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## Crafting the craft tutorial

How YouTube teaches weaving, and how weaving can be taught on YouTube



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This thesis is worth 30 study points

# Abstract

This master's thesis, *Crafting the craft tutorial*, examines how tutorials on YouTube are presenting traditional crafting knowledge over digital media. Using Michael Polanyi's theory of Tacit Knowledge to understand how new means of designing tutorials can ease a craftsperson's journey from craft expert to tutorial maker. This thesis uses a multi-modal methodology informed by Robin Nelson's book, *Practice as Research in the Arts*. A quantitative *Media study* examines 107 videos about weaving on YouTube as of spring 2022, finding that many of these videos focus solely on the act of weaving, providing the viewer with little help in preparing the loom for weaving. To further explore the phenomenon of weaving videos on YouTube a qualitative study using practice-as-research forms a *Filming study*, wherein the researcher creates a series of educational tutorials about weaving Norwegian wadmål. This study results in a *Four-step mode* for creating new tutorials that resonate with Polanyi's theories. Critical to this mode is allowing the craftsperson being filmed to work as unhindered by the camera and filming process as possible, to let the craft processes flow in front of the camera. A voiceover in post-production provides explanation. During these studies new ideas for documentation of craft processes arise, such as making *Skill trees*, which allows for a more systematic analysis of skills in craft.

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## Samandrag

Denne masteroppgåva, *Crafting the craft tutorial*, undersøker korleis opplæringsvideoar på YouTube presenterer handlingsboren kunnskap gjennom digitale media. Michael Polanyi sine teoriar om Taus Kunnskap er nytta for å forstå betre korleis nye måtar å leggja opp opplæringsvideoar kan lette ein handverkars overgang frå handverkseksperter til opplæringsvideoskapar. Denne oppgåva nyttar ein multimodal metodologi informert av Robin Nelson sin bok, *Practice as Research in the Arts*. Ein kvantitative *Media studie* undersøker 107 videoar om veving på YouTube per våren 2022. Studien finn at ein pluralitet av desse videoar handlar om veving i seg sjølv og hjelpar vevaren lite i å førebu veven til vevinga. Å utforska fenomenet av opplæringsvideoar på YouTube ytterlegare, ein kvalitativ studie som nyttar forskning gjennom praksis formar ein *Filming studie*, der forskaren sjølv skapar ei rekkje opplæringsvideoar om veving av vadmål. Denne studien resulterer i ein *firesteg-modell* for å skapa nye opplæringsvideoar som resonerer med Polanyi sine teoriar. Avgjerande for denne modellen er at handverkaren skal få, i så stor grad som mogleg, jobba uforstyrra av kamera og ljós. Handverket må flyta for kameraet. Ei forteljarrøyst teke opp under redigering av videoane forklarar kva som går føre seg. Under desse studiane kom nye idear for dokumentering av handverk, som skaping av *Teknikk-tre*, som gjer mogleg ein meir systematisk gjennomgang av teknikkar i handverk.

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# Table of Contents

<b>Abstract .....</b>	<b>2</b>
<b>Samandrag .....</b>	<b>3</b>
<b>Table of Contents .....</b>	<b>4</b>
<b>1 Introduction.....</b>	<b>7</b>
1.1 The State of the Art.....	8
1.2 Aim for Research.....	11
1.3 Boundaries for Research.....	11
1.4 Outline of Thesis .....	13
<b>2 Theoretical perspectives .....</b>	<b>16</b>
2.1 Tacit Knowledge.....	16
2.2 Practice as Research .....	18
<b>3 Methods .....</b>	<b>21</b>
3.1 Media Study .....	22
3.1.1 Procedure.....	23
3.1.2 Data collection form .....	24
3.2 Filming Study.....	25
3.2.1 The Project Log .....	25
3.2.2 Elemental Comparison.....	26
<b>4 Media Study Analysis .....</b>	<b>28</b>
4.1 Video Type .....	29
4.2 Craft.....	29
4.3 Tradition.....	31
4.4 Production.....	33
4.5 Findings .....	37
<b>5 The Craft of Filming and Filming for Craft.....</b>	<b>38</b>
5.1 Wadmal: History, tradition, and practice .....	38
5.1.1 The history .....	39
5.1.2 Norwegian tradition.....	40
5.1.3 My practice .....	41
5.2 Reflexive analysis .....	43
5.2.1 Series 1.....	44

5.2.2	Series 2 .....	46
5.2.3	Series 3 .....	48
5.3	Elemental analysis.....	55
5.3.1	Modes of Planning .....	56
5.3.2	Equipment.....	60
5.3.3	Camera Angles .....	61
<b>6</b>	<b>Findings and Applications .....</b>	<b>65</b>
6.1	The Four Step mode.....	65
6.2	Skill trees and Storyboards .....	66
6.3	The Four camera-angle families .....	67
6.4	Finding the Workflow .....	68
<b>7</b>	<b>Summary and Discussion .....</b>	<b>74</b>
7.1	Implications.....	76
7.2	Other perspectives.....	77
7.3	Further research .....	79
7.4	Closing remarks.....	80
	<b>Bibliography .....</b>	<b>82</b>
	<b>List of tables and charts.....</b>	<b>85</b>
	<b>Appendixes .....</b>	<b>86</b>



## Foreword

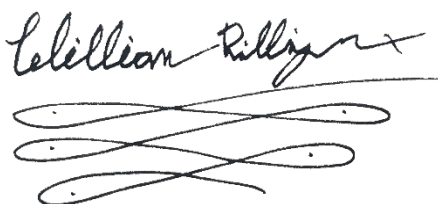
Weaving is something that has fascinated me for a long time, and this thesis is a result of that fascination. Before I could weave I learned to knit. There were very few people I was around in my childhood who knew how to knit as the craft does not enjoy the same ubiquity in the United States as it does in Norway. So, I started watching YouTube videos. That's where I learned to increase, decrease, knit socks and mittens, follow patterns; so YouTube became a vital tool for me as my interest in textiles crafts grew. When I began studying at Rauland my need for YouTube went away, as I had people around me willing to teach me new things, but its impact on how I learned new techniques never quite went away.

When starting my master's, I was fascinated by the idea of passing down traditions through generations, either mother to daughter or teacher to student. At every turn I was learning about and talking about traditions that had survived for generations in one valley, or on one island, passed from generation to generation. When I thought back to my own childhood I couldn't find any crafting traditions that had been passed down to me, and I knew I wasn't the only one using historical crafts in this way. Remembering back to the YouTube videos I had watched about knitting I knew there must be a whole world of videos on YouTube about weaving, some that I had already seen. So how did these videos teach these crafts?, I wondered. And how would I go about making my own tutorials so others could learn from me?

Traditional craft is a part of cultural heritage, and that heritage deserves protection. As this cultural heritage is immaterial and exists in the performance of it we need people continuing to craft, and craft in a traditional way to preserve it for generations to come. This thesis is my way of preserving the craft of weaving wadmal by getting others interested in it, and hopefully getting others to actually follow along with the videos and weave more wadmal. Additionally I hope this thesis can help tradition bearers who perform a craft they want to preserve will gain an understanding of how they can make their own tutorials for others to learn from.

Vassøy, 11<sup>th</sup> of May 2023

-William M A Riedlinger

A handwritten signature in black ink, reading "William M A Riedlinger". Below the signature are several horizontal, overlapping scribbles that resemble the texture of woven fabric.

# 1 Introduction

Weaving is not a simple craft to learn, but YouTube might make it easier. This thesis approaches these newer forms of craft teaching and learning from the perspective of the craftspeople, both the one whose learning and the one teaching. The aim is to understand the phenomenon of craft tutorials by approaching it from the two logically available perspectives, that of the viewer and that of the creator. Thus, the phenomenon can be better understood than to view it from only one perspective. As these videos are intended to teach crafting skills they will be viewed through a paradigm that understands the craftspeople as having a specific relationship to knowledge about craft and the form this knowledge takes. Quantitative data will provide a broad understanding of the kinds of weaving tutorials new learners meet, and qualitative data will give a deep understanding of the challenges craftspeople encounter in creating new tutorials. Ultimately the findings in this thesis will provide a suggestion for how to make new craft tutorials.

Learning crafting skills often requires a different approach than learning facts and figures. These skills are dependent on hands and mind cooperating to perform a task. Carving a figure requires not only an understanding of the proportions of a human head to the abdomen and legs, but also an ability to judge the pressure applied to the knife's shaft to cut the specific wood at its specific humidity and grain direction. Knowing the number of Newtons required would likely prove useless to nearly anyone learning to carve, a pedagogical anecdote might prove more useful, but the thing most likely to work would be to experience the sensation itself. Acknowledging the existence of this type of experiential knowledge and working with it to understand processes associated with teaching craft skills forms the theoretical perspective for this thesis.

In addition to an understanding that teaching and learning craft skills varies from that of other forms of knowledge is that the context of this teaching affects the way learners understand it. Learning from a mother is not the same as learning from a teacher, or the same as learning from a book, and certainly different than trying to figure it out yourself! YouTube as a medium provides possibilities, and inherent limitations, that are not always present in other forms of learning. This study uses data gathered from YouTube to understand what learners meet when trying to learn the craft of weaving.

This study approaches the phenomenon of craft tutorials on YouTube from two vantages, the first being the perspective of the viewer watching these videos and trying to learn to weave and the second the craftspeople making these tutorials. These different vantages take the form of two studies. The first study is based on watching a large number of tutorial videos and filling out a data



collection form for each. These forms are then qualitatively coded leading to a descriptive statistical analysis of the videos to understand and draw conclusions about the types and styles of tutorials on YouTube. The second study takes a qualitative approach using the theories and methods of Practice as Research to gain an understanding of the reasons why these tutorials are made the way they are. These two studies aim to cast light on the same phenomenon from different angles to gain a fuller understanding of it. Before diving into the thesis work itself some background on the field is provided.

## **1.1 The State of the Art**

While the field of internet-based traditional craft teaching research may seem narrow the work done here before provides a jumping-off point for this thesis. Emilyn McKenna, a former USN Rauland student, wrote her master's thesis on the tradition of tablet-woven bands in East-Telemark and in her thesis mentions the use of social media as a means of creating living communities of craftspeople that exchange experiences and knowledge about their craft as well as welcoming new learners into the craft (McKenna, 2021). McKenna's thesis often cited a British researcher, Nicola Wood, who was been working with digitally mediated craft teaching for many years. Wood's work has been combed, and parts relevant to this research brought in to inform and guide the creation of teaching videos later in this study.

In a 2009 article Nicola Wood, Chris Rust, and Grace Horne collate their research on transmitting craft knowledge in a digital medium. This article lays much of the groundwork for this thesis on how practice-based research can lead to models for creating teaching videos. This article lays out years' worth of research on a topic highly similar to this thesis' research topic. Wood et al's paper describes a practice in which an "expert learner" is trained by a craftsman and, along with a video designer, the expert learner helps to create a multimedia guide for new learners. A method described in this paper to better understand the craft, and how to teach it, is by creating a flow chart of the individual steps in the process of making a folding knife. The flow chart would be continually revised as she honed her craft and taught the craft to others. The initial flow charts were made using a video event log (Wood et al., 2009). This method could be useful to better understand the individual elements within each larger phase of the weaving process. Making this sort of flow chart could also help me better understand the goals each video should teach to provide the learner what they need. Nicola Wood's PhD thesis lays out how deciding on goals for learning resources eases and guides the process of creating the resource. The learning resource she

created for wood bowl turning was a more multi-media approach than the videos I anticipate making, however the reflective process she uses of creating a resource then updating it with new learning in iterations can greatly inform my own methods for making videos (Wood, 2006, pp. 49–57).

