler.' He just said, 'There will be times where it will look right to you, and it will not be measured correctly. When you measure after you mark it, you go with how it looks, not with how it's measured.'

In other words, the point of having a measuring tool in violinmaking is to facilitate symmetry in the overall appearance of the instrument. However, if it must appear symmetrical to the human

eye, then it must be a human eye that crafts it to look so. There are times when a perfectly symmetrical measurement will result in what appears to be an asymmetrical instrument. These kinds of situations require a human master, someone who is both skilled at creating symmetry as well as equipped with the human faculties of perception, to make something look right to those who will enjoy it for generations. A human master is the only resource we have available in this world capable of carrying out such a task in which exact mechanical measurement seems to fall short.

Learning from the past. Masters are tied to the generations of masters who preceded them, or to their craft genealogy. Although Wade learned violinmaking in Poland, he began his life as a craftsman long before that occasion. This became clear when,

> We were cleaning out again (this is the third day of cleaning), and he pulled out a box from underneath my work bench and, well, there were a whole bunch of boxes down there, but afterward, he pulled out this one box that was wooden and kind of worn, and it was a toolbox that he had built for his father in 1955. He was a little boy. He couldn't have been 10 years old when he did that. And there's a little part on the inside where he wrote his name, you know, 'For dad, love Wade', in clumsy, childish script. And that's what he did. He showed me this box. And we're cleaning out these tool boxes, right? So, there's stuff *everywhere*, and he pulled out this box and said, 'You know, we're going to leave this box as it is.' And this box was super disorganized. It didn't have any organizing drawers or shelves or anything. It was just a box. But he said, 'We're going to leave it as it is because that's how my father left it to me, and I don't want to disturb it.' And he reached in and grabbed a coping saw from the inside: an old, worn, wooden-handled coping saw and he said, 'This is quite possibly the first coping saw that I ever

held in my hand.'

In that moment, I felt connected to countless generations of craftsmen who had preceded me. It was almost like when you're eating a loaf of bread, and you think of all the things that had to happen in order to have that bread be on your plate. The bees had to make honey, oil had to be pressed from olives in a different part of the world, and wheat had to be gathered, separated, and ground into flour. For Wade to be in my life, teaching me to make violins, so many generations of craftsmen had to pass on their mastery, personally, from father to son, master to apprentice, until the twenty-first century, in which I make my humble contribution to that genealogy of craftsmen. It takes people, one by one, to pass on such knowledge, and that is the role of the master in each generation: to pass down the knowledge that only a human can know, by lived experience.

Human intuition. Craft intuition is manifest only in a human master. There is an element of craftsmanship that involves imperfect, human evaluation in the moment. This type of intuition is different from simply "winging it" or unprepared improvisation. It is a uniquely human capacity to evaluate imperfect human conditions, especially when other humans are involved. When I had to clamp a part of my cello to my workbench, Wade and I were faced with the following challenge.

> The side vice that's on the workbench that I work on is only big enough to hold violin or viola plates enough so that you can plan them. But a cello plate, like I said, is way longer. So, I asked Wade about it. Did he have any suggestions? Because I tried to think of something, but I didn't know. It was interesting to see him solve a problem in the moment by using something that he just found. What was interesting was that he didn't finish the process…how do I say this? He didn't take the piece of wood, leave the garage,

> then go all the way back and put it where it should go on the bench in order to support my plate. It was like, he went and got this piece and handed it to me, and it was like, "Got it?," and I *got* it. He didn't have to explain the rest of it to me. He had begun to solve the problem, and then, maybe it's because I have more experience in the shop, maybe it's because he's done this before, but I kind of knew what he wanted me to do. And, at first, I thought that there was no way that this was going to work, because the piece was too thin if I were to have put it parallel to the plate. But then I put it perpendicular to the cello plate, and so all of a sudden it worked. So I was very surprised not only by how improvisatory his decision in helping me was, but also how in tandem we were able to work and think quickly.

Not only did Wade react to the situation with this type of in-the-moment, craft intuition, but he also invited me to take part in that same intuition. Such intuition and its accompanying wordless communication could only happen between humans, each of whom, in their own way, acting as the living embodiment of mastery.

A master's craft is sacred. Wade treated wood with a reverence that I had never known before. In my own family, wood seemed a plentiful commodity. If we needed more, we would buy more. My vision of wood began at the store and ended at the electric table saw. Wade's vision went beyond that. His sense of craft extended to the rain that watered the spruce seedling nearly a hundred years before. He treated wood with a reverence that remembered the years it had taken to form. He also considered those craftsmen from whom he had learned his craft with even greater reverence. When we were cleaning out his shop, we encountered a special box set apart from all the rest.

> With that box being open, the one that he had made for his father when he was a child, I could feel it. There was a sacredness about the tools that he had used, not just what he had learned about his father or from his father, or whatever. But it was just these tools were sacred, the box was sacred. They weren't anything special. They were the kinds of tools you could just go get at the hardware store. And seeing the first tool he had ever wielded, in the first box that he had built for his father, I got the sense of the sacred tradition of what his father had taught him. Not necessarily of violinmaking, because his father hadn't taught him that, but the sacred tradition of woodwork in his family that violinmaking comes out of.

From the materials he crafted, to the skills he personified that allowed him to carry out such craft, Wade considered violinmaking in a clearly sacred light. And no matter what definition one may ascribe to when it comes to the sacred, it is most often experience by a real, living person. In this way, it takes a living, human master to treat craft as sacred.

Shop space is sacred space. The shop is a sacred place, set apart from the world. I will never forget the first day of my apprenticeship. It had been a rough day at school. I had a lot to do, and was struggling with homework, professors, which courses to plan in my future, and just about everything else that can fill the life of an anxious graduate student. On that day, as I left all that behind to go to Wade's shop, I recorded,

> I can hardly describe how that feels. As I walk to my car, which is still in the hustle and bustle area of campus, and then I go to drive up the tree streets, which is where this man, Wade, lives, it's like a whole new area of town. It's up above everything, up on a hill, and you can see Utah Lake and you can see campus and there are trees and there are no cars. It's up kind of above the fray. And so, working there, already, it's just this

beautiful opportunity to get away from it all.

Even on the first day, before I had even started any work at all, I felt of the sacredness of that place in which I would eventually spend countless hours of my life, working at projects I would never have dreamed I was capable of doing. And even now, as I write these words at the end of my last project as Wade's apprentice, I still feel that same sacred, set apart feeling as I consider that shop in which so much of my life has been spent.

At home in the shop. The shop is a place both master and apprentice can feel at home. The physical environment in which an apprenticeship takes place becomes special to those who work there. But all that can be done to make it special from the beginning will help both master and apprentice to feel at ease there, and in turn facilitate work, teaching, and learning as well. Again, on that same first day as Wade's apprentice, I remarked,

> Let me start by saying that, you know, working with wood and working with my hands has been something that I've, that has been part of my life, especially with my relationship with my father, that has been really important to me. And I've failed to recognize its importance in the past, but now that I see it, I mean, I am just amazed at how at home I feel with wood and with working with my hands with wood. I can hardly describe how that feels.

It is not only the space in which the apprenticeship occurs, but the act of working in that environment that makes it feel like home to both master and apprentice. Many look for a place to call home. Many even struggle to find that kind of place. In an apprenticeship, both master and apprentice not only have a place to call home, but something they can physically do that helps their mind, heart, and body actually, almost tangibly, feel at home.

Mastery: Skill and character. Character is just as important to mastery as skill. One of the reasons it is so important for a person to teach another person in apprenticeship is because the master's character affects the way the apprentice learns. I once asked Wade the question, "If your master had not been someone whose character and integrity you respected, would your apprenticeship have been affected by it?" To this question, all he had to say was, "Absolutely." In his journal, he wrote story after story of other master violinmakers in Poland trying to come into his shop and teach him in the place of Marduła. He could not learn from many of them, or would not, because they were unkind, belligerent, immoral, or dishonest. Good character leads to transcendent and effective teaching, while bad character leads to little, or none.

A conscience of craft. A master has a heightened conscience of craft. Wade is the most meticulous craftsman I have ever met. I grew up learning carpentry from my father, whose favorite expression in the shop was, 'It's not that critical'. We would often rush through things, which may be why I had such a hard time learning from Wade. He never rushed. I've never seen the man in a hurry even once. But the reason that he developed such patience and focus was for the craft. He knew that the best results come when you take your time. Yet, the miracle of his mastery was that he not only personified this type of dedication to his craft, but he instilled it in me somehow. I tried to explain in it my field notes one day this way:

> So, Wade said he was tired, and that he could only do a couple more things, and I had had his approval, which to me before now had been kind of the ultimate "go ahead," but now it was like, I want quality work. I want quality craftsmanship. I don't want just, oh, he said it's okay. I want what's going to be really, really good. What's going to be nice for the person who plays this cello? So I went at it again after he had said it was okay.

At first, all I wanted was his approval to move on. If he said something was good, that was good

enough for me. But then I noticed how much more care he took with his own projects, and I realized that I was living, in a sense, beneath my privileges. So, I began to demand of myself the same meticulous craftsmanship that Wade did of himself. And when I asked for his help, I did so on the way to satisfaction with my work, as opposed to an end to it.

Fostering personal change. The master fosters a personal change of character in the apprentice. It often takes a person to invite another person to change. Such personal change is difficult. In my case, as Wade invited and inspired me to make such changes, I was at times hesitant, and at others, frustrated and unyielding. One of the greatest changes that Wade has invited me to make was the development of patience in the face of hard work. During one of the most intense trials of my patience, the following incident took place:

> I mean, these toys look like a machine could do it in like 2 seconds, you know, but hand-making toys like that? It's not easy. It seems so simple, but it takes patience to get it done correctly. And making a violin is something that probably requires an infinite amount of patience – much more than I could say I have at present. It will require kind of a stretching, kind of like taffy, but more like jeans. You know when you first get a pair of jeans and after they're washed, they're tight? And after you wear them for a day and then another day and then another, they're loose. Then you wash them again, and then, there you go, they're tight again. He's stretching me like that to have patience. It's not all at once. My level of patience ebbs and flows, but increases in the long run, just like jeans stretch and tighten after every wash, but over time, just stretch little by little.

Character change, especially patience, isn't something that can be neatly defined, recited, memorized, then declared as having been learned. It takes time. It takes a patient person to foster patience in another, especially when that person is an impatient as I am. Although my

patience is still developing, I owe what patience I have to the person who instilled it in me over weeks, months, and years of being his apprentice.

A love of simple craft. The master is not above simple, honest craftsmanship. Even though Wade was capable of making things as complex and beautiful as a violin, he never allowed this ability to lift him above the enjoyment of simple, honest projects. In the time that I have known him, the only thing that has ever rivaled his passion and love of violinmaking is his love of making, seeing, and giving away simple children's toys. He also loved to see the hard work of clumsy, infant hands. On one occasion, he recalled,

> I sure do love making toys for children like this. (pointing to a plaque on his wall) Do you know what this is? My grandson wanted to sign his name on something he made for his mother when he was little, and that was his dry run. Now he's 16.

Among the pictures of Stradivarius violins and works of Polish folk art, there was hanged the feeble attempt of a little child to write his name. That attempt, on ordinary paper and smudged with bright orange paint on a clumsily large brush, was among his most prized possessions. His craft, it seemed to him, was no less feeble of an attempt to take the materials that God had given him, and make something out of them as beautiful as he possibly could.

Eternal perspective. Masters have an almost eternal perspective of their craft. Part of embodied mastery is its unique perspective, a perspective that can only come after years of dedicated experience. In describing my own master, I stated,

> He sees things through the eyes of a master, and I see things through the eyes of an apprentice, and they're not the same eyes. And so, I want his eyes. I want to be able to see things the way he does, but I can't right now. And that's what I think characterizes my work with Wade more than any other single factor: it's that it's free of time. There is

> no time constraint.

Somehow, even the quantitative measurement of time is changed when seen through the eyes of a master. It seems a certain truth that all minutes are equal to one another, as are hours, days, and weeks. Yet, when in the shop, the minute that it takes for a master to step back and look at the purfling (the black and white inlay that lines the outside of the top and back plates) on a violin before making a final cut could affect the look of that instrument for centuries to come. So, from the perspective of a master, all time is not necessarily equal, even though its comparative quantitative value may be. On another occasion, as we were building something even as simple as a spoon rack, he taught,

> Now, if you want this spoon rack to last 50 years, you'd only have to glue it. That would do just fine. But if you want it to last 300 years, then you'd do what we're doing, and put dowels into it.

It took us only about ten minutes to place dowels in that joint. But those ten minutes added hundreds of years onto the life of that spoon rack. Without the nearly eternal perspective and patience of a human master at my side, in that very moment, this lesson may have gone unlearned.

Negative case: Input from others. Outside resources, even input from other masters, still play a part in mastery. Even though living people play such an essential role in the apprenticeship process, outside resources also play a significant part. In my case, Wade had not made a cello since his own apprenticeship nearly forty years earlier. Because of his relative unfamiliarity with the process, we turned to a book about cello making in order to orient ourselves. On one occasion, observing the extreme figure, or exaggerated grain pattern, in the maple I was using for the back of my cello, we remarked,

Master: According to the author of this book, that makes a better sounding cello.

Apprentice: More figured maple?

Master: The more figured the maple, the better it works, or the better the cello sounds because the greater the figure, the less stiffness in the plate. It's freer to vibrate.

The book did not replace Wade in his role as master. However, it did serve to remind him of certain tricks of the process, as well as some tricks of the trade. We would often negotiate about the particulars of my cello project, consulting Wade's memory, the book's written information, and Wade's current experience from violinmaking that could also apply to cello making. So, even though outside resources like instructional videos and books play their role, they do not replace masters in their role with relation to apprentices and their learning.

The Master Teaching His Apprentice

The last of the questions this study will explore has to do with teaching. The first question to consider is whether teaching occurs at all in an apprenticeship situation. Next, this section will explore the nature and dynamics of such teaching in an apprenticeship situation. This, again, offers an alternative perspective to that proposed by Lave and Wenger, in which no observable teaching seemed to be occurring (or, at least, observably occurring) in apprenticeship. First, I will detail how a master teaches information and skills, which will be followed by an exploration into how the master-apprentice relationship and the teaching within that relationship reciprocally affect one another. Next, I will explore the role of other teaching techniques, such as the types of questions asked between master and apprentice. Finally, I will conclude by discussing how the master inspires a change in his apprentice's character and craftsmanship through teaching, followed by a negative case regarding the role of alternative learning resources in an apprenticeship.

Deliberate teaching. Masters intentionally teach their apprentices. While the simple act of working and experiencing shop life provides a certain degree of enculturation for the apprentice, the master's deliberate, intentional teachings go a long way to help an apprentice learn his craft. This was certainly true of my apprenticeship with Wade. Although I learned from many things in the course of my time studying violinmaking (including instructional videos, books, other experts, etc.), if Wade had not taken time to teach me, it would have altered, if not severely hindered, my learning.

Teaching conceptually. Masters dictate concepts by which their apprentices are to orient themselves. There were often general principles of violinmaking that could neither be taught in a moment of explanation, nor could be left to chance, perhaps to be learned by osmosis, perhaps not. In such situations, Wade would state a principle near the beginning of a process, then repeatedly bring it to my attention when it would present itself useful in a specific, unpredictable circumstance. One such principle involved tool use.

> There was one key to being a master that was a lot more profound than Wade had intended. It is that you have to make sure you handle the tools and not the other way around. That can happen even with a hand tool. And it may seem like, oh, no big deal, but if you aren't careful about pacing and timing, anything can affect the way you use a tool, so as to inhibit your ability to use the tool and have the tool use you, instead.

Wade couldn't have sat down with me and enumerated every single way in which a tool could end up "using me," as he put it, nor could he have done if he had tried. Instead, he illustrated the general principle, allowed me to work, and brought it back to my attention when it would manifest itself. This was made possible first by his presence in the shop, and second, by his human evaluative capacity. Many times, books, videos, and other instructional materials either

present the general principle, or an example irrelevant to one's work at hand. General concepts in isolation rely on the learner to interpret them correctly and apply them accurately, which doesn't always happen, while specific examples rely on the instructional designer's ability to accurately guess and anticipate the specific challenges the student will be facing, which doesn't often work out, either. Working in the physical presence of a master, on the other hand, bridges the gap between general principles and the specific instantiations of that principle encountered in an almost infinite number of unique circumstance. And, through it all, it is the master's uniquely human evaluative capacity that makes this possible.

Direct explanation. The master often explains something directly to the apprentice. Although Wade put a lot of his trust in the power of personal experience and experimentation, there were some ideas that he chose to communicate directly to me before any experimentation on my part. Some of these explanatory interventions were for my safety, when a wrong move on my part could have resulted in a physical injury, whereas others came before

> He took the time to deliberately teach me about the grain of the neck and scroll wood. I asked him which would be the best way to orient the scroll to get the most wood out of the piece. He said that if I oriented the butt end of the neck to the corresponding piece, that the grain of the fingerboard and neck would not be as strong as it could be. But if you put it up against the top, so that the fingerboard is already straight, then it will be stronger. I had never even thought or considered that about the grain placement. I had just thought, well, how can I get the most bang for my buck? And how can I get the highest number of scrolls out of this piece of wood? When, in reality, I should have been thinking about the structural integrity of the neck and scroll, like he was.

In order to avoid a disaster in which I may have wasted an entire block of quality maple, Wade

took the time to explain proper theory and method regarding the construction of necks and scrolls on cellos. Had he not taken the time to do so in such a deliberate way, I may have cut the neck blank incorrectly, and been forced to purchase new wood and begin anew. A lack of deliberate teaching on the part of my master on this occasion would have certainly been a hindrance to my learning.

Tricks of the trade. Masters occasionally divulge tricks of the trade to their apprentices. Certain elements of violinmaking are picked up over time through the providence of experience. Some of these tricks are passed down from master to apprentice, but all seem to have their origin in chance and accident more than they do in theory and planned experimentation. Rather than hope that chance circumstances lead each new generation of artisans to the same tricks learned by those who came before them, masters often divulge these trade secrets to their apprenticeship, but only once they have proven themselves worthy of them. On one such occasion, after I had spent considerable time proving my worthiness to Wade, he taught me the following craft secret:

> Master: If you should ever be working with pine or spruce, and you dent it, have you ever seen how I get a dent out of it?
>
> Apprentice: You just put a little water on it?
>
> Master: I just spit on it. Moisten it and let it rise, and then let it dry. With hard wood, you don't have that option.