Wood's paper references Polanyi and Schön, two philosophers active in the second half of the twentieth century, theories of tacit knowledge as perspectives on the act of crafting, making pains to highlight the differences in the two philosophers' thinking on the matter. Wood interprets Polanyi's bridging of the knowledge gap between the learner and the master as the learner's responsibility, countering it with Schön's idea of the responsibility being divided equally between master and learner, with the master needing to "reflect-in-action" and communicate that understanding to the learner. Wood emphasizes that this reflection in action shouldn't be understood as the same as making tacit knowledge explicit, rather "they are explicit concepts which can help the expert articulate his (sic) tacit knowledge" (Wood et al., 2009, p. 72). This interpretation of the knowledge gap and how Polanyi and Schön approach it differently informs my own understanding of how my videos should approach the topic. Bridging the knowledge gap between master and learner, that is to say the amount of knowledge a learner must have of a craft before the learner can understand the nuances of the master's teaching, is a natural use-case for YouTube. Tutorials can introduce the learner to words, concepts, and tools of the trade so that when that learner meets an offline teacher they already have a background of knowledge. This bridging of the master-learner knowledge gap was further explored in a paper by Dreyfus and Dreyfus.

Stuart E. Dreyfus and Hubert L. Dreyfus in a 1980 paper systematized the skill acquisition process in a way useful for craftspeople and teachers to better reflect over their own actions and teaching practices. In the paper they identify five stages of developing skillful performance: Novice, Competence, Proficiency, Expertise, and Mastery. This paper also introduces many terms and establishes a model for the interaction of these terms and has wide applicability for all forms of teaching. A central conclusion is that a teacher must understand the stage their pupil is at and adjust their teaching accordingly. As the learner progresses from one stage to the next they use increasingly thorough analytical principles to understand a situation and guide their decision-making on how to react. At the last two stages (Expertise and Mastery) those analytical methods become intuitive and the decision making of the craftsperson is no longer based on analysis but on intuition. A craftsperson on the stage of Expertise is, however, continuing to monitor their decisions

and the situational feedback they receive and adjust based on it. According to Dreyfus and Dreyfus there is no such thing as a Master, as the stage of Mastery can only be attained for short periods when the Expert is highly absorbed and the monitoring process no longer is conscious, but rather intuitive (Dreyfus & Dreyfus, 1980). The paper provides examples of how to interact with students at each stage of learning concluding that *“The designer of training aids and courses must at all times be aware of the developmental stage of the student, so as to facilitate the trainee's advancement to the next stage, and to avoid the temptation to introduce intricate and sophisticated aids”* (Dreyfus & Dreyfus, 1980, p. 16). This understanding of how to bridge the learning gap provides a structure for creating content for learners, not just in that it must be broken into content for Beginners, Intermediate, and Advanced, but establishes criteria for guiding a student from one stage to another. Beyond the conceptual structure of the learning is the actual mode for creating these videos.

Whatever way the video lessons are set up a few things must be clear about the making of videos to begin with. It's not just a matter of picking up a camera and recording, there are fundamental challenges that arise when a camera is used to capture information. Tellef Kvifte, a researcher at University of South-Eastern Norway, published an article in 1980 about just these challenges. In this case filming fiddlers' techniques while playing the Hardanger fiddle. Kvifte mentions three key limitations when it comes to capturing activity on camera: first that the activity being captured occurs in three dimensions, while the playback from the camera will only be available in two, second that each camera will have limitations on image resolution and length of video due to memory capacity, and thirdly that the act of filming is inherently artificial and affects the activity being performed. Each of these elements were addressed by Kvifte systematically and through careful planning. First each element of the fiddle playing that needs capturing is listed, then camera angles for capturing those movements in respect to the movement's direction are established, and lastly the fiddler is made comfortable by respecting their time, patience, and not overdoing it with lights, directions, or the number of cameras (Kvifte, 1980). This last element, the inherently artificial nature of filming a situation, and Kvifte's response to it: sacrificing some quality of the recording for the sake of the demonstrator feeling more comfortable and willing to demonstrate their craft, is an aspect I have assigned quite a bit of weight to in the execution of my research. For the results of this research to be useful it's important that the craftspeople creating tutorials and using the means suggested in this thesis feel comfortable using them and showing their craft to others. This is some of the work done in the field of digital craft teaching, the following

will present the goals for this research relative to other work in the field, and boundaries for the studies that are necessary to accomplish that which is laid out in the research questions.

## **1.2 Aim for Research**

The overarching aim of this thesis is to understand the phenomenon of craft tutorials; how they present on the internet, the types of skills they teach or demonstrate, and how craftspeople can better share their knowledge with those wishing to learn via tutorials. Organizations like the Norwegian Folk Art and Craft Association (Norges Husflidslag), Association for Studies of Culture and Traditions (Studieforbundet Kultur og Tradisjon), University of Southeastern Norway (USN), and others interested in teaching crafts for a wider audience may benefit from understanding how these skills are taught today and how techniques for digital teaching can improve. This study will tangentially begin to examine how craft traditions survive on the internet and how tradition bearers can change the ways they create new videos to give future generations greater access to the knowledge of the past.

To better understand how the internet age is impacting the teaching of craft the following research question is posed:

*How can craft tutorials teach the skills required for weaving wadmal?*

As this question can be answered in many ways the following two questions act to define the research methods for this study:

*How is weaving taught on YouTube?*

*How does a craftsman behave in the act of content creation?*

Answering the question “how is weaving taught on YouTube?” also answers, to a degree, the question of “how does a craftsman behave in the act of content creation”, meaning that by following up this question with rigorous methods for data collection and analysis a better understanding of the ways the internet affects craft transmission will follow, if limited by the fact that the answer provided will be entirely based on data from the craft of weaving and the media platform YouTube. Other researchers’ research, and experiences gleaned from other types of crafting videos, will provide understanding outside of weaving on YouTube.

## **1.3 Boundaries for Research**

The research gap this study aims to fill is created by a lack of highly similar studies existing, but other researchers who have been trying to answer similar questions have laid a foundation for

this thesis. Nicola Wood is a British researcher who has been working for the last two decades on understanding the use of digital media in transmitting craft skills (Wood, 2006, 2010; Wood et al., 2009). Several other researchers have spent years gaining an understanding of YouTube, the communities built there, how teaching is done on the platform, and how it is changing (Amos, 2021; Bonini & Gandini, 2020; Garrett, 2016; Lee et al., 2017; Manca & Ranieri, 2013). These researchers' work show there is a lack of understanding surrounding the way videos about crafting exist and behave on YouTube and how those videos can be created to teach crafting skills.

Boundaries must be established for research to allow the researcher to operate within a defined and limited terrain, in that way being able to judge if the terrain has or has not been fully explored. These boundaries make explicit the extent of the research in this thesis and are a means to judge to what degree the research meets the criteria established.

The first boundary to establish is the object of study for this thesis: videos on YouTube used to teach self-motivated learners how to weave wadmals. Tutorials, in the context of this thesis, are short and informative films usually recorded digitally for a digital platform (although not exclusively) and are meant to exist on the internet. Digital video is the chosen means of transmitting craft knowledge as it opens a new mode of transmitting knowledge different from in-classroom teaching or learning from a book. YouTube is a free service offered by Google where nearly anyone (provided camera and internet access) can upload a video, and even more people can watch them. Due to its ubiquity and ease of access YouTube has been chosen as the media platform of study for this thesis. Much of the reason this study has been constrained to tutorials present on YouTube is because of the uniform nature of the medium; each video has an ID, a title, a specified length, and so on, making them easy to quantify and sort.

Another boundary is what type of content will be included when trying to understand how weaving is taught on YouTube. Weaving is the craft of choice because of my own background in the craft and my urge to provide greater access to learning resources about the craft by making my own videos about it. Further, this craft seemingly has a smaller number of videos about it posted to YouTube than other crafts, like knitting, meaning collection and analysis of fewer videos is required to ascertain an understanding of the state of teaching weaving on YouTube.

Lastly, this craft provides interesting challenges for filming and teaching, as multiple body parts and components of the loom are interacting simultaneously to manufacture a cloth. In weaving there's not just two needle tips and one yarn interacting with the hands, but two feet, two hands, treadles, a beater, and a shuttle all needing to operate correctly relative to each other to

work properly. This increases the complexity of filming and will provide a better understanding of the challenges associated with creating a craft tutorial. In the portion of the thesis dealing with the collection and analysis of existing tutorials, weaving is defined broadly. The use of several different equipment-types, like frame looms, upright looms, floor looms, ridged-heddle looms, etc. are included. Different, historically separate weaving techniques are also included, such as tapestry weaving, cloth weaving (for clothes), rug weaving, etc. The nation or region of origin for the traditions held within the craft is not limited, however the use of English, Norwegian, Danish and Swedish search terms attempt to emulate the use of language someone from Norway wishing to learn weaving might search by. These boundaries make it possible to focus on a narrow range within the field and accomplish the task of researching it. The following presents how this thesis is constructed to ease the reader into the main thrust of the thesis.

## **1.4 Outline of Thesis**

To make understanding and navigating this thesis as simple as possible this chapter will outline the structure of the thesis, and provide reasoning for why it is structured the way it is. Much of the background necessary to understand the following thesis has already been laid out in the introduction, the literature has shown how a well-executed study can provide new knowledge to the field, the aims and boundaries for this thesis have been established, and the relevance of findings from these studies have been laid out. In the coming chapter the overarching theoretical perspectives will be laid out.

The second chapter of this thesis is dedicated to the ontologies and epistemologies that form the foundation for how this thesis views the world in which craft tutorials exist. The theoretical framework is presented first to give the reader an understanding of what Tacit Knowledge is and the core philosophies surrounding it. This lays out the ways in which the world is assumed to work and how humans interact with it. The latter subchapter describes the means by which new knowledge can be gained by understanding the world in this way.

The third chapter lays out the methods to be used in the various parts of the thesis, the reasons they are designed the way they are, and the strengths and weaknesses of these methods. The first method relates to the Media study, a study that takes a quantitative approach to data collection and analysis to gain a broad understanding of the types of tutorials on YouTube about weaving. The second method outlined relates to the filming study, a practice-based qualitative data collection method that will provide depth in understanding about how these tutorials are made. To

keep the construction of the thesis organized the analyses of the data collected in these studies are divided into two chapters. Chapter four breaks down the data collected during the media study and offers findings based on it, and chapter five does the same with the data collected during the filming study.

Chapter four begins by exploring what the data collected from the Media study can reveal and the state of weaving tutorials on YouTube. Descriptive statistics will give a greater understanding of the types of videos prospective weavers will meet when searching YouTube. The subchapters are broken down based on the categories of questions in the data collection form, as described in chapter three. The first subchapter deals with the aims of the videos; are they tutorials, vlogs (video blogs, essentially video diaries), or documentaries? The second subchapter looks into the craft content of each video; what types of looms are being used, what types of materials, and so on. The third subchapter deals with the stuff of tradition within the video; how does the creator relate to tradition in their word choice and expressions? And the final subchapter looks at the ways the videos are produced to inform my own making of new videos.

Chapter five uses a more complicated analysis method to approach data gathered from creating my own weaving tutorials, this study will be referred to as the Filming study. The first being a historical background of the fabric that is to be woven gathered from written and video sources. This is presented here to provide the reader with an understanding of what the videos will be presenting. Viewers of these tutorials are likely to have some sort of background knowledge they've picked up along the way to finding these videos and it can be useful for readers of this thesis to also have this background. As a researcher focusing on textiles, weaving, and wool I'd like to present this information to readers looking to learn about wadmals, as I find it to be a very interesting subject with many facets and unanswered questions that I'd like the reader to see in this thesis.

After this historical background comes the analysis of the project log written throughout the entire project. The main focus of the project log is to document the practice and its context within the project itself. This analysis provides documentation of the development process that led to the final videos, what I discovered along the way, and the reasoning as to why those discoveries were useful to me and how they can be useful to others. Each trial is referred to as a "series" as each filming trial was intended to be edited into a short series of videos presenting the various stages of weaving. Nearing the completion of these trails it was possible to systematize the tools and techniques used during filming to provide data for the second phase of analysis.