I had not yet had an occasion to need such a trick, but in the course of our time together, I needed that trick more times than I could count. I may have stumbled upon it over time by sheer accident, but if Wade had not made time to teach it to me, that benefits of that trade secrets just may have eluded me forever. One small trick can change everything, especially for an apprentice.

Physical demonstration. Wade would often physically demonstrate correct tool technique. Wade and I worked on separate workbenches. It was only by listening to the sound that my tools would make that he would be able to know when to correct me, and how to do so. Occasionally, he would only correct me from his bench, not thinking it necessary to stop his work to physically intervene in mine. However, one case always made him come over to my bench. When he would hear me using a file incorrectly, he nearly always got up, came to my bench, and said, "You want to use the full length of the file. We don't want to see any ballet." He often referred to making excessive and completely unnecessary motions with a file (or any other tool, for that matter) as "ballet." When he heard me performing my own little "ballet" in the corner, he would get up, come to my bench, take the tool, demonstrate my "ballet," then contrast it with proper tool technique. Although I still struggle with this type of superfluous movement in my tool use, Wade's repeated physical demonstrations comparing "ballet" to proper tool use have gone a long way to help me visualize the changes I must make in my own tool use more clearly.

Intervention. Masters occasionally intervene in their apprentices' work. The master would often intervene in my work in every stage of my apprenticeship with him. Each intervention seemed to be connected to a mistake. Wade would either warn me of a potential error, calm my rush to get things done in order to help me avoid a mistake, or help me fix a mistake if all else had already failed.

Giving warnings. Masters give warnings to their apprentices about potential mistakes. When bending the ribs to a cello, there are three pairs of symmetrical sides to complete. Once I had finished the first half of the first pair of symmetrical rib sections on my own cello, Wade gave me the following warning:

> Beware of overconfidence this time, and beware of rushing. Since you have done one, we tend to do the second one faster than we should. We try to push it to bend before its fully heated because we have just come off of one success. We still need to be careful. Notice that I spoke in the first person plural. I didn't speak in the second person singular.

It is noteworthy that he emphasized his own susceptibility to the mistake of overconfidence in the process that I was going through at that time. Although he warned me of the dangers of overconfidence, I proceeded with the other ribs much more quickly, and paid a difficult price for not listening to him. I learned that day not only to avoid overconfidence, but to listen to my master's advice as well, even and especially when it didn't make sense to me at the time.

Tempering unnecessary innovation. Masters temper their apprentices' unnecessary and often ill-informed innovations. In the beginning of my apprenticeship, I always had bright new ideas to offer my master. Looking back, it seems as though Wade's years of experience and keenly honed craft intuition were completely lost on me. My ideas were generally ill-informed and based on only a very basic understanding of the problem or task in question. However, Wade was always very considerate of my suggestions. On a day when I had made more suggestions than usual, I recorded,

> I introduced a couple of innovations to Wade today. It's interesting how he considers my new ideas, because he actually thinks about them. He doesn't just dismiss them because I'm a newbie, but he actually thinks through them and says, 'Well, let me consider this,' and in the end (this time) he decided it wasn't a good idea to build a block of wood that would conform to the exact measurements of the bending iron. And at first I kind of wondered why, but I had faith in what he said. As I started trying to actually do the process as opposed to just theoretically conceptualize the process, I realized he was right.

Even though I had come to terms with the theory of the processes at hand, Wade's mastery had the benefit of both a sound theoretical grounding, as well as a vast wealth of experience. His teaching never discouraged exploration and experimentation on my part, but if I wanted to depart from the time-honored method that had been passed down through generations of craftsmen before him, I had better have had a good reason for doing it. This taught me to be much more thoughtful about my craftsmanship.

Tempering excessive zeal. Masters must continually temper their apprentices' excessive zeal. Wade's teaching changed my very character and nature. When I first came to him, what little patience I had was abysmally small. But as he repeatedly reminded me of how important the details were to the function and aesthetic impression of a violin, something inside of me changed. My zeal and passion for the work did not decrease, by any means. Rather, he taught me to harness and use the power and energy of my zeal for the work to greater ends. Near the middle of my cello project, I recounted,

> I still cannot believe that I stopped working almost an hour earlier than normal just because I didn't want to rush! It is now more important to me that this instrument be of exceptional quality than that it gets finished in time. Great craftsmanship and spotty craftsmanship *do not* take the same amount of time or energy. The great requires more than the ordinary. While some may think that such ordinary craftsmanship is the result of one who still has that youthful zeal. They are wrong. I was wrong. Wade has that same apprentice zeal now as an aged master, but he knows how to temper and harness that energy, honing it through focus on those things that require so much patience, but that makes the difference between quality craftsmanship and ordinary work. This is what I am learning from Wade: how to temper my desire toward those actions that are most

important, even if they're a pain. If novelty and variety are my only motivations for craftsmanship, I may not be worthy to fill the shoes of my master one day.

Over time, repeatedly emphasizing and exemplifying a new perspective on craft, my raw apprentice-zeal changed into the tempered passion of a dedicated artisan, carefully controlled through the patience of a master, but diligently fed with the zeal of an apprentice.

Fixing mistakes. Masters sometimes stop their own work to fix their apprentices' mistakes. Sometimes, despite the best efforts of the master to warn and advise his apprentice, mistakes still happen. When they did in my apprenticeship, Wade never criticized me unnecessarily. It seemed as though he knew that the very fact that a mistake that demanded his attention had happened was punishment enough. When I would ask for his help, he would offer what help he could freely. In one instance, I made a drastic mistake, and the following exchange occurred:

Apprentice: Can I catch you in a break real quick? I'm not sure how to correct it exactly.

Master: Well, let's pull it out and fix it. Let's see…well, that's funny. Why isn't it holding? Well, I see the problem, I think. It's this.

Apprentice: Ohhhh.

Master: This thing was not steady. Now it should be okay. That was loose and it was sliding. These have to go on this. Yeah, that was way, way weird. Now it's good. Now you can tune it with this.

Apprentice: Ah, thank you.

Master: Yeah, that was way, way out. There had to be a cause for that. And we discovered what it was. Better?

Apprentice: Yeah.

Leaving me to deal with the consequences of my mistakes alone would have been more akin to abandonment than a calculated didactic technique, at least in the beginning stages of my craftsmanship. His kindness in doing this inspired me to continue trying in key moments of disappointment when I needed inspiration more than ever.

Doing another's work. At times, masters do some of their apprentices' work for them. In the beginning stages of my apprenticeship, Wade would demonstrate correct tool technique to such an extent so as to begin to do most of the work for me. When I finished my very first violin, which I had begun from a kit without his supervision (this was when he still didn't want to teach me violinmaking), I brought it in to be set up. Having not set up a violin for nearly a decade, Wade jumped at the chance to get his hands on a project like that once again. He would begin by saying things like, "Yeah, let me just try something," or, "Do you care if I try just one pass?" After a while, he had done most of the work for me. In the beginning stages of violinmaking, this willingness on the part of the master to carry out some of the work for his apprentice was crucial. However, if it had lasted to the same degree through the end of the apprenticeship, I would have learned little or nothing from it all. To avoid this, Wade began by demonstrating on many of the steps I took in making a violin, but gradually reduced the amount he put his hands to my projects until the cello, which he never touched at all.

Teaching to one's understanding. Wade was master of many things. He spoke Russian, German, Hebrew, French, Polish, and was familiar with many others. He had a doctoral degree in organ performance, and was a world traveler. But rather than refer to parts of his experience to which I could not possibly relate, he helped me understand new concepts and techniques in terms that I could comprehend, all the while teaching as best he could to my level and style of understanding.

Customized teaching. Masters customize their teaching style to a particular apprentice. I have both read about and seen Wade teach others. He teaches me in a way unlike the way in which he teaches other people. It is not a better or worse way of teaching. Rather, it is unique to me.

> I remember telling Wade in the beginning, 'Look, I want you to teach me the same way your master taught you and the same way you would teach anybody else. So, don't do any special things just because I'm studying this.' But how do you teach someone just as you would teach anyone else? That implies that there is a best practice, that there is a generalizable method, that there is a norm from which people can deviate, and that the teacher doesn't have to change. But I get the feeling that he's already fulfilling that request. He is customizing his teaching to me just as his master customized it to him—a guy who was barely learning Polish in a place he had never lived before. The only consistency from master to master is that they each customize their teaching to each apprentice. It's not that Wade's using the same methods as his master. But he is adapting and reacting to me, giving and taking, changing himself just as he asks me to change in turn.

The only thing that a master's teaching style has in common with that of another master is that it is completely unique. Even with a different apprentice, masters will use different techniques and teaching styles, based on the personality and skill of a specific apprentice, as well as the dynamic of the relationship shared with him or her. This is one of the critical things that makes one-on-one teaching so unique. It often takes nothing short of a human to teach another human how to become a master.

Using experience as a tool. The master compares new concepts to the apprentice's own experience. Not only did Wade teach to my level and style of understanding. He also helped me confront new situations and problems by helping me see them in light of problems I had already confronted and situations that I had already encountered. When constructing the mold for my cello ribs, I was at a loss as to understand how a particular set of screws would work according to the instructions that I had. On that day, we had the following conversation:

> Master: If it has threads in it and you start turning this end, see how that end will go down and it'll push?
>
> Apprentice: So, the screws won't be in and then we remove them, in order to take it out, we put the screws in?
>
> Master: Yeah, do you remember how we did screws in these molds to get the height just right?
>
> Apprentice: Right, and if you screwed it more, it would raise up the plate because there was the bottom here going against the table.
>
> Master: That's the principle of these I think.
>
> Apprentice: Oh! That's why they are machine screws.

Because we had spent so much time together, we had a reservoir of shared experiences from which Wade could pull in order to help me understand new situations and problems. The prolonged presence of a master throughout the whole apprenticeship process allowed for this kind of teaching.

Using familiar metaphors. Masters use metaphors familiar to their apprentices. Metaphors are a powerful teaching tool, inasmuch as they can be understood by both master and apprentice. Had Wade compared aspects of violin aesthetics to Polish folk art, for which he had

a particular affinity, I would never have understood the lessons he wanted me to learn. However, he even catered the metaphors he used to my understanding, such as in the following instance:

> Master: Do you see what the difference is?
>
> Apprentice: It seems like it sags just slightly. But to the eye it looks like…
>
> Master: It'll look like it's a circle. This one ever so slightly curved with sharp corners. If you can get those corners and a slight upward bow, that will end up making the whole thing look straight. If you end up with kind of sloppy corners, this will look like it's sagging. But this will look taut.
>
> Apprentice: Right.
>
> Master: It's just the same as the columns in a Greek temple. They bulge out a little in the middle so when you look at them from a distance, they look straight. If they were actually straight, they'd look thinner in the middle.
>
> Apprentice: So, a slight upward bow.
>
> Master: Well, I shouldn't say just that. But just avoid cutting down. Avoid bowing downward. That's what I would say.

Because the master was willing to adapt his teaching style and metaphor choices to my understanding, I was able to understand the concepts he was teaching me that much more readily.

Evaluative feedback. The master provides live evaluation and feedback. I often looked to my master for inspection and approval of my work as it progressed. Shaping the top and bottom plates on a cello requires a great deal of patience, and a master's eye. All along the way, as I was shaving down the plates of my cello, I would check with Wade to make sure that I wasn't taking too much off the back or front to ruin it. As I was shaping those plates, I recorded

> Today, he taught me, and this was a very intentional teaching moment. I had planed down the back of the plate. And I would ask him, every time I finished a step, I would ask him, 'Is this good? Is this good?' I would present it to him, in a way, like, 'Is this a good thing?' And he would mark the spots that needed more work, or where I needed to stop planing. And that's how it would progress.

Having a living master right next to me the entire time I was planing and shaping these cello plates was invaluable to me. These plates are not meant to be perfect in terms of perfectly symmetrical measurements on all sides. Rather, they needed to look pleasing to the human eye, and the only way to build something that looks good to the human eye is to have human eyes evaluating it all along the way. And having a master, whose eyes had seen hundreds of instruments before mine, present in the shop with me to give me live feedback and evaluation as I progressed was indescribably valuable to me and my work.

Explaining one's evaluative processes. Masters explain how they think and evaluate. While I had access to the evaluative capacities and skills of a master during my time with Wade, he knew that there would come a day when I would no longer have him around. It seems that one difficult, but necessary fact to face a master is his own inevitable obsolescence. Nevertheless, looking forward to the time when I would work in my own shop without his constant evaluative assistance, Wade taught me how he evaluated in the course of his own work. As he worked, he would often walk me through what he was doing, and how he thought about it, much like in the following exchange:

> Master: In a minute, this will get easier. Throughout this whole operation, I have to constantly remind myself don't lean into the curve like you would do on the ski slopes or on a bicycle or water-skis. See, when you look at it from the other side, you can tell if

they're holding it straight or not.

Apprentice: Right.

Master: Sometimes I don't, and it ends up, look, having thin spots when you look at the thing from the other side. So, I mean, I'm not perfect at this. But one of the things I would have as an objective is that, its uniform saw marks. I hate to admit that, maybe…

Sometimes admitting how he evaluated required that he be rather vulnerable. However, Wade saw that the perpetuation of his evaluative mastery through the eyes of his apprentice was more important than his pride. So, regardless of how ugly or pretty it may have seemed to me, he taught me exactly how he thought through the intricate processes of his work.

Masters explain problems from their own work. Not only did Wade teach me how he evaluated in general or theoretical situations. He spent a great deal of time explaining how he confronted problems he faced in his own projects in real time, as they actually occurred in the moment. As he was working on sharpening some of his tools, he explained,

> I need to put a little more curve on these edges. These were perfectly square before I took them in to that sharpening place. Thank goodness he didn't charge me much. He went behind the curtain for five minutes and came out and said that they were done. Yeah, I don't like how he does that. I want to watch. Well, he did it so quickly, and look how much time I'm spending to get this curvature right. I'm learning how to use this hand-cranked sharpening stone just as well as the motorized ones.

From these lessons, I learned how to avoid mistakes in my own future by vicariously experiencing Wade's mistakes and learning from them. Although I did not learn these vicarious lessons with the same degree of personal, experiential meaning with which Wade learned them, it was the best that he could do in the circumstances.

Thinking out loud. A master often thinks out loud. Much of Wade's teaching was questionably deliberate. He would often think out loud as he worked through particularly difficult problems. Whether that represented a deliberate effort to kill two birds with one stone, teaching me while fixing his own problems, I cannot say. According to what I could gather from Wade himself, thinking out loud helped him work through his problem a little easier, but also helped me understand his thinking processes a little better at the same time. Since I didn't mind listening to him talk, he felt comfortable doing it whenever he felt the need to do so. As we worked in the shop one afternoon early on in the apprenticeship, he began talking to himself, saying,

> I'm going to just clean a little bit up on the side. What you want to do is try to not undercut. Try not to go under this too far. This might be perfect enough, and I might be gilding the lily here. I've got a little bit of residue in here. Now, I'm going to let that go. The overall effect of this will be good enough. Now, this one, this one was actually going against the grain.

These thoughts were never conclusive. He seldom mentioned the point of sharing his evaluative processes with me, nor did he mention me in these moments at all. But in experiencing those explanations of how he saw a particular project in the moment, rather than only asking him after the fact, gave me unique insight into the evaluative tendencies and aesthetic tastes of a true, living master.

Finding balance. Masters sense and decide when to push or let up on their apprentices. Apprenticeship is not easy. It requires a great deal of time, trials of one's patience, and hard, long labor. It is important for masters to understand that there are times when it is necessary to

push apprentices to the next level, just as there are times when it is absolutely essential to allow apprentices to slacken their pace a little.

When to push the apprentice. Masters seem constantly attentive as to how hard their apprentices are working, how much they have been stretched thin, and how much their patience has been worn thin. Masters can leave their apprentices alone to struggle through a process for their own growth, as well as put them through rites of passage to test their resolve and develop their skills in the same moment.

Purposeful rites of passage. Masters use rites of passage to prepare their apprentices for greater knowledge and responsibility. Violinmaking requires so many little skills and so many facets of understanding that a complete beginner would be completely overwhelmed without some sort of preparation. Because making an instrument of that kind of complexity requires not only a heightened skill set, but also a very mature degree of patience. In order to instill both in his apprentice, Wade put me through countless rites of passage before even considering teaching me the art of violinmaking. After passing through this gauntlet, I recorded,

> Apprentices know what they're getting into. It's not a mystery. And even then, it is quite the experience to go through all of the rites of passage involved in the beginning of the apprenticeship process, whether those rites of passage are intentional or not.

Although it was hard to go through such a lengthy period of trial, I recognize now that it was an indispensable and necessary part of my preparation for becoming a violinmaker myself.

Slowing down. Masters often ask their apprentices to slow down. One of the most difficult things to hear as an apprentice from your master is to slow down. When all I wanted to do is go fast through a process about which I feel quite confident, the most difficult thing to hear was Wade's kind but firm warning that I needed to slow down, take a step back, and rethink

what I was about to do. On a particularly trying day, when my patience was already wearing thin, Wade thought it best to keep pushing the envelope, told me to slow down. On that particular day, I remember being absolutely at my whit's end. However, upon returning the next day, Wade and I had the following conversation:

> Master: Looks like you're ready to glue the blocks in. But I think you will thank me for my suggestion, even though it seemed to set you back a bit, at least at first.
>
> Apprentice: Oh, I already am.

Even though I remember being so frustrated, feeling as though Wade was doing his very best to thwart my progress at every turn by asking me to slow down, I realized after the delays that he was actually saving me days and days of work that would have made me even more frustrated and impatient in the end. It took a master's foresight to see the big picture, as well as a master's courage to tell me apprentice what I didn't want to hear, but what he knew would be good for me in the long run.

Letting the apprentice struggle. Masters let their apprentices struggle in order to grow. Wade often gave me instructions regarding a certain part of a project, then left me to struggle through it one my own. Rather than hover over my work, perpetuating my reliance on his help interminably, he often left me in the shop to work through problems on my own, only coming to my aid when I really needed it. Such situations are difficult to transcribe. However, many of the transcripts of our work sessions include parenthetical inserts such as, "Master left to play the organ in other room (15 minutes pass without dialogue)." He would often leave me alone like this. Rather than consider it an act of neglect or ignoring my needs as a learner, these were some of my most memorable and valuable experiences in the apprenticeship in which I grew most. These situations reminded me of a parent teaching a child how to ride a bike. The parent needs

to be there to help, but if the parent held the side of the bike indefinitely, the child would never really learn how to ride a bike. In the same way, when I needed him, Wade was there, but when I needed to grow, he had the courage to leave me to work on my own.

When to let up. Masters know when to let up on their apprentices. While it was essential that Wade push me in order for me to grow, had he done so too much, I may have burnt out and lost my desire to work altogether. To bring balance to the situation, Wade empathized with my trials, complimented my work on occasion, offered encouragement, used humor to diffuse tension, and calmed my frequently unnecessary preoccupations.

Showing empathy. Masters show empathy for their apprentices. In fact, masters are uniquely equipped to help their apprentices through empathy. A machine, book, computer program, or online video does not know what it is like ontologically, from personal, lived experience, to be an apprentice, struggling to learn a craft. But the only way that Wade could have become a master as he is today was by first being an apprentice. Although many teachers seem to forget what it was like to be a beginning student, Wade did not, and he frequently reminded me of that remembrance by showing me empathy, like this:

> And then when I cut myself on my thumb, he discovered it and said, 'Well, here's a Band-Aid and here's another one to put in your pocket. Hold onto it just in case. You know, I always hold onto one because..." and then he showed me his hands…covered in scars. Not like morbidly gross scars everywhere, but just little, tiny remnants of nicks and cuts he's gotten throughout his life as a workman.

I was always afraid to admit to Wade that I had cut myself. But I later realized that my fears were completely wrong. He not only understood through his kindness, but understood through his past experience. Shared mistakes, although separated by a wide chasm of time between my

apprenticeship and his, made me feel much less pressure to perform all of my tasks perfectly in the shop. This helped my artistry, my craft, and my aesthetic style to develop freely and easily.

Giving compliments. Masters occasionally compliment their apprentices' work. Wade rarely complimented my work. It was not that he didn't think my work was acceptable. Rather, he understood that, if he complimented my work at every turn, those compliments would eventually mean little or nothing to me at all. But because he was reserved about his compliments, they meant more to me than most anything else in the entire world. On one occasion, when I finished my first violin, I recorded,

> I snuck it in and made it. And by the time I finished it and played it for him, he said, 'Hey, this actually sounds okay.', which was the biggest compliment he had ever given me up to that point. This doesn't sound terrible.

That compliment was not flattering, by any stretch of the imagination. However, because Wade was conservative (to put it lightly) about giving out compliments, even that small validation regarding the sound of my first violin meant a great deal, and provided a sense of relief and release from all the tension and pressure I had felt after working so long and hard.

Offering encouragement. When Wade finally articulated his refusal to teach me violinmaking as he had promised, I felt completely devastated. He quickly realized that he was about to lose his apprentice for good, however, and quickly reminded me, "I just love every minute of your being here." Again, that may not seem like a generous statement of encouragement in isolation, but coming from Wade, it spoke volumes. In part because of statements like these, I stayed on as his apprentice, and was given hope that one day, he just might change his mind about teaching me violinmaking. Without that encouragement, my frustration may have won out, and I would never have lasted long enough to learn violinmaking

at all.

Easing tension with humor. The master eases tension and frustration with humor. With so much tension from my impatience and zeal to get things done faster than Wade was willing to teach them, there were moments when it became nearly impossible to hide my disappointment and frustration, either with Wade, the process, or myself. On one such occasion, I was worried about bending my ribs, and expressed that worry to Wade. Instead of offering me encouragement, or pushing me to move forward, he told me a lengthy and very distracting joke about a sea captain. He realized the seriousness of the situation, and that bending cello ribs was no joke. If I broke them, even a little, hundreds of hours of preparation would have gone completely to waste. But instead of give me sagely advice, or reassure me that I could do it, he told me a joke about being nervous. In doing so, he not only showed me that he could relate with and empathize with my feelings, but also diffused the ambiance of worry and pressure, making bending the cello ribs a much more enjoyable experience for me.

Calming a troubled apprentice. Masters calm their apprentices' unnecessary worries. Looking back, it seems as though I was always worried about the next step in every one of my projects. One of the biggest worries I had was about my second violin's symmetry. I was always asking Wade whether he thought that my violin looked right. One day, when I had asked him perhaps one too many times, he told me,

> We put a lot of emphasis on symmetry on these violins, but do you know what? The naked eye will never know, unless it's in a competition or something. I mean, if it's grossly out of alignment, of course I'd see it. Now, if it were a box, you could see every error in it. But with something like a violin, it's not critical.

Although I was surprised to hear him say something so casual about something as serious as the

symmetry of a violin, I was relieved to be reminded that perfection was not the goal. Wade would often quote his master as having said, "Don't make it too perfect, or else no one will believe that it was made by hand." Such statements reassured me that my work did not need to be perfect, despite my growing conscience of craft.

Repetition. Masters use repetition to teach their apprentices. Repetition often has a bad reputation. It is reminiscent of the behaviorist principles that have become so unpopular among educational researchers today. However, part of the nature of the prolonged relationship in a traditional apprenticeship situation allows for the proper amount of repetition necessary to allow certain lessons to have a greater effect on the apprentice's character. But this type of repetition is mindful, rather than mindless, and requires a great deal of concentration.

> It's like my dad says in glass blowing you have to do 50 of any specific kind of art piece before you've actually started. I don't know about 50 being a number that's indicative of perfection or anything. Making toys is like that. It is not old hat or boring, but there is little new to be learned except by gaining mastery through thoughtful repetition. That's the key: thoughtful repetition. If the repetition is mindless, it doesn't work. And if the process is thoughtful, but never repeated, that doesn't work. It must be thoughtful *and* repeated thoughtfully.

The kind of experience that leads a novice toward mastery is made up of mindful, deliberate repetition. Because Wade had made dozens and dozens of instruments by the time I had begun my studies with him, and had done so with such deliberate care, I was able to benefit from the mastery that resulted from such experience. Because such experience had been so valuable to him, Wade did all he could to provide similar experiences for me throughout my own apprenticeship under him.

High expectations. Masters expect a great deal from their apprentices. So much is so often expected of the master, but in this apprenticeship, the master also expected a great deal of me, as well. So much depended on his teachings, but just as much of my learning depended on my willingness to direct my own work, keenly observe his demonstrations and teachings, and be constantly evaluated in his presence.

Expecting self-direction. Masters ask their apprentices to direct their own work to a degree. Especially in the beginning stages of my apprenticeship, Wade would often ask me what I wanted to do. Of course, all I wanted to do was make violins, so I would often submit a few ideas, then move forward with the one that I thought would impress him the most, so that he would see I was good enough to start working on what I really wanted to do. Here is a brief example of one such conversation we had at this stage:

> Master: What do you want to do today? Have you been thinking about what else you'd like to make while you're here?
>
> Apprentice: Whatever. I think for me I'd just like to learn all the skills I can by doing whatever. I mean, it really doesn't much matter what I make, but I'd love to make a box with dovetail joints.

If I had not directed my own learning, at least, within the bounds that Wade had set for me, I may not have progressed in the apprenticeship, and may never have even had the chance to make violins as I had always wanted.

Working apart. Master and apprentice work at different projects. Again, during the course of my apprenticeship, Wade and I worked at two separate workbenches in his shop. Wade expected a lot from me as I worked because I had to do so much of it on my own. After one day of such work, I recorded,

> For some reason, there's this idea in my mind that when we're working on something, he'll be at the same step as me at the same time. And that's just not true at all. We're not doing the same thing simultaneously, like most teachers and students. He's doing his own thing. So, while I'm a craftsman, he's a craftsman. I'm creating, he's creating, but we're not doing the same thing at the same time. The point is that he's doing something and I'm doing something, and those "something's" are different. They're not simultaneous processes in the same job. I mean, I'm working on a cello, he's working on a violin. And even though it's the same type of craft, it's very different.

Because we were always working on different projects, we were each allowed to progress at our own pace. But if I would have insisted on asking Wade a question every time that I was unsure of how to proceed, I would have interrupted his work much more than would have been courteous. In this way, the master expected a great deal of me, which helped me to grow in confidence and ability all the more quickly.

Expecting diligent observation. Masters expect keen, diligent observation from their apprentices. Although Wade was not always demonstrating things to me, when he did, the time that he took to do so was time that he could have been working on one of his own projects. Because of this, he expected me to observe him very attentively whenever he took time away from his work to demonstrate something to me. Eventually, I developed the habit of keenly observing his actions, like I did on this day when we were outlining part of the cello template.

> When I was outlining some of the template, and he was outlining some of the template, we went back and forth between the two of us. I saw how he was holding the awl, and how he was holding the pencil when I did the outline, and I was impressed by the confidence that he had when he was doing it, because I get so nervous during that process.

My observation of Wade's work had become so keen so as to see not only measurable details of his technique, but the character and evaluative disposition behind that same technique.

Perennial evaluation. The master constantly evaluates by listening. One of the most interesting phenomena that happened regularly in my apprenticeship was Wade's ability to evaluate the quality of my tool technique only by listening to it. This happened most when I was cutting something, like in the following story:

> When you're planing, you have to get your hands in there and figure out which way the grain goes. Now, because they're joined in a certain way, you have to try every direction. And I tried them all, and finally found one that was just night and day different, and then I honed the blade a little more, and when I went back to try it, it got even better. And all Wade said in that whole process was, 'That sounds like a sharp plane to me.' He was just over there listening. I forget how keen he is when he's over in his own work like I am. I don't listen to what he's doing, but he listens to me, and he can tell by the sound if I am doing it correctly or not. I was impressed by that type of teaching going on where he was evaluating how I was doing by the sound of my cutting device. And not only that I was using a good plane, sure, it was a good plane, but also that I'm using the good plane properly, but that I've sharpened it properly, and that I'm learning the correct way that the grain is going. All those things go into the mix in order for you to have a good clean plane sound. He was evaluating and teaching not just correctively, but also supporting when positive things are happening.

Wade was constantly evaluating aspects of my craftsmanship, even when I was completely unaware that he was even capable of doing so. And because of his level of mastery, he was able to work on his own projects, and evaluate aspects of my performance simultaneously. This did

not mean that I felt any pressure, as if I were constantly on trial. Instead, I felt pushed to do my best whenever he was around, and always knew what he expected of me in my work, as well.

Apprentice initiative. Masters urge their apprentices to take initiative. Wade would not do this often, but occasionally he would tell me that I needed to do more than I was doing at the time. I was certainly doing all that I thought I could, and often didn't have the self-confidence to believe that I was even capable of doing more. Not only did Wade expect a lot from me in this way, but he also believed in me that I really could do more, as in the following conversation:

> Master: Oh, you know at the Chicago School of Violinmaking, there are a lot of really great carpenters that have enrolled, and they possibly didn't know about the requirement that they have to learn to play the instruments that they make, at least to a certain level. So, the curriculum required them to take weekly violin lessons.
>
> Apprentice: Oh yeah?
>
> Master: You've got to learn how to play the cello now.
>
> Apprentice: I don't even play the violin yet.
>
> Master: Well, you have to only know two things to play the violin and cello. You have to know what to do with your left hand and what to do with your right hand.
>
> Apprentice: You make it sound pretty easy.
>
> Master: Yea, you don't have to play a thing with your feet.
>
> Apprentice: That sounds pretty good to me.

Wade not only pushed me to learn something that I didn't even believe I could, but also expressed confidence in me that I could do such a thing. Wade's combination of high expectations and deep confidence in me helped me flourish on my road to mastery.

Awaiting proper questions. The master waits for questions to answer. Wade would often leave it up to my own initiative to ask him crucial questions. It was rare that he would intervene in my work without me having asked him a question of some kind. I recorded,

> Sometimes he doesn't do things, it seems, until I ask about them. So, let's take, for example, that scroll and neck wood. So, I said, 'Okay. It doesn't look like it's perfectly flat. Should I plane it first?' And he said, 'Absolutely, you should plane it. You should plane it first before you cut it out so that it's perfect. Then when you cut it out it will be at a 90 degree angle, and you won't have to plane it later.' But he didn't make mention of that until I had already asked him the question. So, had I not asked him the question, would he have mentioned it? Maybe. But sometimes his intentional teaching doesn't just come from him having ideas. His intentional teachings also come from me having intentional questions.

Masters do not always thrust their teachings upon their apprentices. In my case, Wade often waited until I had a good question for him, and it seemed to him that the best way to ensure the quality of my questions was to allow the exigencies of real-life situations bring them to my mind. Had I asked questions that hadn't arisen from the demands of my work, I may have asked amiss, and brought up questions that were, in the end, irrelevant to the task at hand. Allowing questions to arise naturally was Wade's way of making sure my learning progressed in an equally natural way.

Answering questions with questions. Masters answer their apprentices' questions with questions of their own. Going one step further, Wade would often reply to my questions (which he had waited for already) with another question. In this way, he often saw that I already may have known the answer to his question, and just not realized that I knew it just yet. To invite me

to reflect on my own understanding and experience more clearly, he answered my questions with more questions, as in the following circumstance:

> Apprentice: Do you think this is ready?
>
> Master: Now I have some questions: how much spare material do you have in your block as far as the end grain is concerned? How much spare material on each? How much excess? You can see a lot of spare material here. Does that have to come right down to where the mold is?
>
> Apprentice: Yeah.
>
> Master: Because that's going to be a lot to plane.

I was at a crossroads in my project, and needed some advice. However, all Wade had to do was ask the right questions, and I realized, without having to reply, that I already knew what Wade would have said in answer to my question, and what was really the right thing to do.

Solutions are found, not prescribed. No prescribed solution exists for many problems. Many times when I asked Wade a question, it would have been much easier for me to have received a simple, clear answer. It would have also been much more convenient for me, as well, if there had been one clear answer for every question that I asked. However, it almost never happened that way. He would often give vague answer, or multiple options, to any question I would ask.

> I found that the reason Wade is being so vague about instruction on how to do specific sections of this craft is because if he told me that there were specific rules that were generalizable across all categories, then when those rules didn't work, I would probably get confused and a little frustrated. But if you leave it to guided experience, and say you need to go and become familiar with each type of wood you're working with and really

> feel it out and don't be afraid to just experiment and practice, that vagueness is really meaningful and actually allows you room to become a master.

In the end, not having fixed answers to all of my questions helped me grow more than I thought it would in the moment. Having to consider which of the many options given me as answer I would take forced me to develop my own evaluative capacities to be more like those of my master.

Process over product. An apprenticeship is process-oriented rather than product-oriented. I looked forward to finishing my first violin for some time. However, when the moment finally came, and I strung it up to hear it for the first time, the feeling was a little bit disappointing, if I am completely honest. I felt the most joy in my apprenticeship as I was working, not when I finished the instruments I had been working on. The process of craft had become more important to me than the product. When Wade was in Zakopane apprenticing under Marduła, he felt similarly. It was, in fact, this very love of the process of craft, rather than its product, that led him to feel such a great deal of loyalty toward his master. He explained,

> I read today in his journal from Zakopane that he had other professional violinmakers (whose violins made superior tones to Marduła's) tell him that he needed to do different things and that Marduła was doing certain things the wrong way, and that it was affecting the quality of his final product. Interestingly, Wade didn't falsely defend the tone quality of Marduła's violins, because he is open to saying that they aren't the finest sounding instruments. However, he did say that his master knew how to use tools and the tools did not use him, and that he wanted to learn how to do that and that he would worry about the other stuff later. I was blown away by that, because that is what I wanted to do with Wade. It is not the product that matters. In fact, the most disappointing part of violin or

> viola making is when it's done because there's nothing else to do. You just string it up and play it and, well, now what? There's nothing left to do. Marduła's product may not have been the best, and Wade's product isn't astonishingly world class in its sound and varnish. But the process he goes through is where mastery is made manifest; not necessarily in the product, but in the process. Marduła, even though he didn't understand the finesses of creating a specific type of tone quality that was desirable to other audiences apart from Polish folk artists, his craftsmanship, dedication to craft, and mastery of the tools of the trade is what Wade went to learn from him. And that is why I am with Wade right now—to learn. The explicit information about the secrets of the craft are largely available to me in books. If I really, really wanted to, I could refer to those for all of my explicit tricks of the trade and 'how to' instruction. But hand-in-hand with it, and inseparable from it in quality and necessity, is the personal craftsmanship of tool usage. If you had the tools and instruction, there is something about living and learning from a living person in their physical presence, and seeing how they use the tools in such a way is so invaluable. It is irreplaceable. That's what I've learned today.

Wade chose to work with his master not because of the greatness of his product, but because of the greatness of the way in which he worked. To Wade (and, as a result, to me), violinmaking was about the joy the craft in process, not the finished product alone.

Teaching with multiple purposes. The master teaches for a multitude of purposes, many unknown to the apprentice, some unknown to the master him or herself. Even after so much analysis, there remains an element of mystery to the way masters teach their crafts. That element of mystery was even more prevalent to me as an apprentice as we were working in the shop. After one such interaction, I recorded,

> He'll often give me something and say, 'Could you just figure this out?' Sometimes when he says that, I don't know if he means it, as in, 'Figure this out; this is for your learning,' or whether he means, 'Figure this out, because I don't know.' In the past, he has said, 'Figure it out', and it has been for my learning, like giving me examples of 17 different ways I could do it, and then saying, 'Well, you pick the best way.' That's one way. He knows a whole bunch of different ways, but I have to figure out which way is better for me, or figure out my own way, and it doesn't matter to him. That is exactly the way Marduła taught him how to do it. There's another way he does that when he says, 'You figure it out and tell me when you know, because I don't know.' Like today, I was making a bending strap, and he said, 'I don't really know how you're going to do this. You need to be able to soften up this edge and I don't know how to do that.' I'm thinking that filing it might help, but it might not.

The reasons behind his multifaceted teaching purposes may have been unknown to both us, but they certainly worked to help me progress in my craft. Whenever he invited me to figure something out on my own, it did not entirely matter whether he knew a way to do it or not. The point is that he gave me the chance to exercise my budding skills of craft intuition to figure it out on my own. Although my solutions may not have been as effective or as expertly designed as his could have been, they honed my skills and gave me a keener sense of ownership over my own handicraft.

Teaching tacit skills tacitly. Masters teach their own tacit skills in what seems to be a tacit way. There were instances in which Wade taught me a skill without either explaining it deliberately or demonstrating it directly to me. Some skills had become so tacit to Wade as a

master that it seemed easier for him to teach it to me tacitly than deliberately. He taught me one of his tacit skills in a tacit way in the following situation:

> Wade had these "C" clamps, and he unraveled them. It takes a while to unravel them if you use your finger, but you can hold them and kind of just twirl them in little circles like noise-makers, and they unravel really fast. So, we were getting ready to use them at their maximum opening capacity, and it was cool, because he did that twirly thing. We had four clamps to do: I had two clamps, he had two clamps, so I just did it because I thought it was cool. And even though he wasn't deliberately saying, 'Now, listen up. This is how you undo a clamp quickly,' he did it, and I immediately, almost without thinking, tried it. It was successful, and now that's how I'll undo clamps forever. So fast, so quick. He didn't take time to explain deliberately and verbally, 'This is a good trick, so do it this way, it's faster.' He just did it, and noticed me doing it. No words were spoken. It just kind of happened.