This second phase is the Elemental analysis; an analysis of the various “elements” that comprise the filming process. Things like what camera angles are used, what equipment is chosen, or how the filmmaker approaches the process of filming are examples of categories of elements; elements themselves could include *bird’s eye view* and *over-the-shoulder*, *ring lamp* and *Zoom H5 microphone*, *active* and *passive approach*. Each of these elements are derived from the experimental practice of filmmaking during this study and are analyzed based on how they were used during the study and how they improved or hindered the making of the resulting weaving tutorials. The results of both these analyses are discussed in chapter six.

Chapter six is dedicated to the results of both these studies and analyses, as well as the ways they can impact new tutorials made about craft. These findings are organized in such a way that an aspiring video creator should be able to use chapter 6 as a guide for how to create their own tutorials. In addition to showing the findings of this research this chapter aims to actualize those findings by presenting them in a useful way. The subchapters are arranged chronologically in relation to the tutorial making process, going from the act of performing a craft, to the development of a storyboard, then the filming process itself, and finally how to effectively edit the digital footage into a useful tutorial.

A discussion chapter follows these findings to look further into how this thesis relates to other work and theories in the field of research on traditional crafts as well as discussing some larger questions that arose during the course of this research. The thesis is organized based on a principle that the reader should be able to navigate this document based on the table of contents, and the preceding text should give more context to how the thesis is constructed and meant to be read. After this the theoretical framework will be presented laying the foundation for the studies that follow.

## 2 Theoretical perspectives

Theoretical perspectives lay the foundation for the choice of methods in data collection and analysis, they establish the framework through which the phenomenon that the thesis is attempting to understand is to be understood. By establishing a set of terms that act as metaphors for larger concepts laid out by theoreticians, researchers can break down the phenomenon being studied in such a way that they can rationally collect the type of data they need to answer the research questions posed. These terms are then structured into models to demonstrate how they interact with each other, and through these interactions gain a greater understanding of the research object's functioning. Using terms arranged in models as a way of demonstrating the theoretical perspective is a common form for building theories in academia (Busch, 2013; Lakoff & Johnson, 1980). This thesis is structured around the craft of weaving and the modes by which it can be taught to others, specifically how this teacher-student relationship is being digitized.

Several theoretical perspectives could have been chosen to answer the research questions posed, such as Media and Communication theories, like Benjamin Walter's theory on the interaction between the mechanically reproduced televisual performance and the original theatrical performance of the same act (Benjamin, 2015). A didactic approach could also have been chosen to dive into the concrete pedagogical factors behind tutorial-making and how digitized teaching changes the relationship: how a distancing, both geographic, cultural, and temporal, between teacher and student affects learning, especially as it relates to experiential knowing in craft, and cultural background as it relates to tradition (Willbergh, 2010). While these theories would provide interesting insights the perspective of Tacit Knowledge was selected for this research as it provides helpful terminology and models for the types of methods being used.

### 2.1 Tacit Knowledge

The theoretical perspective chosen for this research project is Tacit Knowledge, the theory that much of our understanding of interactions between our bodies and objects around us is hidden, even to ourselves. While the ideas existed before, they were first put to paper by Michael Polanyi, a Hungarian-British doctor and philosopher. In his 1966 book *The Tacit Dimension*, written based on lectures he gave in 1962, Polanyi presents his framework for how humans interact with the world around them. This framework provides a set of terms and a model for how these terms interact with each other providing a tool with which the world can be analyzed and understood.

The phrase coined by Polanyi introduced on the second page of his treatise *The Tacit Dimension* lays the foundation and summarized the philosophy he later expounds upon: “We can know more than we can tell” (1966, p. 4). These words summarize the heart of Tacit Knowledge. Often this is referred to as “muscle memory,” it’s the ability to do something without totally understanding how you’re doing it. Polanyi postulates that while an eyewitness might not be able to describe a whole face unaided, if given a number of noses, eyes, eyebrows, lips and ears to choose from they can construct a face from memory leading to the conclusion “... we can communicate, after all, our knowledge of a physiognomy, *provided we are given adequate means for expressing ourselves.*” (italics added) (1966, p. 5). These “means for expressing ourselves” are tools to turn implicit, experiential knowledge into explicit, expressible knowledge. To really get a grasp on this the concept must be further broken down into several terms.

Two terms of tacit knowing are established via an anecdote of an electric shock experiment: *proximal* and *distal*. A participant is shocked when he utters certain syllables, after a short time the participant begins to avoid uttering these syllables. Their association of the syllables to the shock establishes a *proximal* knowledge, an understanding of what he is doing, and the receiving of the shock itself *distal* knowledge, and understanding of what is happening to or around him. The participant’s understanding of the proximal knowledge only becomes expressed via his awareness of the distal knowledge: that uttering one of the “shock syllables” will get him shocked. Thus, while perceivably his attention is focused on the electric shock his avoidance method is what is actively being attended too, but remains unspoken, or *tacit*. This further establishes the *meaning* of distal knowledge is often in relation to our proximal understanding of that event (Polanyi, 1966, p. 9), the meaning of the woodworker’s correctly adjusted plane is experienced through the woodworker’s proximal understanding of how a well-adjusted plane feels and sounds. The relation of these two terms form the structure of *tacit knowledge*.

The theoretical perspective of tacit knowing expresses itself in the understanding that particulars of distal knowledge or experiences are comprehended through the proximal knowledge within the person experiencing it. The world is understood through a person’s distal knowledge but is experienced via a proximal understanding within the body. Said another way: what happens outside of the body (in the world) becomes meaningful via the proximal understanding experienced by the body. When a tool is then introduced to this body-perception system the perception of the tool integrates into the body, as an extension of it, as perception migrates from the tool-body interaction to the distal experience of what the tool is doing. Instead of perceiving “pulling bicep

moves forearm to slide knife down wood, wood is cut”, this theory understands the perception as “wood is cut, therefore the body is working”, by observing distal effect the proximal chain of events that led to it can be made tacit, or internalized. In short the theory poses that the world only can be interacted with by “forgetting” how we are interacting with it (Polanyi, 1966, p. 34), thus allowing things like tools or body movements to craft objects and performances that are greater than the sum of the tools and movements. Polanyi asserts that by analyzing the proximal knowledge the performer will connect to it more closely, “interiorize” it (Polanyi, 1966, p. 19). This forgetting does make it difficult for craftspeople to fully articulate how they are performing a skill to a learner. In a research project with a British knifemaker Nicola Wood noted that the knife maker often would perform tasks for the learner on the learner’s knife rather than attempt to explain how it was performed, or try to explain but when video of the performance was played back it would reveal the knifemaker doing something entirely different to how he had explained it (Wood et al., 2009).

Understanding knowledge as layers of greater and lesser internalized understandings that attend to the distal via the proximal, and the modes by which the proximal understanding can be enhanced by breaking it down and examining the component parts provide a foundation for my approach to Practice as Research.

## **2.2 Practice as Research**

Practice as research is the field of study concerned with gaining understanding and new knowledge of a performative practice via the execution of the practice itself. In this study the primary practice being studied is the filming of a traditional craft being performed, with weight on the filming aspect. A common method within this field is project logging, however the methods are varied and are difficult to summarize in clear methodologies. Project logs and active reflection during the performing of a practice provide a form of qualitative data that can be analyzed by the same researcher that created it. This lack of distance between researcher and data is part of what makes Practice as Research such a useful epistemology for craft research, as the practitioner had directly experienced the phenomena they are studying.

Part of what makes this field difficult yet interesting is its lack of consensus within academic rigor, however Nelson poses some aspects of what constitutes rigor within Practice as Research. Three forms of rigor are identified by Nelson: rigor in the arts practice itself, that being working hard to make a beautiful tapestry, for example; rigor in intellectual exploration; and rigor in the research submission (Nelson, 2013, pp. 64–67). Additionally Anette Arlander provides five criteria

for artistic research in which she summarized points made in the book *Artistic Research: Theories, Methods, Practice*: presenting research questions and problems; credibility in the explanations given; internal logic withing the explanation; usability of the research for future practice and/or research; meaning and importance of the findings for the community (Arlander, 2013, p. 156; Hannula et al., 2005). The most crucial element of rigor for the study at hand is that of rigor in reflection on the part of the researcher. Nelson summarizes this form for rigor as “turning know-how into know-what” (Nelson, 2013, p. 65). Turning know-how into know-what is a critical aspect of Practice as Research and deserves further discussion.

Three fundamental terms for Practice as Research are Know-that, Know-how and Know-what (see figure 1). Know-that is the most removed aspect of knowing within a practice: “outsider” knowledge, the history, significance, and basic understanding of a practice. In the context of weaving this could be knowing the processes of dressing a loom, or the economics of sheep raising and weaving in preindustrial England, or that water for fulling wool fabrics should be kept warm and it takes between one to four hours to properly full wadmal. This type of knowledge does not include any form of tacit knowledge, however tacit knowledge can give way to Know-that.

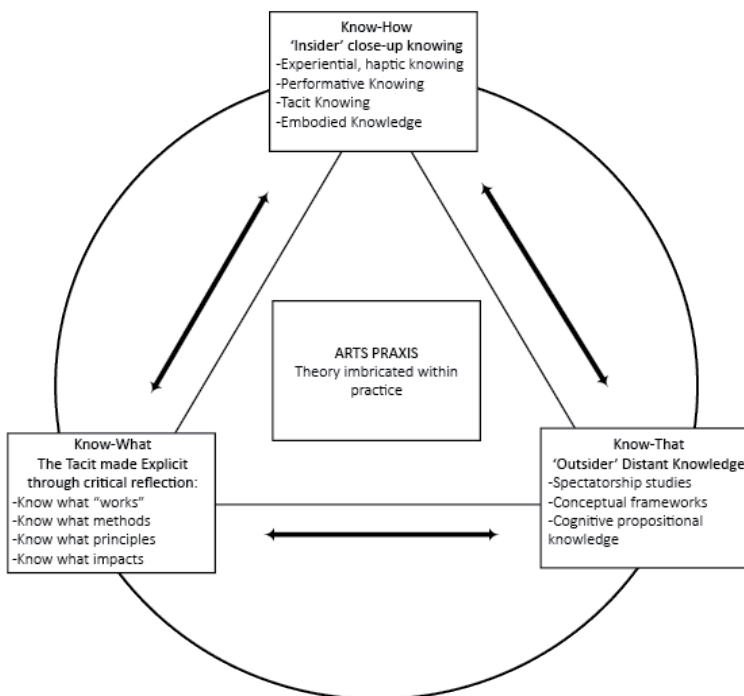


Figure 1 Modes of Knowing (Nelson 2016, p.37) Diagram replicated.

Know-how is the tacit knowledge that is learned and repeated by a practitioner, it’s the haptic understanding provided by performing a craft, play, sport, etc..., and the bodily understanding that this experience provides. Know-how in weaving is following the rhythmic flow of treading, throwing the shuttle, beating the pick; knowing which treadle to press next; it’s the ability to measure out a warp without constantly referring to books or teachers; it’s even using a reed tool to

quickly slay a reed without looking at where the fingers are positioned to catch the thread. As know-how develops so does know-what.

Know-what is the reflected judgement that occurs as a practice is occurring. In weaving it's knowing how hard to beat each pick on that specific loom with that specific tension on the fiber to achieve a specific quality of fabric. It's the ability to look at, feel, and pull a yarn to determine if it'll function well as warp yarn, or full the way the weaver wants. It's a type of knowledge that easily can build up over years without ever needing to be expressed as words or diagrams, but in the process of connecting know-what and know-that to complete the cycle is the core of all practice-based research: it's making the implicit explicit, putting to words the experiences and understandings of a practice using critical reflection as a key driver. This reflection is also what separates a *practice* from a *praxis*. Praxis is the integration of intelligent reflection into an artist or craftsperson's practice (Nelson, 2013, p. 40). Beyond this we can further integrate Polanyi's theories into Nelson's models.