These kinds of skills are central to the work of a craftsman, yet very difficult to teach explicitly. However, Wade found a way to communicate them to me tacitly during the natural flow of work. Learning skills in this way placed a lot of responsibility on me as a learner to observe his actions, and the skills I learned in this way seemed to become part of my craft intuition quite quickly.

Teaching skills by project. Masters teach skills through their apprentices' projects. Many basic skills are necessary in order for an apprentice to undertake a violinmaking project. Rather than wait until the project itself to learn these skills, when the stakes are so high to perform well, Wade had me learn them through simpler projects, where the stakes were much lower. On one occasion, very early on in the apprenticeship, Wade had me make a traditional Polish spoon rack in order to master the fret saw. He explained himself in the following

conversation:

> Master: This will teach you how to use a fret saw. It'll teach you how to not lean into the curves. And what is even worse is compensating for leaning in the curves, you know, when you realize that you're leaning into the curves and so you then make an effort to back off. And then sometimes you go too far the other way.
>
> Apprentice: Right**.**
>
> Master: Holding the saw in a straight line is much easier said than done.

By having me learn basic, yet essential, skills early on when the results were not as crucial to my success, Wade helped me lay a solid foundation upon which I could build later, more advanced skills.

Vulnerability. Masters are vulnerable. Part of a master's capacity to teach effectively comes from a willingness to be vulnerable. Being vulnerable invites the apprentice, in turn, to be vulnerable. This allows for increased growth and progress on the part of both.

Admitting difficulty. Masters admit the difficulty of a particular task, especially when their apprentices are facing that task. A master has the ability to remember what it was like to be an apprentice, and to struggle through the difficult processes of learning something unfamiliar. Wade would often vocalize his empathy by admitting how difficult my task was to him when he first undertook it as an apprentice decades earlier. As I was planing down my cello ribs, a process which required several weeks of prolonged, concentrated effort, we had the following conversation:

> Master: In Poland, I took my chisels, and I think I took this little block plane. Yes, I'm sure I did. But as I recall, I probably spent a week doing the ribs.
>
> Apprentice: For the cello?

Master: Uh huh.

Apprentice: Yeah. It wouldn't surprise me.

At that point, I was out of patience. The ribs had taken me much longer than I had anticipated to plane, and I was growing more and more frustrated with each passing day that I spent trying to finish them up. When I heard Wade empathize with my struggle, the burden of my frustration was lifted, and I felt a renewed sense of hope that I would, in fact, finish those ribs and move on to the next step one day. I knew I could because Wade had done it before me, and could stand as a witness that such a task was not impossible.

Admitting ignorance. Wade didn't have an answer for every one of my questions. It was a difficult truth for me to face, at first, that he really did not know everything. He would often admit that he didn't know, especially when I would ask him complicated questions like this one:

Apprentice: Well, do you think that we should make it to accommodate the maximum height, or should we just make it just that size and do individual portions that would be less cumbersome?

Master: I'd have to think that one through a bit. I don't really know.

Although that sort of honesty about the limits of his understanding was jarring at first, I grew to appreciate that kind of vulnerability in my master. If he had felt insecure about not knowing an answer, he may have made up an answer, or pretended that he knew, but would not tell me so that I could find out for myself in the name of deeper, more meaningful learning. These would have been an exercise of compulsion, dishonesty, and insecurity. Instead, Wade was open with me, which encouraged me to be more open with him about things that I didn't know or couldn't remember. This, in turn, helped Wade identify my challenges more quickly in order to help me

progress in the apprenticeship.

Admitting mistakes. Wade would often mention little phrases that his master would tell him during his own apprenticeship. Whenever Marduła made a mistake in the shop, he would look at Wade, shrug his shoulders, and recount a Polish joke about a Priest who made mistakes. Wade's master readily admitted his mistakes, acknowledging to his apprentice that he was just as imperfect as anyone else. This made Wade feel less frightened to admit his mistakes to his master. This scenario played out in my apprenticeship as well, in situations like the following:

> When we were cutting out wheels for these little toys, he made a mistake. Whether on purpose or not, I don't know. It sure seemed like it was natural. But he made a mistake, nonetheless. He had cut this wheel too close to the edge so it wasn't perfectly round. And he just said, 'Well, there you go. You know, I made a mistake.' And when I made a mistake after, he was okay with it because he said, 'Look, I just made one.'

Because he admitted his mistakes, I felt more free to make them myself. This increased my courage and sense of liberty to use my tools boldly and confidently. Instead of being taught to fear mistakes as terrible displays of my ineptitude, Wade showed me that mistakes were both a sign of inventive, confident experimentation, as well as a means for the craft to keep us humble.

Confidence. A master is confident. It is crucial that the apprentice feel confident in the abilities, knowledge, and experience of his master. Without that implicit trust, many of the dynamics found within the master-apprentice relationship would not work in the same way. Because of this necessity, the master must do certain things to show the apprentice throughout the apprenticeship his or her self-confidence, without allowing it to escalate to arrogance or pride.

Showing pride in a job well done. Masters take pride in their own work, and in that of their apprentices. Wade would often tell me how pleased he was with some of his work. He was not always pleased with how his projects or instruments would turn out. However, when he found joy in his work, he felt confident enough to express how happy he was with it. On such occasions, he would often say something like this:

> Master: I'm proud of this paper towel holder.
>
> Apprentice: Yeah, it works great.
>
> Master: It's functional and it's aesthetic.
>
> Apprentice: And I'm proud of that little alligator toy.

I felt that I could trust a master who not only loved to do work, but who also took joy in the results of that same work. His confidence in his own work, in turn, gave me the confidence to find joy in the work of my own hands as well.

Everyone else is wrong. The master often assures the apprentice that everyone else does it wrong. One of the ways in which Wade inspired loyalty and confidence in me for him was to contrast how he did things with the way everyone tended to do them. Whenever he did so, he could explain how his method, understanding, or trick of the trade was somehow superior to the more commonly accepts way of doing things. One example of this was when he taught me about the nature of pine, and why staining pine was a terrible idea.

> I like that color of pine. What I very much object to is when people stain pine. They stain it to look like walnut, oak, or cherry. It always looks fake because the winter grain does not draw in any of the color. It stays like it is. It's the summer growth, the softer wood, that sucks up that, and then it reverses the color. It looks bizarre. It looks not right. I never stain pine. You can stain deciduous hardwoods. You can stain oak. You can

> stain birch. You can stain alder, or whatever you want. But not pine. Not any of the coniferous softwoods. None of those take a stain.

In contrasting his ideas with those of the rest of the community, I not only gained a new perspective on the quality, beauty, and function of pine, but also felt even more grateful that I had chosen to apprentice under one of the few people in the world who knew these kinds of secrets.

Master knows best. The master needed to have confidence in himself in order to have the courage to ask me to slow down when I didn't want to slow down. And, in turn, my confidence in Wade helped me trust him more, especially when he asked me to work on something for which I had little patience. This became apparent to me during a particularly trying week when Wade had asked me to the same step over and over again, for which I had to drive down to my uncle's shop in Mapleton each day. On the last day of this week, after so many setbacks, I recorded the following:

> On top of that, after mentioning that I need to get these blocks down a little further than they already are, he said, 'Oh, look at this piece of plywood. It's not straight.' So, we had to get another piece. And after that, he had more problems with it before I could move forward. So, I was grateful, because he said that I could use some of his stuff. But at the same time, I don't want to do that. I wanted to do something else. My goal was to bend the ribs today, and obviously, that's not going to happen.

Despite my obvious frustration, the master was confident that what he had asked me to do was the right thing for my project and for me. This type of courage, to disagree with apprentices knowing that what they're asking the apprentices to do is better for them in the long run, which they cannot or will not see, is characteristic of masters, and was particularly so of Wade.

Changing teaching methods. Masters change their teaching method and style as an apprentice grows. When Wade apprenticed under Marduła in Poland, his master did not always teach him in the same way. As Wade progressed and his abilities grew over time, Marduła changed his method of teaching. Wade remembered,

> Now, when it came to my making the cello with Marduła, I'm truthful with you, that since I only did one cello, I don't very much remember what I did. He guided me a great deal on it. That's good, I guess. He guided me through the first violin, but with the second violin, he left me basically on my own, with just a little bit of guidance. Then, for the violas, he hardly ever mentioned anything. He just let me flap my wings on those. But when it came to the cello, he pretty well hovered over me.

Just as Marduła did not always teach Wade in the same way, but varies his teaching methods based upon the difficulty of the task and Wade's capacity as a budding craftsman, Wade changed the way he taught me over time. This change happened particularly with planing down the plates for my cello. After a work session in which I worked on my cello plates, I recorded the following:

> You know, I've heard this saying that a good teacher is one who makes himself increasingly obsolete. I don't know about obsolescence, but I know that Wade is definitely changing the way he's teaching me based upon my progress. It was interesting how he, instead of demonstrating it for me or doing it for me or anything (both of which he might have done earlier on in the apprenticeship), he told me a story about how when he was learning to make a cello, he would watch Marduła do a cello joint, and he would just do two or three confident passes with the plane, and it was ready to go. And so I tried to, instead of being so calculating about my planing, I tried the Marduła style and

> just went for it. I put the plane a kind of a deeper gauge, and just went down and cut sweeping, long strokes. And I found that when I did that, I would then kind of let up a little bit on the plane blade, and do it again, and the shavings would become thinner. And I would do it again, and the shavings would become even thinner. And I did it until it was not biting anymore. And once it stopped biting, I would let up and check it. And the joint is so good. I mean, it is *so good!*

Wade's teaching method had changed. When I was only just starting out, he would hover over me much more, and demonstrate tool technique by working on my project for a moment. As I worked on the cello, however, he never put his hands to my work. Instead, he brought past demonstrations to my memory, mimed the actions involved in using the tool at hand, or explained the process anew. In short, as I progressed, my master expected more of me, even in the ways that he taught.

Discussion. Master and apprentice often discuss solutions to problems. A master's teaching is by no means one-sided. Wade and I would often have discussions about which solution would be best to take among a variety of options. Nevertheless, this type of negotiation was more characteristic of the journeyman stage of the apprenticeship. At this stage, I remarked,

> There was always a lot of negotiating. There was a lot of, 'Oh, what do you think about this? And this? And should we put the dowel in here? Is this dowel thin enough? Or is it too thick?' So, there was a lot of negotiation going on between the two of us, which I really enjoyed.

When Wade involved me in a discussion about what the best option was for a given step in one of our projects, I felt as if he had a heightened sense of confidence in my abilities, and a growing feeling of trust in my craft intuition. This not only gave me more confidence and trust in my

own budding craft intuition and abilities, but also helped me see the processes of violinmaking from a new evaluative perspective. This helped me begin to see things as a master would see them.

Mutual improvement. Both master and apprentice both improve over time. Apprenticeship is an ideal place for an apprentice to learn things with which he is still unfamiliar, and for a master to become reacquainted with things that may have fallen into disuse and forgetfulness. Having an apprentice around heightened Wade's conscience of craft, inspiring him to make his projects better than if he were only alone in his shop. After finishing another children's toy, we had the following interaction:

> Master: I'm happy with this duck of mine. That's probably my best one to date. You're having a good influence on me.
>
> Apprentice: Does it change when somebody's watching you? Maybe I made you nervous or something. I don't know.

Because he had to be an example of living mastery to me as his apprentice, Wade often intimated in conversations like these that my presence in his shop was not only enjoyable in terms of having company, but also beneficial to the quality of his craft, as well.

Thoughts on teaching affect teaching. Despite often avoiding the topic in interviews and discussion, Wade did have some explicit thoughts on teaching. Wade didn't say much about teaching whenever I would ask him about it directly in an interview questions. However, certain stories that he told in the course of our time together illustrate some of the thoughts that he has on teaching in general. The day after one of our interviews in which I was asking him to tell me how he really felt about education, he jokingly stated,

Master: I have a good definition of education.

Apprentice: What is it?

Master: It's the inculcation of the incomprehensible by the incompetent to the indifferent.

Though intended in part as a joke, he was, in his own way, acknowledging that teachers knew far less than they pretended to, and that students, despite the best efforts of policy makers and designers, still struggled to find the desire to learn. Still, he did maintain that people were still important to education, like when he said,

> And somehow we've got to keep the human touch in our educational system. We've got to continue to be human beings and not let ourselves get so mechanized that we turn into little robotons.

Even though he often admitted how imperfect he was as a craftsman, he always favored the human eye to the measuring stick, and the feel of his hands to the graduation calipers. When making something for people to enjoy, the standards of human aesthetic taste took precedent for Wade over the standards of mechanized perfection.

While Wade believed in the importance of human teachers, he also continued to emphasize the power of being something of an autodidact himself. He expressed his thoughts on learning in this way when he told me how he first became involved in violinmaking:

> Yeah, um, I, uh, was a cellist who never owned a cello. I found one at a garage sale, which I purchased, but it was not in playing condition. So I started tinkering with this cello to see if I could get it to play. It was not a good cello at all, but that's how you learn.

Experimentation and experience were both very important to Wade as a learner, and he always tried to harness the power of these activities in the way that he taught me, often leaving me on my own to figure things out so that the lessons I learned would become more a part of who I was,

rather than going in one ear and out the other, as the saying goes. Doing so in teaching requires that the teacher invite the learner to do things, rather than demand that they do so. He explained,

> The things that you learn on your own initiative seem to stick better than what some professor crams down your throat unless that professor is able to motivate you. One that did motivate me was Alexander Schreiner. All he would have to do was sit down and play a few bars for me. And he played so beautifully that that inspired me. Being inspired, I would go home and just work my tail off.

Wade understood and personified the idea that a living person could do more to instill a desire to work in another person by inspiration than he ever could be coercion, manipulation, or overbearing control. In this, and many other cases, Wade personified his beliefs on teaching. And though he may not have deliberately decided to personify the aforementioned teaching techniques and philosophies, it says a great deal about his character as a master that there were not major discrepancies between that which he practiced and that which he preached.

A master continues to learn. Although the roles of master and apprentice are distinct, that does not mean that the master has ceased to learn. In fact, one of the key characteristics of a mater is having a continuing desire to experiment, learn, and grow, despite decades of hard-earned experience. On one occasion, when we clamped the top plate of my cello incorrectly based on an idea that Wade wanted to try, he stated, “Let's look at that one more time and see. Looks good. Yeah, we maybe should have clamped it yesterday. Well, live and learn.” It was not the end of the world when one of his experiments didn’t work, even when it was on one of my projects, which he normally felt very nervous about tampering with. But he was willing to try something new, rather than remain tied to conventions solely for the sake of tradition and the

fear that trying something new might result in disaster. In this way, Wade taught me how to become a lifelong learner, even after attaining mastery myself one day.

Teaching as one's master taught. Wade loved the way that Marduła taught him all those years ago in Zakopane. He loved it so much, in fact, that he emulated his master's example not only in terms of his craftsmanship, but his teaching style, as well. We had the following conversation regarding his master's teaching style:

> Apprentice: What were some things that you noticed about how Marduła taught?
>
> Master: Just the way I'm teaching you. We'd just work together. And if you had a question, you'd ask it, and he'd answer it, and sometimes even show you how. Well, it was just basically the old-fashioned apprentice approach. You just lived with the person and he was there to answer questions when you had them and correct you when you needed it. That's that.

To Wade, as well as to Marduła, teaching wasn't complicated. In fact, of all the interviews we had about teaching, this was the longest statement he ever made about Marduła's teaching style. Despite the simplicity of this statement, however, it is clear that one's teaching style is significantly affected by the teaching styles of those who have come before.

Even though Marduła was not physically present in the shop, at times, it even felt as though there were three people in the room, and that I had two teachers. This is not to say that I had two masters, by any means. Rather, Wade would often answer my questions by referring to something that Marduła used to say or do, especially when the questions that I had asked was more difficult than usual. When I had a question about sharpening scrapers, which Wade did not feel he could answer for me adequately, he referred back to Marduła like this:

> I would watch Marduła sharpen his scrapers, and he did exactly what we did. He flattened it and squared up the edge on the stone. And then he took out the burnisher and went "chuck, chuck, chuck," and that was it. It looked like he hardly did a thing with the burnisher, and then it would scrape. I can see that you're doing what Marduła did.

In this way, I was not only connected to my current master, but also to his craft ancestry, as it were, through their teachings as well as their practices. Because Wade was physically present in Marduła's shop during his lifetime, he was uniquely capable of perpetuating his practices and teachings, even after Marduła death. As Wade's apprentice, I benefitted greatly from this personal connection to my master's master.

Purposeful questions. The master asks questions with many purposes. Part of a master's role as teacher is to ask questions. Wade would ask me sincere questions to find out how I understood aspect of the craft that he wanted to clarify, questions for which he already had an answer, and questions explicitly meant to teach me a lesson. The following subsections detail the nature of these questions and illustrate examples of the same.

Informational questions. The master asks sincere, information-gathering questions. Not all of Wade's questions were meant to teach me. Sometimes he would have questions for me that were nothing more than sincere questions about things that I was doing that he didn't fully understand. The most difficult part of the violinmaking process for Wade has always been varnishing. His craftsmanship is impeccable, and always has been far superior to my own. However, for reasons that I still cannot fully explain, I've always found varnishing to be my greatest strength. As such, Wade admired the results I would get from my varnishing, and would often ask me questions about it, such as the following:

Master: My varnishes dry up just by sitting, so I don't know what to do. Does the big can or whatever you have of it, will it stay fluid?

Apprentice: Well, I have a pint of clear varnish that I got from them. It's more like a paint can and you can close it completely. I mean, I've had it since last year, and it's just fine.

Master: Is it still liquid?

Apprentice: Oh yeah. It looks great.

Although the question was not profound by any means, it represents Wade's willingness to ask questions of me, even though I was his apprentice. Because of this willingness, Wade's understanding of his craft continued to grow, and I felt more open to ask questions of him myself.

Questions whose answer is already known. The master asks questions to which the master already has the answer. The practice of a teacher asking questions to which he already has an answer often becomes a game of "guess what's in the teacher's head," especially if the questions are ill-formed. One of the most difficult aspects of such "guessing game" questions is that the students may feel stupid in front of their peers if they do not guess the teacher's mind correctly. In a one-on-one apprenticeship situation, however, there are no peers in front of whom to be embarrassed. So, there is more freedom to ask such questions to make the apprentice think differently about a problem, and eventually teach them by revealing the correct answer.

He asks me questions to which I do not know the answer, but which he does. That's not always a bad technique, because when you do it with a whole bunch of other people, it makes you feel uncomfortable and kind of stupid. But when you do it one-on-one, there's nobody to be embarrassed in front of. You're already recognizably inferior to your master instructor. That's kind of the nature of the asymmetrical relationship

between apprentice and master. So, why would you be embarrassed about being stupid in front of your master? That's the name of the game. You just have to make mistakes in front of him.

These kinds of questions humble the apprentice and give the master a convenient means by which to evaluate his apprentice's current understanding of a given topic. Here is an example of just such a question, and the lesson that followed:

Master: I have a question. Which is more accurate: a metal ruler or a wooden ruler?

Apprentice: I don't know. I think it would be a metal one. Wood would warp, right?

Master: I'm talking about making a measurement of length.

Apprentice: Instinctively, I'd say the metal one. But I have no reason. I don't know why.

Master: Metal does what? What does it do when it's hot? It shrinks when it's cold, and expands when it's hot. What does wood do when it's cold or hot?

Apprentice: I don't know that it does anything.

Master: Nothing. But what does wood do when it's humid?

Apprentice: I don't know. It changes?

Master: It does change. So, your logic is good, but I still trust a wooden ruler more than a metal one because the shrinkage and the swelling of the wood will not go lengthwise with the grain. This length will never change if the humidity swells or diminishes. It will shrink or expand in this direction, but not in this direction.

Apprentice: So that old-fashioned wooden ruler…

Master: …if it's marked correctly…

Apprentice: …is more accurate.

Wade not only wanted to teach a lesson about the accuracy of certain types of measuring tools,

but at the same time to help me understand that things are not always as they seem. By asking this difficult question, he invited me to reflect on my own assumptions, and clearly illustrated the danger of replying on unexamined assumptions.

Didactic questions. The master asks questions meant to teach. Wade asked many questions that were deliberately designed to make me think. He would often teach me general principles, then allow those principles to be tested as they had to be applied to the imperfect, varying circumstances of real shop life. As I was joining two pieces of wood together in an early project before we had begun making violins, the following interaction occurred:

Master: How are you going to join them together?

Apprentice: Dowels, I was thinking.

Master: Exactly.

Apprentice: Easiest way.

Master: Sure. It's a very good joint.

The initial question that began the above conversation was not one to which he already knew the answer, nor was it a question only meant to gather information. Rather, he was asking me how I planned to join those boards to check my understanding of something that he had already taught me in theory, but applied to a real-life circumstance.

Improvisation. The master often improvises solutions to problems. There are an infinite number of problems and challenges that can arise in a violinmaker's shop. Things do not always go according to plan. In fact, the times when they do go exactly according to plan are much more rare than when things go wrong in unexpected ways. In other words, the name of the game in violinmaking is to expect the unexpected. When I went to bend my cello ribs, Wade remarked

that it would be easier to do if I had a bending strap. However, rather than order one from a company, he told me how to make one.

> Master: See my violin bending strap? You should make one of your own. I've got the aluminum.
>
> Apprentice: Would you make handles like this?
>
> Master: Oh, you don't need to have handles like this. You can just hold it with your hands. Put anything that you want, maybe even just put some blocks of wood on the end.
>
> Apprentice: How would you connect the wood to the aluminum?
>
> Master: Oh, put a brad through it. Or a nut and bolt. Just rig up something that you could grab onto. These actually aren't even that handy. They insulate you from the heat, but you could maybe take a big dowel, make a slit into it, put it onto the metal, and then put some brads down in it, fold it, and you could hold onto these. There are just a dozen things you could do that would be effective.

Wade had never made a cello rib-bending strap before in his life. But he knew the principles behind rib-bending and, because of that understanding, was able to help guide me in making my own tool for that purpose. I had never considered that making my own tools would be an option. I had grown up among craftsmen who always purchased tools if they were available. However, in teaching me how to do so in specific, repeated experiences, rather than just explain to me that making my own tools was a possibility, I began to see my craft from a completely different perspective.

Working together. Masters teach their apprentices in the moment by working with them. There were two workbenches in Wade's shop so that we could work on our own projects without hindering one another. The majority of the apprenticeship consisted of each of us working on

our own benches, enveloped in our own projects without interfering in the other's progress or flow. However, there were important occasions in which we would work together in the moment, especially when it came to the large-scale processes involved in making my cello, which physically required a second set of hands. The clearest communication happened when time was of the essence, as in this situation in which glue was going to set incorrectly if we didn't act quickly and in the right way.

> Master: Let's run it back and forth just a little bit. Good. And if it oozes out either side, we don't care. Are you at a point where you could tighten this? Go ahead. Really bear down on that sucker, good. Take a side.
>
> Apprentice: Do you want it pretty near the end here?
>
> Master: Maybe two or three inches in from the end: something like this. Try to balance it so that it is equidistant away from the board on the top and the bottom. What's the fuss here? Go ahead and tighten her up. Good.

These moments of working together involved a great deal of improvisation, discussion, give and take, and clear communication. In such moments, we grew closer together, and I learned how to evaluate in critical, moment-to-moment decisions.

One cannot teach the unwilling. Even a master cannot teach an unwilling apprentice. It seems to take both a willing apprentice as well as a willing master to make an apprenticeship work. That willingness goes far beyond the initial agreement to undertake the apprenticeship itself. Rather, it is a choice that requires constant, consistent renewal by both involved. This became clear to me one day when I was not in the mood to learn or work at all.

> Without going into too much detail, I had a rough day yesterday, and all day today I was struggling. But I had to go to Wade's house. I've been working on this spoon rack, and I

> got it done. And to be honest, it only looks *okay*. I guess the output hasn't really changed for the worse because of my mood. I mean, you couldn't tell how terrible I've felt just based the way the spoon rack looks. But I didn't feel refreshed as I worked on it. I usually feel my burden being made light in life. I usually feel refreshed and rejuvenated and whole. Instead, I just kind of felt the same as before I got there: sad and a little lifeless. And because of that, I didn't let him teach me in every way he could. And all that happened because I held back. Maybe he didn't hold back as a result of me holding back, but it's clear that he really couldn't teach me because he didn't know everything I was going through. And that's because I didn't show him.

My master's helping hands were tied that day by my unwillingness to open up and simply be myself. And no matter how good Wade was at teaching, or how much his masterful evaluative capacities could have helped me, he needed me to be willing and open in order to be taught. Both teaching and learning, it seems, are active, conscious decisions that must happen each day in an apprenticeship situation.

Teaching beyond skill. Masters not only teach skills, but build their apprentices' character as future masters as well. Wade taught me so many things that had little or nothing to do with violinmaking at all. But these were some of the most powerful lessons that he taught in the course of my apprenticeship under him. One of the lessons that he taught me came at a time when I was already very frustrated with him for not teaching me exactly what I wanted to learn at the moment. He made me make toys instead of violins. Yet, even as my patience was wearing thin in the wake of what seemed a great trial at the time, he taught me about generosity and service.

> So, here's where it gets difficult for everybody. I thought I was like insulted, like, oh my gosh, you're going to make me make these toys? I don't even like the way they look. They aren't even pretty. But, you know, they're made to be gifts. He's not going to keep them. So, he's teaching me how to do this. He's teaching me to be generous.

Even though I was so frustrated that the apprenticeship wasn't going as quickly as I wanted it to, I realized that Wade was not just trying to teach me the skills and knowledge associated with his craft. He was teaching me how to be a complete, consummate master, which meant having both a master's skills as well as a master's character. It took a living, human master to teach me that lesson.

Learning by all means: A negative case. Wade and I often referred to outside study resources in order to better understand and hone our craft. Some of these resources we shared in common, like the books on violinmaking measurements referred to earlier. Others, however, played a role in our apprenticeship after one of us would discover them, then introduce it to the other while working in the shop. The ideas presented in these books, however, did not replace the role of the master as teacher, many of which would dovetail nicely with the master's teachings, as in the following story:

> There was this test that Wade taught me, and that I've read about in books, that's called the candle test (you don't use a candle now, you use a light). Basically what you do is you take the two halves and you put them together, and with a violin, you hold them up. With a cello, I found it was easier to improvise a way to hold the cello body half on the workbench and just lay the other half on top of it, and then shift the work light so that it's shining directly at the gap so that you can see all the light through it.

This instance illustrates the typical role of study resources in relation to the master's teaching

and the experience of experimenting upon those teachings on the part of the apprentice. I had read about the candle test in the book, then watched as Wade demonstrated to me how it worked in a real work situation. Following that demonstration, I had to struggle to figure out how the candle test would work with my cello, as the book had only explained the process for guitars, and Wade had only demonstrated how it worked with a violin. So, while outside learning resources played a role in my learning throughout this apprenticeship, they only served to supplement core dynamic of the master's instructional involvement and the apprentice's experiential learning.

Emergent Themes

The following section will illustrate several key themes that arose from the findings presented in the preceding section. These themes represent a secondary level of analysis. As such, quotes will not be included in this section. Should the readers wish to solidify their understanding of a given theme in this section, they are encouraged to refer back to the sections of the findings that correspond to the following themes, which will be included under each subheading.

Theme one: The tension between the master's patience and the apprentice's zeal allows for mutual progress. An apprentice begins an apprenticeship with a great deal of desire to learn. Nothing less than such an intense desire to learn could motivate someone to begin something as complex as violinmaking, and to agree to submit his or her will to the will of a master for an undetermined length of time. This desire, while helpful in motivating an apprentice to work hard, begins unbridled and unchecked, leading an apprentice to grow impatient in the face of lengthy and painstaking craft processes. Left unchecked, such unbridled desire and passion would lead an apprentice to produce careless, rushed work, unbefitting one

placed on the road to mastery. In this way, an apprentice's hard work, although fueled by a more than sufficient level of desire, would not help him or her to progress toward mastery and, despite hours of labor, would remain stagnant in directionless, unbridled, and generally frustrated good intention. This is precisely what began to happen with me when Wade would not teach me violinmaking. And although I would not have admitted it at the time, the work that I carried out without the help and guidance of his masterful patience and eternal perspective was shoddy, ramshackle, and altogether not masterful.

On the other hand, a master's passion has had years, sometimes even decades, to mature and deepen. The work of a master is often much slower, more deliberate, and more meticulous than that which is carried out at first by a novice apprentice. However, left on its own, a master's desire may become so patient and so calm that it may begin to wane, and eventually disappear altogether. This is precisely what happened with Wade when he was left alone with his work for nearly two decades before he took me on as his apprentice. After a few years of working alone, far from the naïve yet invigorating influence of an apprentice, he slowly lost his desire to make violins altogether. As a result, when I began my studies with him, he had not only lost this desire, but had actually become averse to even beginning such projects ever again, claiming that because of his age, his workmanship would not be the same as it once had been.

Everything changed for the both of us, however, when we began our work. Wade, as master, brought all of his experience, patience, and carefully honed craft to the relationship, while I brought very little other than my willingness to submit to his teachings, and a fervent desire to do whatever it would take to make a violin. On our own, neither of our dispositions served us particularly well. Wade's overemphasized patience had led him to stop working altogether, and my unbridled passion for the work led me to hastily manufacture too many

rickety projects of questionable workmanship. But together, a tension arose between my unbridled passion and his uncompromising patience: not an undesirable tension that may have caused a rift to come between us and prevent our working together. This was a productive, empowering tension, much like the tension created by the strings of a violin. Just as without that tension, there would be no potential for music, so, too, without the tension created between my desire to work faster and Wade's eternally patient perspective, neither of us would have been able to progress as we did. Because of my insistent pushing toward progress, Wade was forced into a new level of productivity and a heightened degree of craftsmanship. And because of his persistent patience, I was forced to slow down, hone my craft, and achieve a level of mastery that I may never have been able to find otherwise.

From a broader perspective, this illustrates the importance of teaching to both teacher and learner, master and apprentice. Such teaching brings the benefits of growth and understanding to the learner as he is presented with new information, encounters unfamiliar situations with guidance, and develops new evaluative perspectives under the tutelage of his master. The master also benefits from teaching in that his desire to learn, grow, and work is heightened and renewed by the presence of someone who brings the memory of his own youthful zeal back to the forefront of his mind. Neither the master nor the apprentice relinquished their principal role in creating this productive tension, however. Had the master given in and acquiesced to the apprentice's every whim, this would have stunted the apprentice's growth significantly. At the same time, had I as apprentice given up my zeal and allowed the master to dictate what I was or was not to teach me, without any input at all, I may have lost interest altogether, and the master would not have had his own passion for the work rekindled to the same degree.

Theme two: Although it seems clear how to nourish desire, its origins are much more complicated. In my two years studying with Wade, I must have heard the story of how he began making violins dozens of times. After one such retelling, I asked him where the desire had come from to make violins in the first place. I had asked because, as I reflected on my own desire to learn violinmaking, I could not identify where my own desire had originated. After pondering on my question, Wade told me that he did not know where it had come from for him, as well. Various circumstances had led both of us to have violinmaking presented to us. But the simple act of being in such circumstances does not seem to be enough to explain how this desire was instilled in us, for there are countless others in this world who, after having been exposed to violinmaking in much the same way Wade and I were, have never found themselves filled with the kind of insatiable desire that we had felt ourselves.

When Wade had lost that desire, I did my best to renew it. But the best I could do was guesswork. I tried to talk with him about it directly. That certainly didn't work. I tried to make complicated projects using techniques he had told me were important to violinmaking. That didn't work either. Finally, I just started a violin on my own and, in that moment, there was a change in my master that I had almost given up hope would ever happen. But no generalizable rule for desire renewal came to me as a result. Even after having renewed someone's desire myself, by my own actions, the daunting task of renewing someone else's desire seems just as mysterious as it had been before.

There seems to be something else at work with regards to desire that can neither be controlled nor manipulated. The one thing that is clear is that the origins, nourishment, and perpetuation of human desire are inherently human processes. They are human in that they are imperfect, trying, and seem to only be able to be understood by living human beings who have

experienced them firsthand. As such, the most appropriate aids to these human processes are, in fact, other human beings. A computer program, artificial intelligence, or book, no matter how expertly designed, may not have been able to renew and revitalize Wade's desire to work as the simple, clumsy efforts of a humble novice such as myself. In essence, it does not take an expertly designed scenario to foster or originate desire in another. Even after this study, it is still unclear exactly what is necessary for such a thing to happen. However, one thing is certain: that having another human care enough about both person and project to try is a necessary, though perhaps not sufficient, element involved in the fostering of human desire.

Theme three: Apprenticeship tempers unbridled passion, directing its energy to elevated levels of craftsmanship. When I reached the moment when Wade refused to teach me violinmaking, I wondered where his desire and passion had gone. From my perspective, it seemed as though he had lost all desire to work on anything. Upon more careful consideration, however, it became clear that such was not the case. When he lost his desire for making violins after years of working alone, it is true that he had lost sight of a passion and desire that had once made up such a significant part of who he was. But after he decided to teach me, finally allowing that desire to work within him again, it still seemed to me that his youthful zeal had not returned. I became even more puzzled as I read his journal from his apprenticeship in Poland, for in his words, I saw myself. I saw that he struggled with the very same unbridled passion during his apprenticeship that I was struggling with in mine. Where had that gone? As far as I could see at the time, his once vibrant passion had been irrevocably replaced by a stale, worn-out patience that I could not, or at least would not, understand.

But Wade had not lost the youthful zeal that he had once had during his own apprenticeship. I eventually came to understand that his passion and zeal had not disappeared.

Rather, it had only matured over time. Through the decades of careful craftsmanship that had interwoven themselves through his life's experience, his ever-increasing level of craftsmanship had begun to demand that he work more patiently, more meticulously. Such patient work is grueling, lonely, and often unrewarding in the eyes of others. As such, it demands an even greater amount of passion and zeal than that which is manifest in the open frustration of an impatient apprentice. The difficulty is that the zeal of an apprentice is easily observable, and really rather obvious, while the zeal of a master is often only manifest in long, quiet hours after everyone else has gone to bed, working alone in his shop. Although not as seemingly dynamic and exciting as an apprentice's unrestrained passion to accomplish something evident not only in his eyes, but in the eyes of his peers as well, the master's zeal is just as strong, and perhaps even more full of fire than his apprentice's. For it takes nothing short of this kind of desire to work as a master does, with the zealous determination of a novice, tempered by experience to function even in situations where there is little or no tangible reward for the toil.

Theme four: An apprentice is taught not by one master, but by a genealogy of masters. I often felt as though there were three people working in the shop during our apprenticeship. When I would ask questions of my master, especially those that were more difficult for him to address, he would often conduct a form of introspection that involved his master. Although Marduła was not present in the shop, having passed away many years earlier, the memory of who he was and how he taught still lived through Wade. Had Wade not studied in his physical presence during his lifetime, some of the aspects of Marduła's craft intuition, knowledge, and character may have been lost forever. After a difficult question, Wade would ponder for a moment, asking himself what Marduła would have said or done in response to my

question had he been present in the shop with us. After such reflection, Wade would often tell me a story about something Marduła did in a similar situation during their apprenticeship.

In this way, apart from his being in many of the pictures that adorned the walls, Marduła played a significant role in the shop. I often felt as though I were being taught by him alongside Wade. This is not to say that I had two masters with conflicting desires and instructions for me. Such a situation would have certainly been detrimental to my progress as an apprentice. Rather, it was as if I could feel the power of the generations of craftsman that had preceded Wade supporting his instructions and interventions in my work as they happened. It never felt as though Wade's teachings were just the opinion of one crazy old man in isolation. Rather, Wade's opinions, methods, intuitions, and didactic stories carried with them the weighty authority of the generations of craftsmen who had come before, without each of whom the endless chain of craft wisdom, trade secrets, and human mastery would have been lost forever. As the weight of these generations became more clear to me in the course of my studies with Wade, I took my craft all the more seriously, owing the perpetuation of my craft to my master-fathers, rather than only to myself or Wade in isolation.