Tacit Knowledge provides the terms *proximal* and *distal knowledge* which interact to show how the craftsperson is understanding their actions and their performance through the physical impact that performance is having on the materials they are working with. An important interaction between distal and proximal knowledge is how a crafter's ability to perform well breaks down when reflecting over their proximal actions during a performance; thinking about how they're flexing their bicep while planing a wooden board may cause them to make mistakes. Building off that interaction is Polanyi's assertion that by analyzing proximal knowledge it breaks down, but in that reflection we improve our understanding of the knowledge and when normal practice resumes will have improved it (Polanyi, 1966, p. 19). This process of reflection is where Practice as Research begins. Through critical reflection the practitioner is not only able to improve their own ability, but turn their deep experiential knowledge, *know-what*, into a more shareable form, *know-that*, either as written word, pedagogical exercises for craft students, or video tutorials. The next chapter explores the concrete methods by which new knowledge will be created through craft in this study.

### 3 Methods

A metaphor of building a bridge is apt to describe the methods chosen, and why they were chosen for this thesis. On one side of the chasm is the knowledge contained in the studying of existing YouTube videos, what techniques they demonstrate, how they demonstrate and teach those techniques, and how they produce the videos. On the other side of the chasm is the knowledge and experiences of how these videos actually get made, gained by actually trying to make videos about weaving. As research is conducted on either side more and more of the bridge is built until enough research is done to consider the two sides unified and connected. The meeting of the two sides of the bridge provides the results of the study: a guide for aspiring digital craft teachers. Pulling the metaphor any more than this and it starts to break down, but the key factor is the way the two seemingly separate methods approach the results of the research from different directions, the Media study approaches the research from the perspective of the viewing of videos, and the Filming study from the perspective of the *Content* creator. A final analysis of the results of these methods will provide a solid basis for writing a guide for future creators, however drawbacks exist for these methods which will be discussed in each method's description.

The questions posed in this thesis, the goal of which is to understand what happens to crafting traditions when they are posted on YouTube, divide the data collection methods into two forms, one on either side of the most fundamental division between research methods. One is a qualitative method, the other quantitative. The division comes from a need to both understand the field of craft YouTube in general, hence a quantitative method, and the need to gain a deep understanding of what goes into making videos about crafting and what can change in the future.

The first method selected for data collection is an extended literature review where instead of written research literature being the focus, craft videos about weaving are the focus. These data are collected via a form filled out by the researcher as the videos are playing and provide data in the form of numbers and rankings that can be collated and interpreted after all the videos are watched and forms filled out. This type of data is useful as it will provide answers to the types of videos being made, the types of thing being shown in them, the working methods of the crafters in the videos, and provide an introduction to and understanding of the field to the researcher in the act of gathering and reviewing the video material. This leads into the next form of data collection using a practiced based method focusing on the experiences of the crafter-researcher made underway while filming craft tutorials for YouTube.



The actual data collection for this part of the study will primarily be via a project log (Nelson, 2013) as this provides *in situ* capturing of the crafter-researcher's perspective on the work. Writing the logs acts as a form of active self-reflection that occurs directly after or during the craft practice itself. The primary focus of the logs in this project is the act of creating the videos, however a good amount of the logged material also discusses the act of weaving itself, as this interplay between the craft and the filming of the craft is the core of the study being conducted.

### **3.1 Media Study**

For this part of the data collection a form has been created to be filled out while watching videos on YouTube that seem to have the intent of teaching viewers how to weave, or an aspect of weaving. These data are quantitative and provide a general overview of the terrain of weaving videos on YouTube and will provide greater insight into the world of online craft tutorials.

The form (see appendix A) is designed to capture quantitative data about the videos being analyzed. A lot of trial and error went into creating the form, but allows many videos to be collected quickly. Initially the intention was to use the YouTube API to gather data on hundreds if not thousands of videos and use statistical analysis software to understand this data and draw conclusions that way. The type of data offered by the YouTube API was, however, not entirely useful for this study, as it was very surface level compared to the type of data that could be gathered by watching the videos.

The next plan was to create a form, and to that a foundation was to be laid by coding a series of text written as notes while watching five good tutorial videos. The coding done on these texts showed what to include in the final form. This method resulted in the creation of a codebook (see Appendix B), which was then edited heavily as new decisions were made and reflections had. Once an initial codebook was created it was tested by gathering a few videos and coding them based on the codebook. Then it was edited further. Once the book was in a stable form it was put into Adobe Acrobat and turned into a fillable form that could be fed into a form reading software, a feature of Adobe Acrobat. At this point videos needed to be gathered before data could be collected using the codebook (Krejčí & Chylikova, 2022).

YouTube has been chosen as the research object for this portion of the study as its ubiquity and ease of access for hundreds of millions of users means its front of mind for many of those looking to learn or hone a craft. Other sites exist, but don't have the prominence YouTube does, at the time of writing. YouTube forces a means of mediation upon what is being shown such that

research data can be gathered from it, it sets a framework that can be used to gather data and later create meaning through analysis of that data. One inherent difficulty with researching social media networks is how short of a history they've had, and how quickly they change, whereas academic publishing can be slow, meaning that within only a few years of publishing once useful data could be entirely out of date.

### 3.1.1 Procedure

Once a codebook and form were in place the data from the videos could be gathered. As this method uses two phases they will be referred to as the gathering phase and the collection phase. The former refers to the act of selecting videos to include in the study; the latter referring to watching the videos in the order gathered and filling in the data collection form alongside. Excel was used to list the videos for later analysis, each page of the Excel-book represents a different search term used in the YouTube online platform to find videos. The terms were selected based on how potential learners might search for videos on weaving. Each term was searched on YouTube and the videos returned would be watched based on perceived relevance to the study. Many videos were passed over, for example those about the hair products also called weaves. Those that were to be gathered for later analysis had their titles, YouTube IDs', date of publishing and view numbers noted in the Excel sheet (see figure 2 and appendix C). To track the process many YouTube viewers follow while clicking from one video to another a research ID has been assigned to each title that

	A	B	C	D	E
1	How to weave				
2	MinID	RH	Video ID	Title	Notes
3	A		hCy3Crq7fYs	How to Weave   Weaving for Beginners	Opens with "previously on" and word explanations. C
4	A1		FnbUF0wglfw	Weaving on Mount Vernon's 18th Century Loom	Opens with view of shafts raising and lowering. Explai
5	A2		QW2zwr6txdo	Weaving on a Cardboard Loom (part 1)	Low production quality, poor sound, poor weaving qu
6	A3		dh098NumM8A	Weaving for Beginners Part 4: Add Stripes and Geometric	Long video, no chapers for navigating, but useful links
7	A4		mDSfPLJIUD8	Ashford Rigid Heddle Loom Tutorial	
8	A4a		eHd45bqE3Jw	10 Mistakes New Rigid Heddle Weavers Make	
9	A4b		fa1WrHOTjxY	Simple warping for a Rigid Heddle loom	
10	A4c		26DNCKaSIKU	Weaving Krokbragd // Episode 156 // Taking Back Friday	Starts by welcoming the audience and shows a peice, t
11	A4c1		NTDbBli2YI8	Overshot 101 - Weaving Overshot	Opens with "Chris" looking into the camera. Fairly high
12	A4c2		5iabT0UB78U	My top 5 MUST HAVE weaving tools (plus one new toy...)	
13	A4c3	1	qNgY2gqv-cM	Just Weaving : Twill & Tabby on 4 Shaft Loom	
14		2	uQ_aT9bxmKI	Weaving overshot	
15		3	DXu4SnKAvzl	National Woven Coverlet Project: Bill Leinbach Demo	
16		4	c1_Z-fspEoE	Complex Weaving Demonstration with Grete Reppen	
17	A4d		mb64jH-Pe_s	5 Ways to Improve Your Rigid Heddle Weaving, Part 1: Warping Tricks	
18	A4e		zc1bchTf2gg	Woven/Weaving Rainbow Dish towels on a Rigid Heddle Loom - Yes, Again. I'm Obsessed	
19	B		RqF-UcWchos	DIY Weaving   How To Make Everything: Suit (5/10)	
20	B1		9OHbJQ90hfY	How was it made? Traditional Indian Weaving	
21	B2		XTVjt2Ta3CM	How to Make Fabric on a Loom   The Goods	
22	B3		4KxPfk3CEwl	Hand Woven towels-learn to weave-rigid heddle loom-simple weaving-how to weave-cotton towels	

Figure 2 A page from the video gathering list. This form of listing allows the researcher to reconstruct the path taken from one video to another in the process of searching and watching YouTube videos.

identifies the search term used and which videos lead to the current one being gathered. For example A4c1 indicates this video was the first (1) collected from the results given from clicking the third (c) video given from the results of the fourth (4) video given from the search term associated with sheet A, in this case “How to weave”. This process of gathering the videos allows a reconstruction of the path taken to find each video included in the study. Once fifty videos were gathered the data collection could begin, ultimately 107 videos were gathered and registered using the data collection form.

### 3.1.2 Data collection form

The first few fields of the form (see appendix A) are basic aspects of the video like title, YouTube ID and MyID, and the type of video it is. This data is mostly to be able to trace back to that exact video in the future. From there the questions get more specific to weaving concerning the type of loom and techniques shown, which provides insight into what new weavers are meeting on YouTube when they go to learn. The next question the form asks concerns the “reproducibility” of the content in the video, that being how likely it is for a viewer is to be able to recreate what is taught in the video and be satisfied with their reproduction. This is on a scale of one to nine, nine being highly likely a motivated learner could without great frustration recreate what’s shown, a one being nearly impossible to actually reproduce what’s shown, a five being that while a viewer could fairly easily recreate what’s showed it’s also likely they’ll meet a point in the process where they don’t understand something and stop; basically the video shows how to get from A to C, but forget to include B.

The form then asks the question of how this video places itself regarding tradition, whether the creator mentions the word “tradition” or “traditional”. Like the reproducibility scale, this portion of the form asks the video how concerned it is with conveying traditional knowledge; on a scale of one to nine, one being showing little attempt to convey traditional knowledge, nine being showing a great attempt, and five being that the video shows an attempt to connect with a wider knowledge base than the creator’s own. The videos in the one to five range demonstrate the craft without connecting to a wider history or culture around the craft. The videos that are in the five to nine end of the range are focused on connecting tradition and craft, sometimes to the extent of forgoing the craft and simply discussing tradition and culture.

The last portion of the form simply collects data on the production style and techniques employed in each video, such as camera angles used, number of cameras, sound and video quality,

length, number of views, and so on. These data will inform my filming practice by showing what works well and what doesn't. It also speaks to the types of instruction potential learners are meeting when they get on YouTube.

## **3.2 Filming Study**

*"The unexamined life is not worth living"*, as Socrates is known to have said, puts a sharp point on the idea that reflection is the key to understanding much of what's going on underneath our clearly observable reality. In craft this reflection allows proximal knowledge to be interiorized and improved, as Polanyi postulates. In this study the Project log documents the process of learning how to make YouTube tutorials about weaving which, later in the study, is analyzed and interpreted for findings. Reflection also occurs in this study through the use of an Elemental analysis, essentially a log of equipment and techniques used throughout the learning process that allows for interpretation and findings to be drawn. The Media study approaches the phenomenon of tutorials on YouTube from the viewers' perspective, and the Filming study approaches from the video creator's perspective, creating a matched set of studies for a fuller understanding of the phenomenon of craft tutorials on YouTube.