Theme five: Human masters are uniquely capable of helping human apprentices to become masters. There exist, in certain crafts, processes and aesthetic judgments that can only be made or understood by a human being. This became apparent to me as Wade explained skills used in violinmaking like "eyeballing." While achieving absolutely symmetry in an instrument is the ultimate ambition of every craftsman, the end goal of making a great violin is not that it be perfect by any mechanical standard. Rather, it must look perfect in the eyes of the imperfect, human individuals who see it. It is not uncommon for one's eye to disagree with the ruler in the creation of something as complex as a musical instrument. And because it is for the human eye

that the instrument is being made, and not for the joy of the rulers that may be used to measure it, that the craftsman's eye must overrule quantifiable measurements whenever they are at odds with one another.

It takes a human to teach someone how to build by eye so that an instrument will appear symmetrical and elegant in the eyes of others. The human evaluative capacities of a master enable him or her to teach in ways that another instructional medium without those human evaluative capacities could not. In the moment, as apprentices struggle to confront situations altogether unfamiliar to them, a physically present, human master has the ability to evaluate the disposition, questions, and uncertainties of his apprentice in ways that only a human can.

How is this possible? Human agents share the unique nature of their evaluative experiences on a fundamental level. When two people have similar experiences, there is an understanding there that cannot be scaled or duplicated through technology. It is this very understanding, this ontological familiarity with what it is like to be in someone else's situation, rather than only theoretically understand their circumstances, that enable human masters to uniquely help human apprentices. There is only one path to mastery in the apprenticeship system, and that path begins with being an apprentice. Because of this, every master has been an apprentice, and possesses not only a factual knowledge of an apprentice's circumstances, but an ontological understanding of what it is like to be an apprentice by irreversible personal experience.

This is not to say that every master makes an effort to remember what it was like to be an apprentice. Not all masters are willing to undertake such deep self-reflection for the benefit of their apprentices. However, the point is that such a possibility exists. Masters have the ability, if they wish, to guide their apprentices on the path to mastery in a way that no one or nothing else

could ever do because they have been where their apprentices are. They know their fears, their disappointments, their triumphs, their impatience, and their zeal. It was all part of who they once were, not just what they once knew in cognitive isolation from the rest of their character. In this way, human masters, or, in other words, human teachers, can never be replaced by technology, so long as these human evaluative capacities remain important to those who wish to learn and be set on the path to personal mastery.

Theme six: Apprenticeship is more about process than product. Wade chose to apprentice with Marduła because he knew how to use the tools better than anyone he had ever met before. It did not matter that the resulting sound of his violins was not necessarily the best, even among the humble craftsmen of Zakopane. But the processes of Marduła's craft went far beyond the methods of the work he did in the shop. His character was just as much part of his craftsmanship as were the methods he used to build his instruments. Marduła was the one Wade chose to be his master because of who he was, how he used the tools, and how he treated people, not because of the sound of the instruments that came out of the shop.

This appreciation for the processes of craft over its products became part of my experience studying under Wade as well. As I sat and listened to a professional violinist play my very first violin for the first time, everyone in the room seemed to marvel at its beautiful shape and sound. Of all those present, I was surprised to find that I was probably the least pleased of all. Of course, I was pleased that my violin met with such wonderful approval and appreciation, especially in the eyes of a professional violinist such as the one who first played it. However, that my violin was finally finished meant that, when the time came for me to go to Wade's shop the next day, there would be nothing left for me to do. It was then that I realized that the work had brought me more joy than the finished product. I had grown to love the craft in process,

rather than its endings. The vast majority of my time as a violinmaker has been spent in the shop, so it stands to reason that those shop processes should be what bring me more joy than those small, rare moments that come when an instrument is finished.

It seems as though educational research, evaluation, and assessment have become overly focused on learning outcomes. Universities and individuals are often compared with one another based on endings, rather than processes. Entire courses and curricula have also begun to be designed based on a list of learning outcomes. While these practices can highlight a course's goals with greater clarity, it is crucial that educators do not overemphasize learning outcomes so as to make the processes of education, on which students and teachers spend so much more of their time, become stale, ignored, or obsolete. For just as the greatest joys of apprenticeship come in the process, rather than its product, so, too, may the greatest joy of all education be found in its processes, rather than its conclusion.

Theme seven: Masters must have the courage to let their apprentices pass through difficulties for their greater good. One of the key ways in which the master's role differs from that of his apprentice is in his perspective. A master's perspective, honed and refined over years of diligent work and hard study, becomes almost eternal when compared to that of a novice apprentice. When the aforementioned patience-zeal tension comes to a head between master and apprentice, it would seem only kind for the master to give in to the fervent desires of his apprentice.

Herein lies the difficulty in the master-apprentice relationship. In this apprenticeship, it was the master's responsibility, because of his perspective, to confidently know what would help his apprentice on the road to mastery. He had this perspective not only because he had a uniquely close relationship with his apprentice and was familiar with his unique struggles and

strengths, but also because the master had been in his apprentice's situation himself before. With this multifaceted perspective, it is the master's charge to allow an apprentice to struggle at appropriate times in order to grow.

This may be difficult for masters, because of their love for their apprentices, as well as for apprentices, who may feel abandoned and misunderstood by masters who leave them to their own devices at times when they feel as though they need help more than ever. But with the apprentice's trust in the master, combined with the appropriately applied restraint on occasion by that master, an apprentice will grow. From the learners' perspective, they may only be able to see what they need to become proficient in their craft. But masters, both because of their relationship with their apprentices and because of their personal experience having been apprentices themselves before, are uniquely able to see when difficulty, rather than ease, will help their apprentices grow into the potential that only masters may be able to see.

So much of education seems caught in the throes of a fixation on student-centeredness. At times, it appears that this paradigm dictates that the teacher has been tyrant long enough in the annals of history, and that it is time for education to be completely centered on the learner. This change brings with it many advantages, not the least of which is an increase care and concern for the welfare and growth of the learner. However, it has become difficult to imagine a teacher refusing to help a learner in such a paradigm, even if that teacher knew that such a moment of independence could mean the difference between bright progress and debilitating over-dependence. Learner-centeredness is by no means inherently detrimental to education. But if an unbalanced focus on catering all educational processes to the needs of the learner prevents teachers from stepping back and bravely allowing learners to struggle for a good that perhaps they may be incapable of seeing clearly at the time, then such an extreme and exclusive focus

may be doing more harm than good. Not all teaching can be understood in the moment by an apprentice, or a learner. But that does not mean that it is not good teaching. If educators put themselves at the exclusive and disproportionately empowered mercy of student ratings and over-zealous, learner-centered educational systems, they may be acquiescing to quickly to the needs of those who may only be able to see a road to proficiency, where a master could see a path to mastery. If left unchecked and unbalanced, such a shift from one fictional, teacher-centered tyranny to another, much more real, student-centered one, may spell the end of mastery itself.

Discussion and Conclusions

In this section, I will revisit each of the main questions in turn by summarizing my findings, tying them to current literature, highlighting implications for related fields, and offering possible directions for future research and study.

What Is the Nature and Dynamic of the One-on-One, Master-Apprentice Relationship?

The master-apprentice relationship is a human relationship, and as such is intensely personal and involved, and therefore imperfect yet full of potential. Naturally, such a relationship is demanding for both parties. However, it can also create a space for significant personal growth, character development, and change in evaluative practices and perspectives for both parties. Some of the principle characteristics and dynamics of this relationship include the following: generosity, patience, trust, humility, openness, love, humor, confidence, passion to work, and loyalty. These characteristics are centrally important to the dynamics of an apprenticeship. Because of the inherently human nature of craft knowledge and mastery, without the intimate dynamics of one-on-one interaction that are characteristic of the master-apprentice relationship, teaching and learning a craft in a situation cut off from such a relationship would a

detrimental. In this way, the master-apprentice relationship's personal nature acts as a catalyst for the teaching and learning process necessary to communicate and perpetuate craft knowledge.

At the same time, however, the relationship between master and apprentice is dynamic and changes over time. It begins as a formal, contractual relationship between a student and a teacher. This first stage is characterized by tests of the apprentice's patience, craft intuition, knowledge, and skill. After passing through these rites of passage, the master and apprentice become friends. At this point, the apprentice takes on its core stage as a formal apprenticeship. At this stage, the trials and rites of passage are largely replaced by open, deliberate teaching on the part of the master, although rites of passage never entirely disappear. After further development of craft skill, trust, and familiarity, the master-apprentice relationship resembles that shared between father and son. With this final development, master and apprentice not only begin to share a familial level of comfort and trust between one another, but the apprentice begins to be treated by the master and to act him or herself like more of a journeyman and colleague than a novice apprentice.

This type of increasing familiarity requires the willingness of both master and apprentice in order to progress. If either the master or the apprentice is unwilling to move forward in the apprenticeship, it would cease. In this type of teacher-learner interaction, everything depends on the choices and desires of those involved. Yet, although it is equally required of both master and apprentice that each have a desire to progress in their apprenticeship relationship, each of their roles within that relationship are inherently different. And although the actions involved in each of these distinct roles occasionally overlap, it is their fundamental asymmetry that allows many of their most powerful dynamics to take place.

Implications for learning theory. There seems to be a division among researchers regarding apprenticeship roles and relationships. Cognitive apprenticeship (Collins et al., 1991) maintains that the importance of a master-teacher only goes so far as to provide learners with "continual access to models of expertise-in-use against which to refine their understanding of complex skills." While this view admits the importance of a master in apprenticeship, the master seems little more than a unique type of learning resource. This study offers an alternative perspective, suggesting that a master is much more than a means by which a learner can be offered models and scaffolding. A human master, again, is uniquely capable of seeing the world through the eyes of his apprentice through personal introspection into the days of his past as a budding apprentice. The dynamics of a relationship between two individuals whose experience is so intertwined are much more complex and rich than those that a learner shares with other learning resources.

Despite Lave and Wenger's (1991) efforts to focus on the holistic processes of learning, rather than cognition in isolation, their *legitimate peripheral participation* framework did so by deemphasizing the individual experience of learning from a master. Regarding this focus, they stated,

> We emphasize the significance of shifting the analytic focus form the individual as learner to learning as participation in the social world, and from the concept of cognitive process to the more-encompassing view of social practice.

By focusing on social practice and community participation, Lave and Wenger left the one-on-one, master-apprentice relationship almost completely unaddressed. This study, on the other hand, found the master-apprentice relationship to be the bedrock foundation upon which an apprenticeship can function and flourish. While Lave and Wenger's (1991) shift "away from the

individual" may have given their *legitimate peripheral participation* framework "the same analytical leverage [for apprenticeship] as it would for any other educational form," extrapolating their theory to an almost exclusive emphasis on community may be better suited to address socio-cultural and anthropological concerns, rather than the core issues, nature, and dynamics of the processes of teaching and learning.

Implications for apprenticeship research. Many studies have been conducted in recent years to specifically investigate the nature of traditional craft or trade apprenticeship (see Gamble, 2001; Keller & Keller, 1996; Lave, 2011; Marchand, 2008; Racca & Roth, 2001; Rogoff, 2008; Simpson, 2006). These studies have covered a wide span culturally and thematically, including studies of apprenticeships among North American blacksmiths and ship builders in West India. Each of these studies investigate (if not centrally, at least partially) the master-apprentice relationship. Supporting this study's finding that an apprenticeship begins with rites of passage, and summarizing the studies mentioned above, Chan (2013) stated,

> Each of these studies contributes to an understanding of how apprenticeships are enacted. From these studies emerges the understanding that the enactment of apprenticeship is more than the development of a set of occupational skills. As such, an apprenticeship also constitutes a rite of passage.

Much like the rites of passage described in this study, rites of passage in other apprenticeship situations have also been found to prepare and initiate novices into the life and responsibilities of a craftsman (Lehmann, 2007). Rites of passage allow apprentices the chance to consider whether they value trade secrets enough to consider them worth such trials (Turner, 1974), and the master or master administering these rites the chance to evaluate the worthiness of their initiates (Riemer, 1979).

Haas (1989) reaffirms the indispensable role of these rites of passage in apprenticeship situations generally, and describes their importance as follows:

> The apprenticeship process is characterized by the inclusion of an initiation or trial by ordeal where newcomers are confronted by extreme situations which test their willingness to adapt by adopting the group's ways.

However, in focusing so heavily on apprenticeship's rites of passage, these studies have primarily focused on the initiatory stages of apprenticeship in isolation, saying little of what comes afterward for both master and apprentice. Indeed, although much has been said about the nature and function of these rites of passage, the most research says about what follows includes the apprentice feeling a new sense of identity (Kirpal, 2004), especially as related to the community as a whole (Hall & Chandler, 2005).

This study took the idea of rites of passage in relation to the master-apprentice relationship beyond its legitimate, yet partially explored, initiatory function. Rites of passage are not a phenomenon in isolation whose only purpose is to offer the apprentice a unilateral change in status among members of a community. Rather, they can also be meant to lead one into full apprenticeship, in which the master and apprentice share a stronger bond of friendship, and eventually collegial journeymanship, in which ties between master and apprentice become so strong as to resemble the familial bond between father and son. Building this relationship is one of the key purposes behind rites of passage altogether.

Also, because these studies involve more traditional research methods in which the researcher acts as an outside, third party observer, many of their findings tend to be limited to that which can be observed from that perspective (see Haas, 1986; Gamble, 2001; Lave, 2008) Using apprenticeship as a methodology, I was able to experience rites of passage firsthand, and

explore previously under-investigated questions regarding the master-apprentice relationship, such as the intense impatience, frustration, and disappointment characteristic of experiencing rites of passage from the apprentice's perspective. Future research regarding this finding could focus on rites of passage as part of a greater whole involving the dynamics of the master-apprentice relationship. In doing so, researchers wishing to further explore these dynamics may reconsider the investigative power of apprenticeship as a methodology by which to study apprenticeship itself.

Furthermore, much of apprenticeship research focuses either on whole communities in which one-on-one apprenticeships occur (see Graves, 1989; Lave, 2008), or on workplace apprenticeship in which a group of experienced workmen initiate a group of inexperienced, newly hired trainees (see Cooper, 1980; Gamst, 1989; Simpson, 2006). The bulk of apprenticeship research most closely tied to educational research fits into one of these two categories, both of which place primary focus on community issues rather than on the one-on-one relationship at the heart of apprenticeship itself. The research that has focused specifically on the one-on-one, master-apprentice relationship has been mostly isolated within the fields of anthropology (see Dow, 1989; Johnson, 1988; Goody, 1989) and music education (see Burwell, 2013; Nielsen, 2006).

Certain researchers within these fields (see Goody, 1989; Burwell, 2013) even go so far as to highlight the familiar, father-son relationship that can develop between master and apprentice after passing through the rites of passage stage. However, the major strains of educational research continue to focus on the community rather than individual relationships when it involves apprenticeship (see Lave & Wenger, 1991). Because this study was conducted long-term within the microcosm of one master-apprentice relationship, the findings provide

compelling evidence that it is the nature and dynamic of the one-on-one, master-apprentice relationship that makes apprenticeship learning so effective, both in terms of process as well as its result. Evidence from this apprenticeship, including individual teaching decisions, personal relationship tensions, and the passing on of individual evaluative tendencies and capacities, all suggest that certain questions may be answered and further explored on the individual relationship level—a type of analysis that exclusive examination on the community level simply cannot address.

Implications for evaluation. While many advocate for a more programmatic, objective, and scalable way to conduct evaluation (see Worthen, Sanders & Fitzpatrick, 1997), others continue to emphasize the unique role human evaluation has to play in both personal and professional evaluation. For example, Eisner (1985, 1991) has discussed at length the importance and uniqueness of the human element to evaluation. According to him, evaluative capacities unique to human beings span both professional evaluation as well as the type of in-the-moment, human evaluation that goes on during activities like teaching. This study supports the notion that although the human eye is susceptible to the qualms and foibles of subjectivity and mortal imperfection, it is in that very weakness that its unique strength lies. "Eyeballing it," as an example from this apprenticeship study, is only one illustration of how the evaluative capacities of a human being, equipped with a lifetime of experience, are better suited to serve the evaluative needs of other human stakeholders than objective measurement instruments (in this case, a metric ruler) could have done. The implication for the field of evaluation, and related fields in which evaluation commonly takes place, is that no matter how many scalable technologies or objective theoretical abstractions make their way into professional and personal evaluation, there is a unique role for the human evaluative eye in the field that is as irreplaceable

as it is irreplicable. To lose the subjective, human element of evaluation could result in limiting the field's ability to address and assist in the unique evaluative needs of equally subjective, human stakeholders.

What Importance Does Human Mastery Play in this Relationship?

A human master is indispensably important to apprenticeship teaching and learning for the following reason: masters become masters only by having been apprentices themselves. Because of a master's personal, experiential familiarity—not only with what it means to be an apprentice, but what it feels like to actually live the life of an apprentice—he is uniquely capable of helping his apprentice on their journey toward mastery. No technology, instructional delivery system, or artificial intelligence has any degree of ontological familiarity with what it is like to be a learner. The human teacher is the only resource available to human learners that can understand their changing perspectives and struggles.

This understanding that master and apprentice share the same ontological nature as human beings, however, doesn't just affect the way a human master can teaching a human apprentice. It can also clarify how the apprentice fundamentally views the ideas of learning and mastery. For in much the same way as a master is uniquely capable of understanding what it's like to be an apprentice, so, too, is a human master the only instructional delivery system that the apprentice has the capacity to actually become. No matter how well-designed a technology may be, a learner can never become that technology. But a living, human master acts not only as a resource for teaching and learning, but also stands as a living personification of the reality of what an apprentice may one day become. This idea seems to transcend the principle of modeling through which concepts, skills, and processes are demonstrated for the learner. A master is not only the living embodiment of skill mastery, but a living example of masterful character,

patience, generosity, and craft intuition. Knowing from experience that there is someone who has become such a master, and having a chance to know that individual on a personal level over such a prolonged period of time, inspires an apprentice with the understanding that becoming a master of a craft is a clear and present reality for him or her personally.

All of this is not meant to say that all human teaching is inherently good, just as it is not the purpose of this study to suggest that all apprenticeships are naturally superior to other forms of education. Neither does it mean that technology itself is ineffective in the learning and teaching process. But it does mean that human teachers have the transcendent potential to, with personal introspection looking inward and with sincere understanding looking outward, help human learners in a way that no other instructional delivery system or method can, or ever could, as only a human can experience what it is like to be a human.

In this study, it was found that the community of practice played a significant role in both my apprenticeship, as well as Wade's apprenticeship in Poland. This seems to coincide with the community focus of mainstream apprenticeship (see Cooper, 1980; Gamst, 1989; Graves, 1989; Simpson, 2006). Lave and Wenger (1991) assert that "mastery resides not in the master, but in the organization of the community of practice." As such, their view of mastery constitutes a rather nebulous concept shared commonly among all members within a community of practice, but neither owned nor embodied by any among them. This view asserts a unique and almost unprecedented kind of knowledge and skill-related egalitarianism among all members of a community of practitioners. Whether master or apprentice, old-timer or newcomer, all share an equally privileged quality access to the community's mastery, including its related practical skills, evaluative perspectives, and precepts of knowledge.

This study, on the other hand, offers an alternative explanation regarding the community's consistently significant role, even in traditional, one-on-one apprenticeships. While Lave and Wenger's idea that there is no one individual at the center of a community who knows and personifies every bit of knowledge pertaining to that practice is shared by some (see Eckert, 2006; Rogoff, 1990), it is possible that Lave and Wenger may have stepped so far from the idea of embodied mastery so as to isolate themselves from the possibility that mastery itself may only exist, after all, if there is a living, human master to personify and enact it. This study found character to be just as essential to mastery both knowledge and skill. Yet, while skill and knowledge can be shared in a community, the enactment of character, not just its shared ideal, happens when real people try to live it and do it themselves. Leaving the burden of mastery to the community as a whole relieves all members of that community of their responsibility to master the skills and knowledge of their craft. If everyone participates in collective, shared mastery, yet no one is responsible to personally embody and enact masterful acts and characteristics, then mastery itself may cease to exist.

As this study suggests, mastery requires both masterful skill as well as masterful character, and if character is an individual, human attribute, then mastery must be personified and enacted by individuals. This is not to say that for every community of practice there must be one individual at the very center of that community. There may be many masters in a community, just as there were in both my apprenticeship as well as Wade's. The difference, from the perspective of this study and its findings, is that rather than share the nebulous notion of collective mastery, a community of practice is a group of assembled individuals on the road to mastery. Each may be at different points on that path, but each member of the community has the responsibility to progress toward mastery.

In this sense, mastery is not a uniform destination for each community member. Just as in Wade's apprentice there were masters of varnishing, woodcraft, design, and tone production, so, too, are there masters with differing specialties within a community. No one individual is at the center of the group, but each individual comes to that group through a series of personal interactions. These interactions, necessarily one-on-one, represent a form of apprenticeship, though the time involved may vary considerably.

In essence, the responsibility of mastery is on the shoulders of individuals. And no matter how much emphasis is placed on shared mastery within a community, apprentices become masters not by standing idly by, waiting for the community's knowledge to distill upon their minds by osmosis. Rather, the road to mastery is paved with individual interactions with those on different points along the same path. In this way, this study does not necessarily contradict the peripheral to full participation framework espoused by researchers of communities of practice (see Lave & Wenger, 1991; Rogoff, 1990). But it does change the focus from communal processes and mastery to individual ones, each made possible by living masters interacting one-on-one with living, individual apprentices.

Does the Master Actually Teach in a Traditional Craft Apprenticeship and, if So, How?

This study provided overwhelming evidence to suggest that observable, intentional teaching not only happens in apprenticeship, but plays a crucial role within it. Assuming the validity of such an assertion, this study did a great deal to show the nature and dynamics of that teaching. The foundation of apprenticeship teaching is that the master embraces his role to teach his apprentice, taking on that responsibility with considerable care and understanding. It is then his commission to choose when, how, and if he will divulge the secrets of his trade and craft to an apprentice whom he is constantly evaluating in order to make such choices.

Rather than give his apprentice open, unfettered access to all the information related to his craft, the master has the confidence and courage to select those aspects of his craft for which the apprentice is ready, worthy, and for which he has developed sufficient patience and conscience of craft. This style of teaching demands a great deal from the apprentice as well, whose role it is to show ultimate trust to his master. Teaching in this way, however, strives to inculcate values, skills, and evaluative perspectives in the apprentice that will become a part of his character, intended to last a lifetime, rather than only until a prescribed moment of assessment, after which it is no longer the master's concern. In short, all that the master does is done with an eternal perspective in mind, striving to set the apprentice's feet on a path toward mastery, which is a much harder, longer road than that which would lead him or her only to sufficiency or adequacy.

In recent decades, educational research has begun to consider learning as its primary concern in terms of theory (see Duffy & Kirkley, 2003), assessment (see Freed & Huba, 2000), school reform (see Lambert & McCombs, 1998), and technological design and development (see Bonk & King, 1998). This principal focus on learning has caused many to wonder about and seriously investigate the changing role of human teachers in learning environments of the future (see Dowling, 2003; Eacute & Esteve, 2000). Adding to this, proponents of learner-centeredness often paint the issue so as to demonize an over-emphasis on teaching and teachers in favor of promoting a new learner-centered paradigm (see Weimer, 2013). Some even claim that online learning will inevitably disrupt the human-centered model of formal, university education (Christensen, 2011).

As advances in instructional technology make room for new types of learning interactions that no longer need human interaction in order to function (Jung et al., 2002), and certain strains

within instructional psychology become ever more learner-centric (see American Psychological Association, 1993; Lambert & McCombs, 1998; Wagner & McCombs, 1995), human teachers are, at best, largely overlooked, and at worst, condemned to obsolescence and extinction. It is in this tense battlefield of powerfully popular research paradigms and militantly fascinating advances in instructional technology that human teachers are asked to defend their usefulness to the world. Unscalable and difficult to understand, however, few among the ranks of instructional psychologists and technologists care to join their cause.

Specifically regarding apprenticeship, Lave and Wenger (1991) stated that their "decentered view of the master as pedagogue moves the focus away from teaching and onto the intricate structuring of a community's learning resources." Even with regards to apprenticeship, a form of education that has been defined by human teaching throughout history (Eby & Arrowood, 1940; Rorabaugh; 1986), there seems to have been yet another shift away from teaching. Instead of investigating one of apprenticeship's most central characteristics, Lave and Wenger emphasized learning as the most important phenomenon of interest, simply because, in their own words, "there was very little observable teaching" in apprenticeship to an outside observer (Lave & Wenger, 1991, p. 92).

Despite this popular shift away from the most ancient of educational resources, this study shows overwhelming evidence of the importance of human teachers to apprenticeship learning. While some may dispute the relevancy of such findings, suggesting that the human teacher is only important in quaint, yet obsolete forms of education like that used in violinmaking. However, apprenticeship can be found much more commonly than violinmakers. Haas (1989) suggests that apprenticeship can be found in disciplines as varied as steel ironworking and medical clerkship.

When, as Coy (1989) said, there is a need to "learn things that cannot be easily communicated by conventional means, apprenticeship is employed," by doctors, lawyers, scholars, tradesmen, and artisans alike. It seems, even after the best efforts of medical, law, business, and trade school, doctors perform their residencies, law students become junior partners to more experienced lawyers, budding businessmen take internships with corporate executives, and tradesmen apprentice under experienced practitioners. In the end, it seems, people need people, not just to learn, but to become masters—to change not just what they know, but who they are as people. This type of human education seems to continue to require, at some point, one-on-one, human teaching (Fuller & Unwin, 2007; Gamble, 2001; Keep & James, 2011; Nerland & Hanken, 2004; Rogers, et al., 2012).

Although it is clear that, despite seemingly overwhelming odds, there are many who continue to support one-on-one, human teaching today, little has been done to explore the experience of teaching and learning in such a situation. Using an anthropological apprenticeship methodology, this study took this next step. Rather than only advocate perpetuating the traditional role of human teaching into the future, this study sought to analyze and understand the evaluative and interactive dynamics of such human teaching. In doing so, elements of evaluation, improvisation, intuition, and teaching were highlighted that appear uniquely manifest in human teaching. As instructional designers, curriculum specialists, and educational policy makers begin to address the aforementioned concerns regarding the future role of human teachers in the world, philosophical arguments will not be enough to dissuade them from choosing cheaper, faster, and more scalable solutions as they present themselves. Rather, in-depth analysis of elements unique to human teaching, such as those presented in this study, may prove the only means whereby the role of human teaching, in traditional craft apprenticeship and elsewhere, may be maintained.

Implications for the Discipline

Again, the department and under which this dissertation was written is called the Department of Instructional Psychology and Technology. Many facets of educational research are represented in the department. These include measurement, assessment, instructional design, evaluation, psychology, and philosophy. In addition, much of the department's focus is on designable instructional elements, rather than something as unscalable and unquantifiable as apprenticeship. In this kind of scenario, in which a study's subject and methodology are unusual to its primary audience, naturally, the question becomes: what does this research have to do with instructional psychology and technology?

Instructional. At the heart of this study was the question of whether instruction, especially human instruction, played any role at all in one of the most historically and contemporarily ubiquitous educational institutions extant today: apprenticeship. If nothing matters but learning, and that learning can and does happen without intentional instruction of any kind (let alone human instruction), then the deliberate design of instruction, one of the pillars of this department, would seem an indefensible and even pointless effort. In defending the importance of deliberate, intentional instruction, for humans, by humans, to learning has, in essence, strengthened the value of this department and its discipline in the world of academia, and the associated contributions of its research agenda to the world of educational theory and practice generally.

Psychology. Eliminating teaching from learning in mainstream educational research could marginalize the role of human interaction not only in seemingly obsolete educational scenarios like apprenticeship, but in all educational settings generally. Choosing to ignore the human, interactive dynamics between a learner and a teacher could, for better or worse, impact

educational psychology. Such exclusive focus may lead instructional psychology to overlook the dynamics of human interaction in favor of studying individual human behavior alone. Such a focus could be limiting to the field, to say the least. Furthermore, any psychology specifically involving instruction, or a person's intentional effort to assist others to learn, could also cease to be a relevant issue to learning. In short, bringing to light the unique dynamics of the uniquely human, master-apprentice relationship has made room for a broader consideration of what instructional psychology could offer the world of education.

And. The *and* in this department's title implies that, while instruction may have both psychological and technological dimensions, it is neither entirely psychological, nor completely technological in nature. It is, instead, an ever-changing combination of them both. In fact, careful study suggests that instruction is a complex combination of many dynamic factors. By including at least more than one of these dimensions of instruction in its title, this department seems to both acknowledge and espouse the idea that instruction is, at least to some degree, holistic and multifaceted. It cannot and indeed does not involve only one factor or variable at a time in complete isolation from all the rest. Rather, it involves an oftentimes maddeningly complex whole, making its investigation and study complex and challenging.

One of the principle elements that makes instruction so intricate is that it involves direct human interaction, the most holistic and difficult factor to isolate and understand. Precisely this kind of holism was at the very heart of the traditional craft apprenticeship, the primary subject of this investigation. This study illustrated, among other things, that all elements of instruction, technology and psychology, play their part, and that no one of them in isolation is sufficient to bring about the multifaceted type of learning that complex crafts like violinmaking demand. In this way, studying this kind of apprenticeship has underlined the holistic elements of instruction

implied in the name of our department, all the while providing a more historically grounded understanding of apprenticeship psychology and technology to those blazing the trail for the many new educational technologies available today.

Technology. The term *technology*, as used today, immediately reminds many of digital communications technologies only. Technology, however, has another, much broader historical definition. The first and most ancient definition of the term given in the Oxford English Dictionary states that technology originally meant "a treatise on a practical art or craft." It was not until one hundred years later that the term came to mean, "the branch of knowledge dealing with the mechanical arts and applied sciences" (Oxford English Dictionary, 2013). In other words, what many refer to as *modern* technology does not exist in isolation from this richer historical context. Seen from this perspective, digital technologies are inherently connected to art and craft. From the carpenters of antiquity to the computer programmers of modernity, masters and apprentices have taught and learned their crafts using tools and technology of all sorts. This study on traditional craft apprenticeship has offered a broader understanding of how technologies both ancient and modern are involved in the dynamics of instruction, not only in apprenticeships, but in a multitude of other educational situations in which its principles and dynamics may be found. Connecting the principles of instruction, psychology, and technology to its fundamental, historical roots in this way will help deepen theoretical perspective, broaden design possibilities, and inform technological innovations for the field as a whole, as well as for the individual instructional designer.

References

Adamson, G. (Ed.). (2010). *The craft reader*. Oxford, UK: Berg Publishers.

Ainley, P., & Rainbird, H. (1999). *Apprenticeship: Towards a new paradigm of learning*. London, UK: Kogan Page.

Aldrich, R. (1999). The apprentice in history. In P. Ainley & H. Rainbird (Eds.), *Apprenticeship: Towards a new paradigm of learning* (pp.14–24). London, UK: Kogan Page.

American Psychological Association (1993). *Learner-centered psychological principles: Guidelines for school redesign and reform*. New York, NY: APA.

Armenta, E. (2009). Making the most of an historical case study: Configuration, sequence, casing, and the US old-age pension movement. In C. Ragin & D. Byrne (Eds.), *The handbook of case-oriented methods* (pp. 351-366). Thousand Oaks, CA: Sage.

Atkinson, P. & Hammersley, M. (1994). Ethnography and participant observation. *Handbook of qualitative research*, *1*, 248-261.

Atkinson, R., & Shiffrin, M. (1968). Human memory: A proposed system and its control processes. *The Psychology of Learning and Motivation*, *2*, 89-195.

Baillie, H. (1956). A London gild of musicians, 1460–1530. *Proceedings of the Royal Musical Association*, 83rd session (pp. 15–28). Oxford, UK: Oxford University Press on behalf of the Royal Musical Association.

Bates, T. (1995). *Technology, open learning and distance education.* London: Routledge.

Bloom, B. (1984). The 2 sigma problem: The search for methods of group instruction as effective as one-to-one tutoring. *Educational Researcher*, *13*(6), 4-16.

Bonk, C., & King, K. (1998). *Electronic collaborators: Learner-centered technologies for literacy, apprenticeship, and discourse*. New York, NY: Routledge.

Brown, J. S. (2000). Growing up digital: How the web changes work, education, and the ways people learn. *Change: The Magazine of Higher Learning*, *32*(2), 11-20.

Brown, J., Collins, A., & Newman, S. (1989). Cognitive apprenticeship: Teaching the crafts of reading, writing, and mathematics. *Cognition and Instruction: Issues and Agendas*, 453-494.

Brown, J., Collins, S. & Duguid, P. (1989). Situated cognition and culture of learning, *Educational Researcher*, *18*(1), 32-42.

Burwell, K. (2013). Apprenticeship in music: A contextual study for instrumental teaching and learning. *International Journal of Music Education*, *31*(3), 276-291.

Canniford, R. (2005). Moving shadows: Suggestions for ethnography in globalised cultures. *Qualitative Market Research: An International Journal*, *8*(2), 204-218.

Chan, S. (2013). Learning through apprenticeship: Belonging to a workplace, becoming and being. *Vocations and Learning*, *6*(3), 367-383.

Chang, H. (2007). Autoethnography: Raising cultural consciousness of self and others. *Studies in Educational Ethnography. 1*(12), 207-221.

Chao, G., Walz, P., & Gardner, P. (1992). Formal and informal mentorships: A comparison on mentoring functions and contrast with nonmentored counterparts. *Personnel Psychology*, *45*(3), 619-636.

Chernoff, J. (1979). *African rhythm and African sensibility: Aesthetics and social action in African musical idioms*. Chicago, IL: University of Chicago Press.

Chi, M., Siler, S., Jeong, H., Yamauchi, T. & Hausmann, R. (2001). Learning from human tutoring. *Cognitive Science*, *25*(4), 471-533.

Christensen, C., & Eyring, H. (2011). *The innovative university: Changing the DNA of higher education from the inside out*. Hoboken, NJ: John Wiley & Sons.

Clarke, L. (1999). The changing structure and significance of apprenticeship with special reference to construction. In P. Ainley & H. Rainbird (Eds.), *Apprenticeship: Towards a new paradigm of learning* (pp.25-40). London, UK: Kogan Page.

Cohen, P., Kulik, J., & Kulik, C. (1982). Educational outcomes of tutoring: A meta-analysis of findings. *American Educational Research Journal*, *19*(2), 237-248.

Collins, A., Brown, J., & Holum, A. (1991). Cognitive apprenticeship: Making thinking visible. *American Educator*, *6*(11), 38-46.

Collins, M. (1991). *Adult education as vocation: A critical role for the adult educator*. New York, NY: Chapman and Hall.

Coménius, J. (1627–1632). *La Grande Didacticque* in (1992) Philosophie de l'Éducation series. Translated by M-F Bosquet-Frigout, D. Saget, et B. Jolibert. Paris: Éditions Klinksieck.

Cooper, E. (1980). *The wood-carvers of Hong Kong: Craft production in the world capitalist periphery*. Cambridge, UK: Cambridge University Press.

Courtney, S. (1999). Book Review. *Adult Education Quarterly*, *49*(4), 176-183.

Coy, M. (1989a). *Apprenticeship: From theory to method and back again*. Albany, NY: Suny Press.

Coy, M. (1989b). Being what we pretend to be: The usefulness of apprenticeship as a field method. In M. Coy (Ed.), *Apprenticeship: From theory to method and back again* (pp. 115-136). Albany, NY: Suny Press.

De Munck, B., & Kaplan, S. (2007). *Learning on the shop floor: Historical perspectives on apprenticeship*. New York, NY: Berghahn Books.

De Smet, M., Van Keer, H. & Valcke, M. (2008). Blending asynchronous discussion groups and peer tutoring in higher education: An exploratory study of online peer tutoring behaviour. *Computers & Education*, *50*(1), 207-223.

Dilley, R. (1989). Secrets and skills: Apprenticeship among Tukolor weavers. In M. Coy (Ed.), *Apprenticeship: From theory to method and back again* (pp. 181-198). Albany, NY: Suny Press.

Diringer, D. (1968). *The alphabet*. London, UK: Hutchinson's Scientific and Technical Publications.

Doel, M. (2011). Apprenticeships and further education colleges: The next chapter. In T. Dolphin & T. Lanning (Eds.), *Rethinking apprenticeships* (pp. 47-54). London, UK: Institute for Public Policy Research.

Dolphin, T., & Lanning, T. (2011). *Rethinking apprenticeships.* London, UK: Institute for Public Policy Research.

Dollar, D. (2000). Book review: Five perspectives on teaching in adult and higher education. *Community College Review*, *28*(1), 84-86.

Dow, J. (1989). Apprentice Shaman. In M. Coy (Ed.), *Apprenticeship: From theory to method and back again* (pp. 199-210). Albany, NY: Suny Press.

Dowling, C. (2003). The role of the human teacher in learning environments of the future. In *Proceedings of the 3.1 and 3.3 working groups conference on International federation for information processing: ICT and the teacher of the future, 23*(1), 37-38.

Duffy, T., & Kirkley, J. (2003). *Learner-centered theory and practice in distance education: Cases from higher education*. London, UK: Routledge.