### **3.2.1 The Project Log**

The most important element in the process of reflection in this study is the Project log, this is a OneNote notebook kept on my laptop and backed up in the cloud that I write in every day and after every step in the filming process. The log began roughly when the project began, the fall of 2021, however the most detailed portions of the log are written during the filming processes. Each week has a page, and each day an entry. Some entries are very long and detailed, others are just a few lines of text. The goal is to write an account of how well each technique I try is working, however in the actual process of writing I mostly just let the words flow and often comment on extraneous details knowing any information could later become useful. The purpose of note-taking during or directly after the performance of a praxis is to document insights had during the performance itself, that is the goal of the Project log (Nelson, 2013, p. 31)

Knowing the analysis method that will be used on the project log after its written will, to a degree, influence the way it's written, if the goal is a time-geography than it should include times things start and end, if it's to understand the emotions of the craftsperson than they will need to elucidate on their inner lives in the log itself. If the analysis method is unknown or undetermined

the log should nonetheless be started as early in the project as possible, making sure to cast a wide net and capture the processes leading up to the actual act of crafting. This allows for various forms of analysis to be employed after the fact. The first page of the project log where the filming study begins is included as Appendix D, refer to this page for a better understanding of how experiential knowledge is being recorded for this study.

### 3.2.2 Elemental Comparison

This method is based on the idea that as one develops greater insight into the process of creating films they will be experimenting with new equipment, camera angles, script writing, editing software, and ways of thinking about how to build their films. By putting the elements of this evolution into clearly defined “boxes” they can easily be compared. This method will create data in the form of written reflection as the different elements are being used during the study. The data collection for this method is also done in OneNote, this time limiting the size of the page to A4 size. In this way I’ll be able to systematically present the various techniques employed during the filming process and be able to compare them to one another. The benefit of this method is being able to compare multiple factors simultaneously: price, ease of use, skill level required, etc. can all be compared to determine what’s the best combination of tools and techniques for each use-case. Ultimately the goal is to be able to compare not just equipment and price tags, but also what different camera angles, script writing styles, and modes of working can afford the creator.

During the creation of the Elemental analysis in OneNote three core categories of elements became clear: Equipment, Camera Angles, and Film Design. More categories to test ever more aspects of film creation can be made, but for this study these are the relevant categories. The category of equipment includes elements like: *Pixel 4XL* (phone), *Westscott 18” Ring lamp*, and *Zoom H5 Microphone*. The category of Camera Angles uses image documentation of the set-up of the film “studio” during filming to describe the ways the tutorials were filmed and the advantages and disadvantages of each type of set-up. Examples of elements include *Over the Shoulder*, *Changing the Cross*, and *Placing Sticks, Close up*. The last two names describe the action being performed, rather than the placement of the camera. The last category of elements is Film Design, and this category only has three elements: *Passive planning*, *Skill Tree*, and *Storyboard*. The first element represents my first way of working, as described in chapter 5.3.3 *Modes of Planning*, and the last two represent an *active planning mode*, also described in chapter 5.3.3.

By breaking down the ways I've used the filming equipment in my own journey through creating tutorials a more rigorous analytical approach can be used for understanding the relationship between camera, craft, and crafter. This understanding can open a door to new research to understand the relationship between crafting and social media.

## 4 Media Study Analysis

The statistical analysis of the data gathered from this study will provide a general understanding of the lay of craft-teaching videos on YouTube. Rigor in the data gathering process sets the standard for how reliable conclusions can be drawn from the analysis.

This analysis is based on the 107 videos collected using the form described in chapter 3.1.2 and is designed for quantitative coding of these videos. The choice of method was to extract a broad understanding of the phenomenon with the ability to extend the data set in the future. Nine search terms were used in the study, each giving a different number of videos suitable for the study. One search term gave only two videos (“how to full wool fabric”) where the first term provided twenty-two videos for the data set (see figure 3). Some of the data from certain aspects will need to be left out of this analysis, in large part due to it not being possible to collect that sort

of data in a lesser-biased way. Examples include “Self-identification” and “Authenticity”, as creators rarely referred to themselves or their craft as “traditional”, mostly it was documentarians who would refer to others’ crafts as “traditional”. Authenticity, defined here as the place from which the creator/teacher gathers

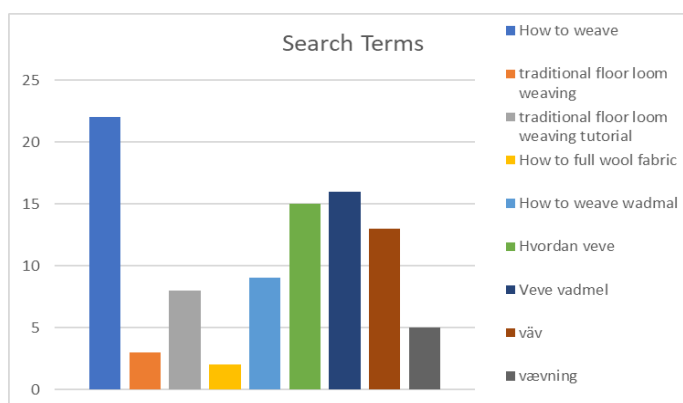


Figure 3 Number of videos collected per search term used

source materials, was too hard to ascertain from watching most videos. Creators simply showed how they did the thing being demonstrated and explained what they were doing; no citing sources or saying who taught them, just “here’s how you do this thing”. Many videos were also hard to place in a particular technique or loom choice as they could often be about a skill other than weaving while still being relevant to the study. Some aspects that seemed like they may be hard to capture in quantitative coding proved easier and more fruitful than anticipated, “reproducibility” being the most notable of these. Nearly every video was able to be given a reproducibility score, and I felt I managed to maintain an even standard of judgement throughout the data collection process.



## 4.1 Video Type

Now that some of the strengths and weaknesses have been presented the grit of the analysis can come, the first type of analysis is a simple breakdown of results based on the four main categories assigned in the codebook (see figure 4). Three video types are established: Tutorials; videos meant to be reproduced by the viewer to learn a skill, Vlogs; videos meant to act as a video-blog to update followers on projects, ideas, etc..., and Documentaries; videos meant to inform the public about something interesting. Forty-six tutorials, sixteen vlogs, and forty-two documentaries were collected in this data set: a fairly even break between tutorials and documentaries, with vlogs in the minority. As these 107 videos are meant to provide an idea of what aspiring weavers meet on YouTube it only makes sense that they would meet a variety of different types of content. Furthermore, this dataset shows that most videos can be sorted into one of these attribute-types with only three being so unusual that they were not sorted into a type. The following categories are longer, asking more questions of the videos being analyzed.

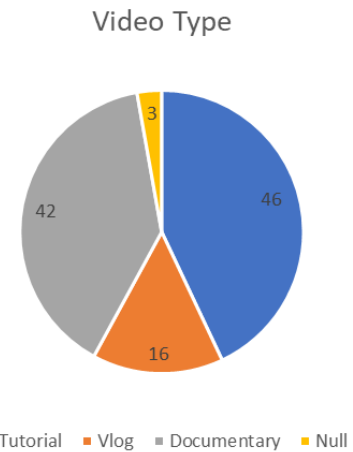


Figure 4 Different types of videos included in the data

## 4.2 Craft

Category two is Craft, further broken down into: Loom; the type of loom being shown or demonstrated on, Techniques; all the skills being shown in the video (can choose multiple), Weaving techniques; what specific technique within weaving is shown (if any), and Reproducibility; the likelihood a viewer could reproduce what is shown with a high degree of success and satisfaction (on a scale of one to nine, nine being very reasonable for a beginner to reproduce). Thirty-eight of the looms shown were “overbeat”, that is to say with a hanging beater as opposed to a beater supported on arms from the

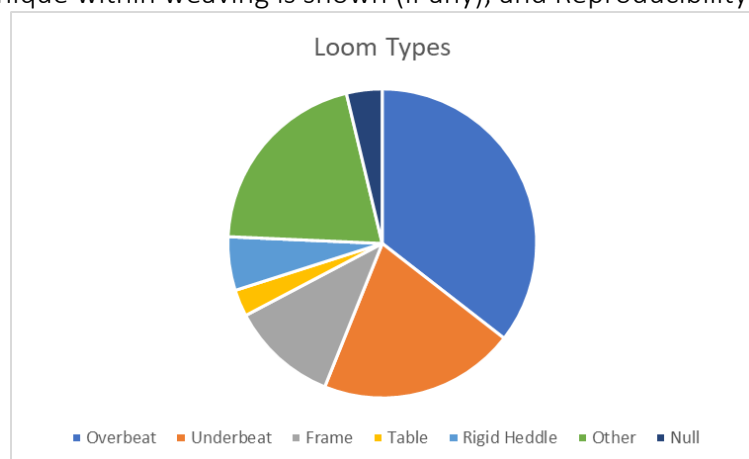


Figure 5 Types of looms being demonstrated on in the videos

floor, of which twenty-two such looms were demonstrated on (see figure 5). Frame looms were moderately represented with twelve videos, and ridged heddle looms surprisingly poorly represented considering their apparent ubiquitousness with only nine videos. A flaw with this data set is the rather high count of videos labeled “Other” or “Null” (Null meaning they were not assigned an attribute) with twenty-two and three videos respectively, making this, combined, the second largest attribute-type. This flaw can to a degree be explained away by the number of videos about things other than weaving, like spinning, carding, fulling, or felting.

The subcategories of Technique and Weaving Technique are somewhat redundant and due to a lack of many of the attribute types listed and abundance of other techniques being demonstrated in videos it was nearly impossible to adequately sort videos based on these attribute-types. Therefore, the subcategory Weaving Techniques is going to be ignored in this analysis going forward. In the subcategory of Technique the most tagged attribute-type is “Weaving”, with fully sixty of the videos demonstrating this, the next highest being “Warping” with forty videos tagged, and “Dressing the loom” and “Materials” having respectively thirty-five and thirty videos.

It’s worth noting that each video can be tagged with multiple techniques (see figure 6). Seeing what’s tagged most often mostly echoes back the search terms used, what’s perhaps more interesting is seeing what’s missing. Washing, Fulling, and Tie-down are the least represented, at seven, ten, and thirteen videos tagged,

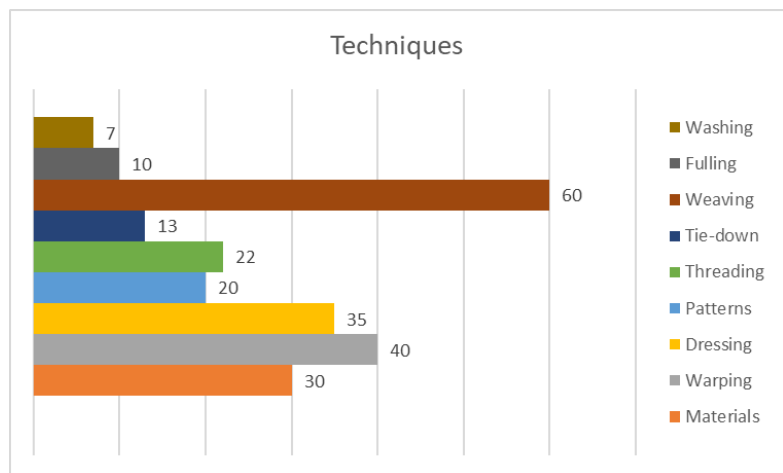


Figure 6 Techniques demonstrated in the videos collected

respectively. While it could be claimed that this too simply reflects the search terms used, I postulate that it in fact represents the larger mass of weaving videos on YouTube since the search terms chosen reflect the sort of knowledge a beginner weaving learner would be looking for and more specific aspects of the craft still appear when searching the term “weaving”. This lack of videos about finishing the woven textile and tying-down of looms are likely a result of the popularity of decorative weaving techniques that don’t use counter-march looms or require finishing.

The subcategory of Reproducibility is one that worked out surprisingly well considering its otherwise seemingly highly subjective nature. The criteria for this scale sets nine as being considered by my own judgement to be reasonable for a beginner to recreate themselves successfully, however in use very few videos were given a rating of nine, only five were, and that rating was mostly used for videos where it seemed very likely the viewer could reproduce exactly as shown (see figure 7). The rating of one was for videos entirely useless for the craft-learning of the viewer, even most documentaries scored somewhere between two and four. The criterion for a rating of five is that the video may exclude some “critical points” which likely will cause the viewer to become confused and stop. These critical points, or Critical Transitional Moments, are moments during the crafting process wherein the craftsman is moving between longer sequences of crafting, such as after the warp is made on the mill, it must be taken down, moved to the loom, and the loom dressed. In this example the moments of taking the warp off the mill, moving it, and readying it for placement in the rattle are all Critical Transitional Moments. How these moments affect the filming process is discussed in chapter 5.3.3. The average reproducibility across all videos collected is 4.95, however there are 16 fewer videos in ranks 5-9 than in ranks 1-5 when the rank of five is divided evenly between them (see figure 8). This could indicate a tendency towards videos being difficult to reproduce for beginners, there’s a lot more to ask when it comes to multi-factor analysis, such as are the videos marked as “tutorials” overall easier to reproduce?

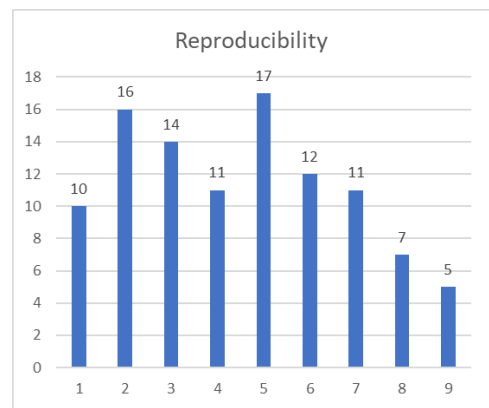


Figure 7 (above) Reproducibility rankings

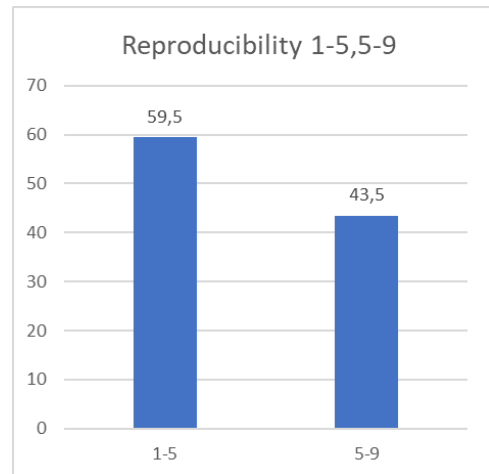


Figure 8 (above) Reproducibility, ranks split in two, 5 divided equally.

### 4.3 Tradition

This section deals with the aspects of tradition within the videos. This category was, however, difficult to contend with. Already from the first subcategory a useable assessment of each video becomes difficult as it’s asking to assess the video’s self-identification relative to tradition. The videos that used the words “tradition”, “traditional” or something similar were in the first rank,

while videos demonstrating a “certain way of doing things” was in the second (see figure 9). Only 13 videos actually used the word “tradition” and I fear that data may be a bit tainted with some videos that don’t actually use the word “tradition” but do seem to reference the idea heavily. The biggest issue arises then of categorizing what videos are heavily referencing

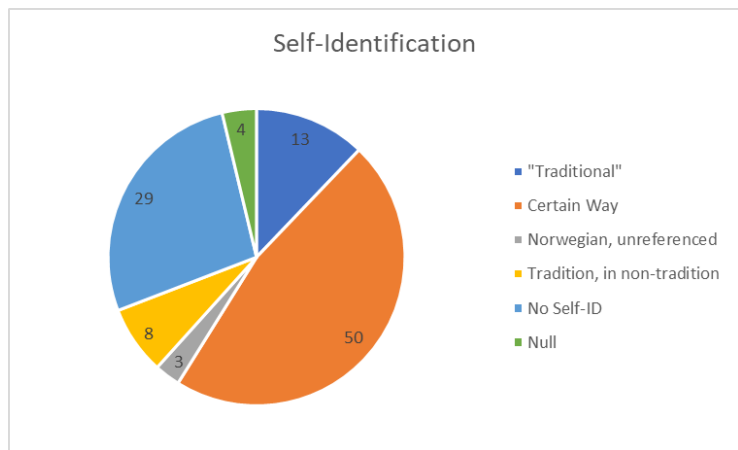


Figure 9 Showing how creators identify themselves relative to tradition

tradition and which are “a certain way of doing things”, a rank with fifty videos attributed to it. The next two were throwaways: “shows a traditional Norwegian craft, not referenced as such” and “Intentionally uses a traditional craft in a non-traditional way”, both of these were likely my inner biases wanting to accuse creators of not understanding the traditions of crafts and techniques. In the end these ranks were hardly used, with three and eight videos respectively. The last rank of “no self-identification” received twenty-nine videos, and four videos are in the rank of “Null”, meaning they were assigned to no rank whatsoever. These data are too poorly sorted and say so little about what this thesis is about that they shall be ignored moving forward.

The second subcategory deals with the “authenticity” of each video’s relationship to history and tradition. This is a very loaded term in the field of tradition-research and rarely yield any fruit, nonetheless it was chosen as a word to define what types of sources the YouTube creator cites in their videos. These data as well are far too vague and poorly gathered to yield anything of value, mostly due to the fact that defining if the person demonstrating the techniques should be considered a “tradition bearer” or not. As well most videos do not cite sources of information, like a book or teacher, often they just say “this is how you make a warp on a warping mill.” This subcategory’s internal logic does not hold up to any scrutiny and therefore must be ignored moving forward.

The last subcategory assesses each video’s conveying of traditional knowledge on a scale of one to nine (see figure 10). A

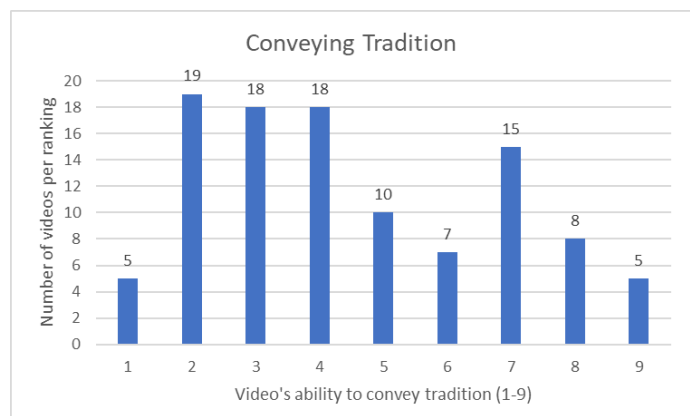


Figure 10 Number of videos per rank relative to perceived ability to convey tradition

rank of nine deems the video to make “...a great attempt to convey traditional knowledge”, while one deems the video to make “little attempt to convey traditional knowledge”, and five deems the video as “Connects to a wider set of knowledge than the creator’s own”. This middle ranking reveals the nature of tradition as understood within this thesis, that is a teacher’s connection to a wider set of knowledge and understanding than their own. The average value across all 107 collected videos is 4.5, with sixty-five videos between one and five, and forty between five and nine, with all in rank five divided evenly between them. The next subchapter will lay out how these videos are made, based on what can be seen in the published videos themselves.

## 4.4 Production

The last category in the codebook deals with the production choices of each video, matters of length, camera angles, sound quality, narration style, music, and editing. Number of views is also recorded in this category, even though the creator cannot choose how many views a video will get. The first question deals with the number and angles of cameras used in the recording of the videos collected. Six types of angles were selected as attribute-type available to choose for the data collection, most of them coming from the qualitative coding exercise at the start of the media study using five videos. The six types of angles are: Bust of demonstrator and thing being demonstrated, Birdseye view, Over the shoulder of presenter, Close up of the hands, close up of the work, and a cameraperson moving around to film

(see figure 11). Most of these angles are achievable for a person working alone to accomplish, which was taken into consideration when designing this part of the collection form. Since most videos contain different angles edited together one video can be tagged with multiple data points. The angle type used the

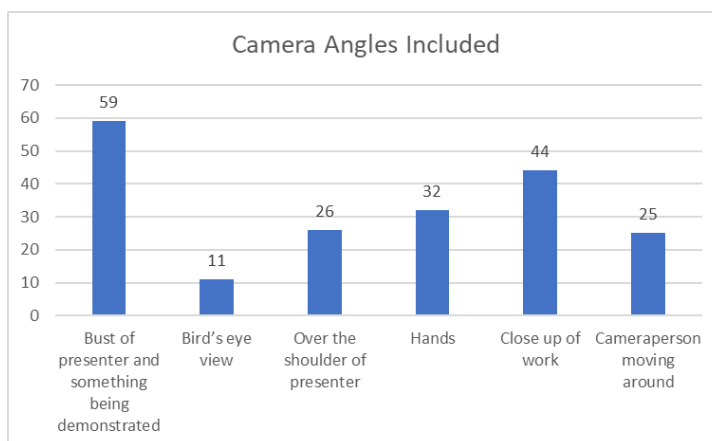


Figure 11 Camera angles used in the videos analyzed

most was the bust of demonstrator with something being demonstrated with thirty percent of the angles recorded being of this type. The next most common was Close-up of work, used to demonstrate something in more detail, with twenty-two percent of angles used being of this type. Close-up of hands, Cameraperson moving around, and Over-the-shoulder all coming in at about the same with 16%, 13% and 13%, respectively. The type of angle used the least was bird’s-eye at only

six percent. I did notice that very few angles, in all of the videos, were not able to be sorted into one of these six types, very few videos made use of highly creative angles that perhaps could give a better view of what's occurring in the loom.

The next three subcategories deal with the audio aspect of the videos, rating the overall sound quality, the use of narration, and the use of music. The subcategory for overall sound had three simple buckets to sort the videos into: good quality sound, mediocre sound, and poor sound quality. I found this aspect interesting to collect as it directly relates to the production value of the video, and that can be interesting in terms of quality and value of what's presented relative to the production value. A plurality of videos had good sound, a total of forty-four out of 107, nearly as many only had mediocre sound (this is relative to other YouTube videos, compared to professionally produced media these had quite poor sound) with thirty-nine, and only sixteen videos had such bad sound as to be categorized as "poor" even relative to other amateur-produced videos. Eight videos did not get sorted into a category, either they were silent or there was a data collection error.

Three styles of narration were selected for this study: directly into the microphone as the video was being recorded, voice-over added in post-production, and no narration, as well as a bucket for "other". This data could be some of the most relevant in relation to Polanyi's theory of Tacit Knowledge as the act of explaining what you are doing as you are doing it should, according to the theory's model, breakdown your ability to do that thing, however as sixty-six out of 107 videos (62%) are recorded into the microphone

during recording it clearly doesn't breakdown one's ability completely (see figure 12). Alternatively, the videos with audio recorded while filming are of lesser quality due to this breakdown of ability during the explanation. Could these videos be of higher quality not only in production value, but also in pedagogical value by

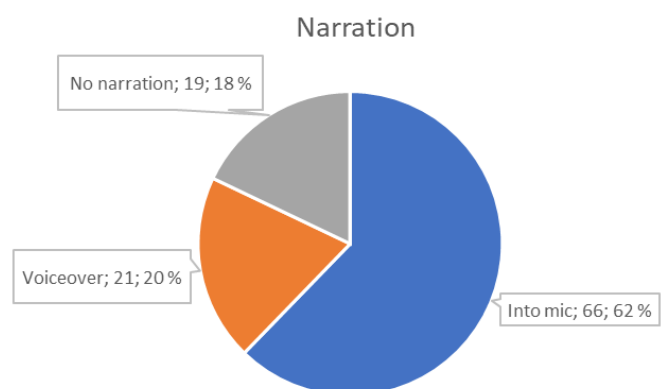


Figure 12 Narration styles in collected videos

using a voiceover recorded after the fact? Something only twenty-one (19%) of the videos used? Nearly an equal number, nineteen (18%) had no narration. A lack of narration does benefit those with hearing difficulties or language barriers; if a practical skill is transmitted without the use of

language, oral or written, it can cross language boundaries more easily. One video was not assigned a category due to an error.