Eacute, J., & Esteve, M. (2000). The transformation of the teachers' role at the end of the twentieth century: New challenges for the future. *Educational Review*, *52*(2), 197-207.

Eby, F. & Arrowood, C. (1940). *The history and philosophy of education ancient and medieval.* Upper Saddle River, NJ: Prentice Hall.

Ecker, D. (1963). The artistic process as qualitative problem solving. *Journal of Aesthetics and Art Criticism*, *21*(3), 283-290.

Eckert, P. (2006). Communities of practice. *Encyclopedia of Language and Linguistics*, *2*, 683-685.

Egan, K. & Gajdamschko, N. (2003). Some cognitive tools of literacy. In A. Kozulin, B. Gindis, V. Ageyev & S. Miller (Eds.), *Vygotsky's educational theory in cultural context* (pp. 83-98). Cambridge, UK: Cambridge University Press.

Ehrich, L., Hansford, B., & Tennent, L. (2004). Formal mentoring programs in education and other professions: A review of the literature. *Educational Administration Quarterly*, *40*(4), 518-540.

Eisner, E. (1985). *The educational imagination*. New York, NY: Macmillan.

Eisner, E. (1991). *The enlightened eye: Qualitative inquiry and the enhancement of educational practice*. New York, NY: Macmillan.

Ellis, C. & Bochner, A. (2000). Autoethnography, personal narrative, reflexivity: Researcher as subject. In N. Denzin & Y. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (pp. 733-768). Thousand Oaks, CA: Sage.

Feiman-Nemser, S. (1996). *Teacher mentoring: A critical review*. ERIC Digest.

Freed, J., & Huba, M. (2000). *Learner-centered assessment on college campuses: Shifting the focus from teaching to learning.* Needham Heights, MA: Allyn & Bacon.

Fuller, A., & Unwin, L. (1998). Reconceptualising apprenticeship: Exploring the relationship between work and learning. *Journal of Vocational Education and Training*, *50*(2), 153-173.

Fuller, A., & Unwin, L. (2007). What counts as good practice in contemporary apprenticeships?: Evidence from two contrasting sectors in England. *Education and Training*, *49*(6), 447-458.

Gamble, J. (2001). Modeling the invisible: The pedagogy of craft apprenticeship. *Studies in Continuing Education*, *23*(2), 185-200.

Gibbons, A. (2013). *An Architectural Approach to Instructional Design*. New York, NY: Routledge.

Giorgi, A. & Giorgi, B. (2003). *The descriptive phenomenological psychological method*. Washington, DC: American Psychological Association.

Giroux, H. (1985). Teachers as transformative intellectuals. *Social Education*, *49*(5), 376-379.

Goldin, C. & Katz, L. (2009). *The race between education and technology*. Cambridge, MA: Harvard University Press.

Goodlad, J. (1990). *The moral dimensions of teaching*. San Francisco, CA: Jossey-Bass Publishers.

Goody, E. (1989). Learning, apprenticeship and the division of labor. In M. Coy (Ed.), *Apprenticeship: From theory to method and back again* (pp. 233-256). Albany, NY: Suny Press.

Gospel, H. (1995). The decline of apprenticeship training in Britain. *Industrial Relations Journal*, *26*(1), 32-44.

Gospel, H., & Fuller, A. (1998). The modern apprenticeship: New wine in old bottles?. *Human Resource Management Journal*, *8*(1), 5-22.

Graves, B. (1989). Informal aspects of apprenticeship in selected American apprenticeships. In M. Coy (Ed.), *Apprenticeship: From theory to method and back again* (pp. 51-64). Albany, NY: Suny Press.

Green, T. (1985). The formation of conscience in an age of technology. *American Journal of Education*, 94(1), 1-32.

Greeno, J. (1997). On claims that answer the wrong question. *Educational Researcher*, *26*(1), 5-17.

Guile, D. & Young, M. (1999). Beyond the institution of apprenticeship: Towards a social theory of learning as the production of knowledge. In P. Ainley & H. Rainbird (Eds.), *Apprenticeship: Towards a new paradigm of learning: The future of education from 14+* (pp. 111-128). London, UK: Kogan Page Limited.

Guile, D. & Young, M. (1998). Apprenticeship as the social basis of learning. *Journal of Vocational Education*, *50*(2), 173-192.

Haas, J. (1989). The process of apprenticeship: Ritual ordeal and the adoption of a cloak of competence. In M. Coy (Ed.), *Apprenticeship: From theory to method and back again* (pp. 87-114). Albany, NY: Suny Press.

Hall, D., & Chandler, D. (2005). Psychological success: When the career is a calling. *Journal of Organizational Behavior*, *26*(2), 155-176.

Headlam-Wells, J., Gosland, J. & Craig, J. (2006). Beyond the organisation: The design and management of e-mentoring systems. *International Journal of Information Management*, *26*(5), 372-385.

Hillman, D., Willis, D., & Gunawardena, C. (1994). Learner-interface interaction in distance education: An extension of contemporary models and strategies for practitioners. *American Journal of Distance Education*, *8*(2), 30-42.

Hobart, M., & Schiffman, Z. (2000). *Information ages: Literacy, numeracy, and the computer revolution*. Baltimore, MD: Johns Hopkins University Press.

Holbrook, M. (2005). Customer value and autoethnography: Subjective personal introspection and the meanings of a photograph collection. *Journal of Business Research*, *58*(1), 45-61.

Holmberg, B. (1983). Guided didactic conversation in distance education. In D. Sewart, D. Keegan & B. Holmberg (Eds.), *Distance education: International perspectives* (pp. 114-122). London, UK: Routledge.

Hoover, D., & Oshineye, A. (2009). *Apprenticeship patterns: Guidance for the aspiring software craftsman*. Sebastopol, CA: O'Reilly Media.

Hrastinski, S. (2008). Asynchronous and synchronous e-learning. *Educause Quarterly*, *31*(4), 51-55.

Hussey, T., & Smith, P. (2002). The trouble with learning outcomes. *Active Learning in Higher Education*, *3*(3), 220-233.

Hyry-Beihammer, E. (2010). Master-apprentice relation in music teaching. *Nordisk musikkpedagogisk forskning, 12*(1), 161-178.

Ireson, J. (2004). Private tutoring: How prevalent and effective is it?. *London Review of Education*, *2*(2), 109-122.

Iversen, I. (1992). Skinner's early research: From reflexology to operant conditioning. *American Psychologist*, *47*(11), 1318.

Johnson, N. (1988). Japanese temple gardens and the apprentice training of priests. In M. Coy (Ed.), *Apprenticeship: From theory to method and back again* (pp. 211-232). Albany, NY: Suny Press.

Johnson, S., Aragon, S., & Shaik, N. (2000). Comparative analysis of learner satisfaction and learning outcomes in online and face-to-face learning environments. *Journal of Interactive Learning Research*, *11*(1), 29-49.

Jorgensen, D. (1989). *Participant observation: A methodology for human studies.* Thousand Oaks, CA: Sage Publications.

Jørgensen, H. (2000). Student learning in higher instrumental education: Who is responsible? *British Journal of Music Education*, *17*(1), 67-77.

Jowett, B. (2005). *Phaedrus: Plato.* Stilwell, KS. Digireads.com Publishing

Jung, I., Choi, S., Lim, C., & Leem, J. (2002). Effects of different types of interaction on learning achievement, satisfaction and participation in web-based instruction. *Innovations in Education and Teaching International*, *39*(2), 153-162.

Keep, E., & James, S. (2011). Employer demand for apprenticeships. In T. Dolphin & T. Lanning (Eds.), *Rethinking apprenticeships* (pp. 55-65). London, UK: Institute for Public Policy Research.

Keller, C., & Keller, J. (1996). *Cognition and tool use: The blacksmith at work*. Cambridge, UK: Cambridge University Press.

Kirpal, S. (2004). Researching work identities in a European context. *Career Development International*, *9*(3), 199-221.

Kluckhohn, F. (1940). The participant-observer technique in small communities. *American Journal of Sociology*, 46(3), 331-343.

Knowles, M. (1970). *The modern practice of adult education*. New York, NY: Associated Press.

Korthagen, F. (2004). In search of the essence of a good teacher: Towards a more holistic approach in teacher education. *Teaching and Teacher Education*, *20*(1), 77-97.

Kram, K. (1988). *Mentoring at work: Developmental relationships in organizational life*. Lanham, UK: University Press of America.

Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing.* Thousand Oaks, CA: Sage Publications.

Kvale, S., & Brinkmann, S. (2009). *Interviews: Learning the craft of qualitative research interviewing.* Thousand Oaks, CA: Sage Publications.

Lambert, N., & McCombs, B. (1998). *How students learn: Reforming schools through learner-centered education*. Washington, DC: American Psychological Association.

Lane, J. (1996). *Apprenticeship in England, 1600-1914*. London, UK: UCL Press.

Lave, J. (2011). *Apprenticeship in critical ethnographic practice*. Chicago, IL: University of Chicago Press.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.

Lehmann, W. (2007). *Choosing to labour?: School-work transitions and social class*. Quebec, CA: McGill-Queen's Press.

Levin, J., Kim, H., & Riel, M. (2006). *Analyzing instructional interactions on electronic message networks.* New York, NY: Online Education.

Lickona, T. (1993). The return of character education. *Educational Leadership*, *51*(3), 6-11.

Lincoln, S. & Guba, G. (1985). *Naturalistic Inquiry.* Thousand Oaks, CA: Sage Publications.

Lim, C., & Cheah, P. (2003). The role of the tutor in asynchronous discussion boards: A case study of a pre-service teacher course. *Educational Media International*, *40*(1-2), 33-48.

Macdonald, S. (2001). British social anthropology. In P. Atkinson, A. Coffey, S. Delamont, J. Lofland & L. Lofland (Eds.), *Handbook of ethnography* (pp. 60-79). Thousand Oaks, CA: Sage Publications.

Marchand, T. (2008). Muscles, morals and mind: Craft apprenticeship and the formation of person. *British Journal of Educational Studies*, *56*(3), 245-271.

Merrill, M. (2002). First principles of instruction. *Educational Technology Research and Development*, *50*(3), 43-59.

Mezirow, J. (1997). Transformative learning: Theory to practice. *New Directions for Adult and Continuing Education*, *74*(1), 5-12.

Mills, C. (2002). *White collar: The American middle classes*. Oxford, UK: Oxford University Press.

Mills, D. & Morton, M. (2013). *Ethnography and education*. London, UK: Sage Publications.

Moon, J. (1999). *Guidance for writing and using learning outcomes*. Exeter, UK: University of Exeter.

Moore, M. (1993). Three types of interaction. In K. Harry, M. John & D. Keegan (Eds.), *Distance education: New perspectives* (pp. 19-24). London, UK: Routledge.

Moore, M. & Kearsley, G. (2011). *Distance education: A systems view of online learning*. Belmont, California: Cengage Learning.

Nerland, M., & Hanken, I. (2002). Academies of music as arenas for education: Some reflections on the institutional construction of teacher-student relationships. In I. Hanken S. Nielsen

& M. Nerland (Eds.) *Research in and for higher education* (pp. 167-186). Oslo, NOR: Norges mussikkhøgskole.

Nerland, M., & Hanken, I. (2004). *Apprenticeship in late modernity: Trust as a critical but challenged dimension in teacher-student relationships.* Oslo, NOR: Oslo University College.

Neuhauser, C. (2002). Learning style and effectiveness of online and face-to-face instruction. *American Journal of Distance Education*, *16*(2), 99-113.

Nielsen, K. (2006). Apprenticeship at the academy of music. *International Journal of Education & the Arts*, *7*(4), 1-15.

Ntarangwi, M., Mills, D., & Babiker, M. (2006). *African anthropologies: History, critique and practice.* New York, NY: Zed Books.

Osguthorpe, R. (2008). On the reasons we want teachers of good disposition and moral character. *Journal of Teacher Education*, *59*(4), 288-299.

Palmer, J., Bresler, L., & Cooper, D. (2001). *Fifty major thinkers on education: From Confucius to Dewey*. New York, NY: Routledge.

Patton, M. (2001). *Qualitative evaluation and research methods.* New York, NY: Sage Publications.

Polanyi, M. (1962). *Personal knowledge: Towards a post-critical philosophy*. New York, NY: Psychology Press.

Powell, M. A., & California State Library (1997). *Academic tutoring and mentoring: A literature review*. Sacramento, CA: California Research Bureau.

Power, M. (1997). *The audit society: Rituals of verification*. Oxford, UK: Oxford University Press.

Pratt, D. (1998). *Five perspectives on teaching in adult and higher education*. Melbourne, FL: Krieger Publishing Company.

Racca, R., & Roth, W. (2001). Traditional apprenticeship vs. cognitive apprenticeship in the electrical trade: Implications for education programs. In *Annual Meeting of the American Educational Research Association, Seattle, WA*.

Ranson, S. (1998). *Inside the Learning Society*. London, UK: Cassell.

Reagan, T. (2004). *Non-Western educational traditions: Alternative approaches to educational thought and practice*. New York, NY: Psychology Press.

Reigeluth, C. (1983). *Instructional-design theories and models: A new paradigm of instructional theory.* London, UK: Routledge.

Riemer, J. (1979). *Hard hats: The work world of construction workers*. London, UK: Sage Publications.

Rod, M. (2011). Subjective personal introspection in action-oriented research. *Qualitative Research in Organizations and Management: An International Journal*, *6*(1), 6–25.

Rogers, D., Kranz, P., & Ferguson, C. (2012). A strategy for involving undergraduates in research. *Journal of Hispanic Higher Education*, *11*(1), 55-66.

Rogoff, B. (1990). *Apprenticeship in thinking: Cognitive development in social context*. Oxford, UK: Oxford University Press.

Rogoff, B. (2008). Observing sociocultural activity on three planes: Participatory appropriation, guided participation, and apprenticeship. In P. Murphy, K. Hall & J. Soler (Eds.), *Pedagogy and practice: Culture and identities* (pp. 58-74). London, UK: Sage.

Rorabaugh, W. (1986). *The craft apprentice: From Franklin to the machine age in America*. New York, NY: Oxford University Press.

Rosi, M., Stankov, S., & Glavinic, V. (2000). Intelligent tutoring systems for asynchronous distance education. *Electrotechnical Conference, 10*(1), *111-114.*

Russell, T. (1999). No significant difference phenomenon. *Educational Technology & Society*, *2*(3), 142-143.

Sandys, W., & Forster, S. (1864). *The history of the violin, and other instruments played on with the bow from the remotest times to the present: Also, an account of the principal makers, English and foreign, with numerous illustrations*. London, UK: Smith.

Sawyer, R. (2006). *The Cambridge handbook of the learning sciences*. New York, NY: Cambridge University Press.

Schank, R. (1990). *Tell me a story: A new look at real and artificial memory*. New York, NY: Charles Scribner's Sons.

Schunk, D. (1991). *Learning theories: An educational perspective*. New York, NY: Macmillan.

Seidman, I. (2012). *Interviewing as qualitative research: A guide for researchers in education and the social sciences*. Columbia, NY: Teachers College Press.

Sennett, R. (1998). *The corrosion of character.* New York, NY: W.W. Norton.

Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational Researcher*, *27*(2), 4-13.

Shaw, L. (2001). The digital classroom: How technology is changing the way we teach and learn. *Educational Technology & Society*, *4*(3), 161-162.

Sheremetov, L. & Nunez, G. (1999). Multi-agent framework for virtual learning spaces. *Journal of Interactive Learning Research. 10*(3), 301-321.

Shuell, T. (1986). Cognitive conceptions of learning. *Review of Educational Research*, *56*(4), 411-436.

Simpson, E. (2006). Apprenticeship in western India. *Journal of the Royal Anthropological Institute*, *12*(1), 151-171.

Singleton, J. (1989). Japanese folkcraft pottery apprenticeship: Cultural patterns of an educational institution. In M. Coy (Ed.), *Apprenticeship: From theory to method and back again* (pp. 13-30). Cambridge, MA: Suny Press.

Smart, K., Witt, C., & Scott, J. (2012). Toward learner-centered teaching: An inductive approach. *Business Communication Quarterly*, *75*(4), 392-403.

Snell, K. (1996). The apprenticeship system in British history: The fragmentation of a cultural institution. *History of Education*, *25*(4), 303-321.

Sotillo, S. (2000). Discourse functions and syntactic complexity in synchronous and asynchronous communication. *Language Learning & Technology*, *4*(1), 82-119.

Stake, R. (2010). *Qualitative research: Studying how things work.* New York, NY: The Guilford Press.

Stake, R. (2013). *Multiple case study analysis*. New York, NY: Guilford Press.

Tant, O. & Sherlock, N. (2011). Reinventing the apprenticeship: An employer's perspective. In T. Dolphin & T. Lanning (Eds.), *Rethinking apprenticeships* (pp. 66-70). London, UK: Institute for Public Policy Research.

technology [Def. 1]. (n.d.). In *Oxford English Dictionary Online,* Retrieved March 5, 2014, from http://www.oed.com.erl.lib.byu.edu/view/Entry/198469?redirectedFrom=technology#eid.

Tedlock, B. (1992). *Time and the highland Maya*. Albuquerque, NM: University of New Mexico Press.

Teles, L. (1993). *Global Networks*. Cambridge, MA: MIT Press.

Thorndike, E. (1906). *The principles of teaching: Based on psychology*. New York, NY: Routledge.

Tsoukas, H. (1997). The tyranny of light. *Futures*, *29*(9), 827–843.

Turner, V. (1995). *The ritual process: Structure and anti-structure*. Piscataway, NJ: Transaction Publishers.

Vaughn, Sally N. & Rubenstein, J. (2006). *Teaching and learning in northern Europe 1000–1200*. Turnhout, BEL: Brepols Publishers.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Wagner, E., & McCombs, B. (1995). Learner centered psychological principles in practice: Designs for distance education. *Educational Technology*, *35*(2), 32-35.

Weimer, M. (2013). *Learner-centered teaching: Five key changes to practice*. New York, NY: Wiley & Sons.

Williams, G. (1981). *Apprenticeship in craft*. Goffstown, NH: Daniel Clark Books.

Worthen, B., Sanders, J., & Fitzpatrick, J. (1997). *Program evaluation*. London, UK: Longman.

Yanchar, S. (2011). Participational agency. *Review of General Psychology*, *15*(3), 277-287.

Yanchar, S., Spackman, J. & Faulconer, J. (2013). Learning as embodied familiarization. *Journal of Theoretical and Philosophical Psychology. 33*(4), 216-232.