Music is the last subcategory dealing with audio. Three attribute types were selected for this subcategory: Theme music, that is music at the start and end of a video; Background music, that is music in the background throughout the video, and No Music; again, a category of “other” was included. A plurality of videos used No Music (41% percent) while of the ones that had music a slight majority used theme music (32% of the total number of videos) and a slight minority used background music (23% of the total videos), only four videos (4% of the total number of videos) were categorized as “other”. The choices creators made when putting together their videos shows how they intended to convey what they had to teach, the next subcategory goes further into this aspect.

Editing is a stage in the video creating process where a lot of choices can be made, and the mode of conveying information changed. In this subcategory, focus has been placed on the use of text, images, and other videos edited into the main video to highlight various skills. Five attribute-types were selected for this portion of the study: No visible edits, clips cut together without addition of text or images, addition of text or images, addition of new video but not for demonstration purposes, addition of video for demonstration purposes. The majority of videos were clips edited together without additional text, photo, or video content added (closed captioning is not

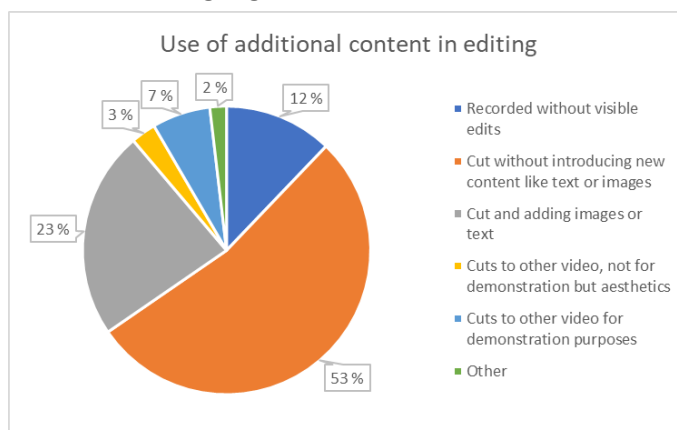


Figure 13 Using other content, like text and images, in the videos collected

considered text content for this category) at fifty-three percent (see figure 13). The next most common type of editing is use of images or text to further explain or visualize what’s being demonstrated with twenty-three percent of videos being of this sort. Twelve percent were not edited, at least that I could tell, simply cut to length at the start and end (some not even that) then uploaded to YouTube. Respectively seven, three, and two percent of videos had other videos added for demonstration purposes, other video added but not for demonstration purposes, and “other”. This points to the use of additional content being relatively uncommon in these types of videos, but that adding text and images is used to further demonstrate concepts and skills. This is information I can use when making my own videos in the coming portion of the study.

The last subcategory of the Media study is publishing, and three aspects are included, the length of the video, the number of views it got, and if the creator used chapters in the video. Whether or not the creator used chapters, a function within YouTube that allows videos to be subdivided into smaller, searchable portions, is more of an editing choice, but

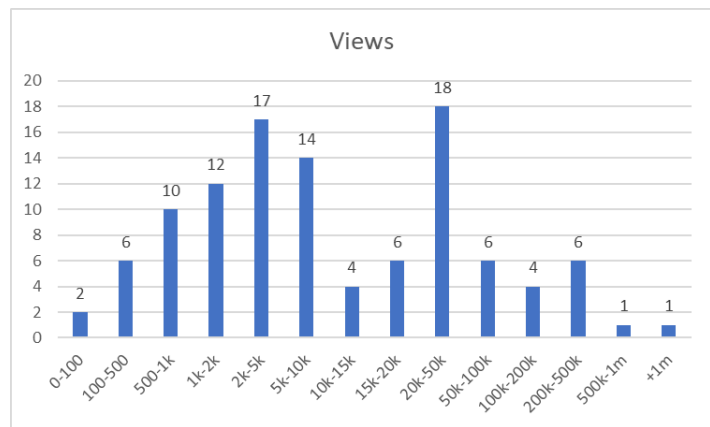


Figure 14 Number of videos per range of views.

was placed in the publishing category when the form was created and will therefore be written up in the same category, however length and views of the videos will be considered after the use of chapters even though they come in another order in the codebook. Three attribute-types are available for chapters: Chapters used in a clear, logical way; chapters used in an unclear or confusing way; chapters not used. The vast majority, eighty-five percent, of videos do not use the Chapters function, which is unsurprising as these videos often are not long enough for chapters to benefit them. In total seven percent of videos use chapters, three percent of the eleven in an unclear way, leaving four percent that use chapters in a clear way.

Length and number of views is the last aspect of the videos recorded in the codebook, and they're both very important to the understanding of the videos that exist already and the videos I'll be creating. The number of views a video gets is a common mode of understanding and discussing how popular or successful a video on YouTube is. The definition of success on YouTube is typically the pure number of eyeballs that watch your video, of course that doesn't mean success in transmitting craft skills or conveying traditions. The number of times videos in this study were viewed varied wildly, with the most views recorded at 2.36 million views, and the video with the fewest at eighty views, the average of all the videos is 67,700 views, although many videos did not receive more than 10,000 views (see figure 14).

Length of the videos is important when planning the filming of new videos. If I can identify the length that best appeals to people I'll be better able to

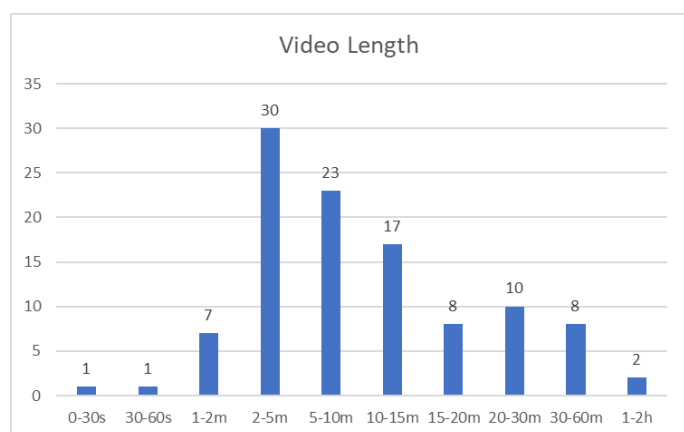


Figure 15 Length of videos gathered for the Media study



create videos that spread the joy and knowledge of weaving as far as possible. Like views the lengths of videos varied wildly, the shortest being only twenty-five seconds, and the longest being one hour, thirty-six minutes and thirty-eight seconds. The videos were broken down in a roughly logarithmic fashion dividing the data into groups of increasing length. The bucket with the most videos was two to five minutes, with thirty of 107 videos. 5 to 10 minute and 10 to 15 minute videos were also popular, with twenty-three and seventeen videos respectively, the average video length was just over 13 minutes (see figure 15).

## 4.5 Findings

Being able to visualize the state of weaving tutorials on YouTube as they stand at the time of collecting the data (fall of 2022) provides a means to understand the phenomenon at the heart of this thesis. By looking at the videos that already exist on YouTube not only can we see that creators of videos about weaving not only create a multitude of different types, with tutorials and documentaries being predominant, they also show many different techniques, but there is a clear favoring of showing the singular process of weaving rather than preparations before weaving can begin. This shows a clear need for more tutorials about the preparations for weaving. These videos may all relate differently to tradition, but that line of inquiry likely requires a separate study to flesh out, as this method for data collection proved too flawed to interpret those data for useful findings.

Content creators posting these videos to YouTube also show clear tendencies towards narrating their actions as they perform them as opposed to voicing over their content. This point specifically I find troubling, as Polanyi's theory highlights a breakdown of ability when closely observing and discussing the proximal knowledge being used. These data also show videos commonly range from 2 to 10 minutes and often don't include other forms of media than video, music, and narration. This could largely be due to the fact that the de facto length of YouTube videos is about 2 to 10 minutes, but not including other forms of media could indicate a lack of motivation for editing and adding new content in post-production. These data and findings serve to paint a broad-brushed picture of weaving on YouTube and will act in tandem with the following study, the Filming study, to elucidate fully the phenomenon of weaving videos on YouTube.

## 5 The Craft of Filming and Filming for Craft

The previous chapter served to give a broad understanding of videos on YouTube about weaving, the next chapters relate to the Filming study, its analysis, and its findings. The tutorials to be made for this study are about the making of a fabric called wadmál. A presentation of the historical and crafting background for this fabric is presented in chapter 5.1. This background will provide the reader with context for the information presented in the videos themselves, and will help define what is to be included in the tutorial videos made in the filming process itself.

Subchapters 5.2 and 5.3 are concerned with the analysis of the film-making process through critical reflection. Data gathered using the methods of Project logging and Elemental comparison, as described in chapter 3.2, are analyzed to show the reasons why different decisions were made for each tool and technique used in the final videos. The filming process occurred over three distinct phases, each informing the next, and are referred to as “series” throughout the rest of the thesis. The third series resulted in the final tutorial videos that were made for this study. After this phase of reflection using the project log, a second phase can begin to compare individual components of the filmmaking process more directly.

This second phase is the Elemental analysis; an analysis of the various “elements” that comprise the filming process. Things like what camera angles are used, what equipment is chosen, or how the filmmaker approaches the process of filming are examples of categories of elements; elements themselves could include *bird’s eye view* and *over-the-shoulder*, *ring lamp* and *Zoom H5 microphone*, *active* and *passive approach*. Each of these elements are derived from the experimental practice of filmmaking during this study and are analyzed based on how they were used during the study and how they improved or hindered the making of the resulting weaving tutorials. The results of both these analyses are discussed in chapter six.

### 5.1 Wadmál: History, tradition, and practice

The goal of this presentation of the history and tradition surrounding wadmál is to familiarize the reader with research and writings not examined in the review of theory and philosophy above and define the type of fabric that is to be made in the tutorials later in this study. It will progress in much the same order as the research is presented later in the thesis, it also includes a concise interpretation of much of the existing writing to date about wadmál, as readers of this thesis may

well me more interested in what it has to say about wadmal as it does about transmitting craft knowledge.

### 5.1.1 The history

Wadmal is a fabric that has great importance in the Nordic countries as it protects against the harsh wind, rain and cold. One may think wadmal is as old as civilization in the Nordics, but this more likely is a romantic myth that gives color to traditions within folk dress. Through archeological finds what we recognize today as wadmal appeared around the 11<sup>th</sup> century in northern Europe due to a shift in economics and practice leading to a thick, woolen-spun, fulled fabric (Crowfoot et al., 2001, p. 35; Jenkins, 2003, p. 397). This woolen fabric allows air to flow through while still being water and wind retardant, thus wadmal became a staple in closets across Europe by the 14<sup>th</sup> century (Jenkins, 2003, p. 398).

Kristin Gustafsson, artist, author and wadmal expert, promotes wadmal as having properties rarely found in modern textiles. Wadmal warms, draws humidity from the body, prevents wetness from entering the garment and remains warm even when wet owing to its slow drying. Gustafson further defines wadmal as being woollen spun, domestically produced, often grey, and fulled; with this definition of wadmal it's possible to eliminate other wool fabrics from being wadmal, and define the aspects of creating the fabric that need inclusion into a video series (1992). Defining what's to be included in the later work of creating tutorials is further informed by documentation work done by Marit Buset, the processes she includes in her documentation is warping, weaving, fulling, and drying (Buset, 2009). Marta Hoffmann's detailed descriptions of spinning and weaving of wadmal in Setesdal in the 1960's allow for a detailed reconstruction of the fabric and its unique properties. Hoffmann's work also led to the creation of films now stored in Statens Filmsentral and available on YouTube where many of the processes and traditional aspects of this craft are captured (Hoffmann, 1991; Nybakken et al., 1970).

Hoffmann does not describe the process of fulling, but another video in Statens Filmsentral's archive demonstrates the use of a fulling mill in Ryfylke (Grepp et al., 1970). Many others have also described the act of fulling (Buset, 2009; Gustafsson, 1992; Trættemberg, 1999), as well has in my own practice I have worked with fulling and understanding the process. This greatly informs my understanding of how to full fabric. The main phases of filming that the practice will be divided into are spinning, weaving and fulling. Hoffmann's detailed accounting of yarn weight,

warp-end density, and manhours spent provides a good starting point for this study's understanding of wadmál in 19<sup>th</sup> century Norway.

### 5.1.2 Norwegian tradition

Marta Hoffmann's *Fra Fiber til Tøy* describes a wide variety of tool and equipment used for textile crafts throughout Norway, many of which are found all over the world. Within Norway the region of Setesdal is known for its preservation of traditions that can be traced back to the middle ages, if not even earlier (FNs regionale informasjonskontor for Vest-Europa, 2019). In 1968 and 1969 Statens Filmsentral filmed spinning and weaving of wadmál in Setesdal (Hoffmann, 1991; Nybakken et al., 1970). The following will discuss the specifics as recorded in the videos filmed and writing published in *Fra Fiber til Tøy* about spinning and weaving of wadmál in Setesdal as the basis for the tradition being taught in my videos for this study.

The video and written sources show that the foot-peddled spinning wheel was used for the spinning of both warp and weft in Setesdal, however the wheel was used a bit differently depending on which was being spun. For warp yarn the wool was carded into batts, 6-8 of which were laid against each other and wrapped around a short distaff, and held in place with a ribbon. From there it was spun like flax: the fibers being pulled parallel to the direction they lay in the batt, creating a sort-of worsted yarn. The wheel was turned to the left and the wool spun with quite a bit of twist. Finished warp yarns were wound onto balls using a "nøstepinne" (a balling stick) and soaked in cold water for three days, the hole in the middle of the ball from the nøstepinne allowed the balls to dry. The weft yarns were spun from carded rolags with the wheel going to the right, with less twist than the warp yarns. The finished yarn was wound off by hand (without the use of a nøstepinne) and buried under the hay of a sheep pen for one to three weeks. This softens and relaxes the yarn (Hoffmann, 1991, pp. 83–85). After many days of spinning and balling yarn the process of setting up the loom for weaving could begin.

Marta Hoffmann and Statens Filmsentral's informants in Setesdal demonstrated how they set up a warp using machine spun yarn. First large bunches of nøstepinne-wound warp yarn was weighed to determine how many would be needed for warping a 30 "alen" long warp. An alen was a common measure used in Scandinavia before the metric system became the norm and equates to about 50-60 cm (Hoffmann, 1991). According to the sources a standard width of wadmál was 5/4 alen and needed 1200 warp ends. Assuming an alen to be 60 cm this would describe a sett of 16 threads per centimeter, which reads to me as extremely high, especially considering the following

information: the informants are noted as saying 2 alen of warp required, normally, one “mark” (roughly 250 grams) warp yarn, with 1200 threads, meaning two alen of warp contains 1440 meters of warp yarn, at 250 grams per mark that would indicate a yarn weight of 5,76 Nm, far too thick for use in a sett of 16 per centimeter. Presumably something was documented incorrectly here, at a sett of 16 threads per centimeter and a weight of 5,76 meters per gram it wouldn’t even be possible to beat the weft, the reed would be held back by the friction of the yarn. The sources also describe the setting of a “håvmerkje” or halfway marking at only 15 alen, indicating the warp would possibly be unfolded to make it the full 30 alen, however this unfolding is not described anywhere in the source material, and the process described would likely make such an act impossible. Looking at the video sources reveals the length of the warp on the warping mill to be about 18 meters, or 30 alen, the full length of the described warp, and the warp yarns do appear thick enough to be about 5,76 Nm. What I doubt is the total number of threads being 1200, however the video does show them sleying two ends per dent on a tightly set reed, a reed that could be as dense as 80 dents per 10 cm. The video also shows the weaver beating the weft twice, both times quite hard (Nybakken et al., 1970). These sources combined with my own experience in weaving create a discordance that can only truly be solved by studying samples of wadmál from the region to count the threads per centimeter, however that is beyond the scope of this study at this time.

The looms used were also different from most looms in use in Norway at the time. These looms used a gap in the front roller to draw the fabric through which, when turned, would hold the fabric in place via friction. These looms also used pulleys and levers connected to the shafts and treadles to open the shed, as opposed to the countermarch system used in the videos being made for this study. These sources set a baseline for understanding the tradition of wadmál weaving in Norway, different places had different traditions, but by comparing them to a documented tradition allows the differences to be compared and contrasted.

### 5.1.3 My practice

Building up to this research project has been several years of weaving education before I ever thought about teaching others to weave I began with a fascination in the craft and in the traditions of woven cloth in Norway. Soon after learning the basics of weaving, I learned of wadmál, and since then I’ve been entranced. This portion of the thesis is dedicated to my own understanding of this cloth and how it’s made, for the content of the videos being made is determined by my own understanding of the practice. This journey started by an interest in weaving, especially in weaving

fabric for clothing that could be sewn into anything I wanted afterward, the things I learned in those first few “lessons” informed and influenced my understanding and continued learning. Any new, self-taught learner will grow and change throughout the learning process, developing their own sense of aesthetics and working styles that suit them. This sub-chapter should shed some light on why the techniques I chose to showcase are the way they are.

Curiosity for weaving began before I moved to Norway in 2016, and I did some very simple table loom weaving at my high school, after that I went to Fosen Folkehøgskole and was allowed access to a full-size floor loom, I wanted to weave wool fabric for knickerbockers that I could use skiing. I was given wool (Rauma Prydvæv 1-tråd) designed and spun for use in tapestries and upholstery fabrics, undeterred (and uninformed) I went ahead. A teacher at the school, Marte Bakken, told me about wadmål, and gave me a pattern for the fabric, which I didn’t quite follow. I used a tabby weave and over-checked pattern that visually was quite appealing, but even after an attempt at “fulling” using techniques I’d learned at a wet-felting course the fabric was coarse, itchy, and not easy to sew. It still became knickerbockers that I wore skiing many times, and it taught me the importance of selecting the right yarn for the job, paying attention to what weaving structure you choose, and understanding what’s meant by “fulling”.

The next time I got to weave wadmål was at USN Rauland in the fall of 2018. One of our first weaving assignments was to weave five meters of wadmål in yarn from Hoelfeldt-Lund. The yarn was 7000 m/kg spun of spælull, double-fleeced wool of the domesticated descendants of the first sheep brought to Norway. The warp was spun to the right, and the weft



*Image 1* The fulling mill at Mjonøy, with the weaving class's wadmål being fulled

spun to the left, said to be the proper way to get the fibers to enmesh with each other during fulling, however archeological finds point to this technique as having changed throughout the centuries (Crowfoot et al., 2001). The class was split into pairs, each to make an eleven-meter warp so each student would weave five meters. The fulling was done at Mjonøy in Vinje using a water- (and motor-) driven fulling mill built in 1985, but modelled on the designs used in the second half of the nineteenth century. This project introduced me to the “proper” way wadmals is woven and fullled, giving me something to compare everything I’ve done since to.

My next largescale project with wadmals wasn’t until my third year at Rauland when I wove fabric to be woven into a work shirt. This time using European yarn bought through Rauma Ullvarefabrikk, known as Rauma 9. This yarn is among the thinnest weaving yarn on the Norwegian market, and is priced so as to be accessible to most weavers. This yarn is also what I will be using in the wadmals used in the final series of films for its ease of access and strength while still being thin enough to give a good result. For the work shirt project, I wove four or five meters of fabric which half was fullled using a fulling machine of my own design, and half was fullled in a bucket with my feet. Both these fulling methods are documented being used in Norway and northern Europe more generally and don’t rely on access to the large fulling machine. The main focus of this project was to compare the two fulling methods and test out this new fulling machine I had made, and I learned that fulling with my feet was surprisingly effective, and though it took a while, much more controlled than using the machine.

The project that I have select for these tutorials reflects the culmination of years of learning, trial and error, and experimentation. Wadmals represents not only my own weaving practice, but a tradition that is a part of Norway’s wider cultural heritage and deserves protection through spreading knowledge both about the fabric’s history and how it is made. From here the process of making the three series of videos that comprise the reflexive crafting portion of the data will be presented.

## **5.2 Reflexive analysis**

This portion of the thesis provides documentation of the process I followed in making the tutorial videos (see appendix E) as recorded in the Project log. Three distinct rounds of filming resulted in the production of three series of video clips, only the third series were fully edited and completed. The first series operates under the assumption that basic tools, most of which I already have, will provide me with a jumping off point to understand what aspects really need investing, and what’s

already good enough. The second series was an attempt to improve on the first, I had made some small investments in technology, and I wanted to test out what style of filming would work best. I also began importing clips into Premiere Pro to test how editing works and feels using this type of footage. The third series was the final series, and it required a more significant investment in lighting and sound recording, as well it was edited together as it was filmed. Series three was filmed over two months, and was imported into Premiere as each phase was completed to be edited together. The voiceovers, however, were not recorded until all the video clips were fully edited.

The Project Log that I wrote during this entire process of creating my masters project is the basis for the active reflection over each series that follows. The goal is to provide a clear understanding of why I made the decisions that I made in relation to purchasing decisions, workflow, choice of editing software, use of scripts and storyboards, as well as how my thinking about this particular phenomenon changed throughout the process. By making videos a whole new experience of the process comes to the surface. By experiencing the process of going from having craft knowledge to turning it into a video I could much better understand the reasons some of the videos I watched for the Media study had trouble scoring highly in reproducibility, had poor sound and lighting, or didn't seem to connect to traditional knowledge. In each of the following sections I'll be exploring how I made each series of videos, and why I made different decisions in the next series.

### 5.2.1 Series 1

This first series was filmed as a way to throw myself into the deep end of tutorial making and just see what I needed to do to swim. I showed the processes behind weaving a scarf, but even before I could make the warp I was making decisions that would affect the rest of the videos all the way through series 3. Wednesday week 21 of 2022 I began series 1 by filming how I went about

designing the scarf, and in this video I attempt to speak into the camera as I demonstrate on film, basically narrating the process as I go. As I note in the log, "I tried to talk and film, bad idea, [be]cause then you can see my lips moving but not really hear anything being said" (due to poor audio quality). This also caused the



*Image 2* Speaking while demonstrating made video clips much longer than expected



film to be much longer than expected: "...the video is already 25 minutes... ...that is way too long. Will I be able to fit as much nuance as I would like to into these videos?" There was too much footage, and what had been filmed was bound by the words I was saying during the filming, making editing very difficult. I quickly determined I would need a sort of script or plan, not talk during the videos but have a voiceover, and the need for more videos than 6 six-minute videos.

The next day's filming was more of the same, but with a note that the attempted script was scraped, rather I would demonstrate on film the process of crafting and create a voice over in post-production. Creating a word-for-word script proved a difficult mental exercise that felt both contrived and unfruitful knowing the timings would never line up, I'd likely demonstrate the process different to how it was written, and I'd certainly deviate within seconds from the script, so I let that idea go. Using a storyboard as a plan rather than a script works additionally well within the theory of tacit knowledge in the understanding than in analyzing the particulars of a tacit process those particulars can break down and be very difficult to perform. This relates also to Wood's anecdote of the knifemaker explaining to the expert learner how he performs a process but when asked to demonstrate he does something entirely different (Wood et al., 2009). Perhaps if the craftsperson is allowed to simply perform their craft without the destructive act of *explaining* as they perform it will result in a much truer demonstration. This destructive act relates to Polanyi's theory of how observation of proximal knowledge causes the connection to the action of the body to break down (Polanyi, 1966, p. 18). The missing explanation then gets added as voiceover, preferably by the craftsperson themselves.

In these first few days of filming, I also noted some technical issues that I've been able to (mostly) overcome since. The first being the actual placement of the camera/phone. I had a basic gorilla grip tripod then, and a somewhat cheap external microphone. The tripod wasn't tall enough to get wide angles, and the workshop I was using was small and unevenly lit, also complicating the choice of angle. The lighting in the workshop was not only uneven but florescent, causing aberrations in the film, which could be fixed to some extent by increasing the exposure settings in the camera. In addition to the camera angles and



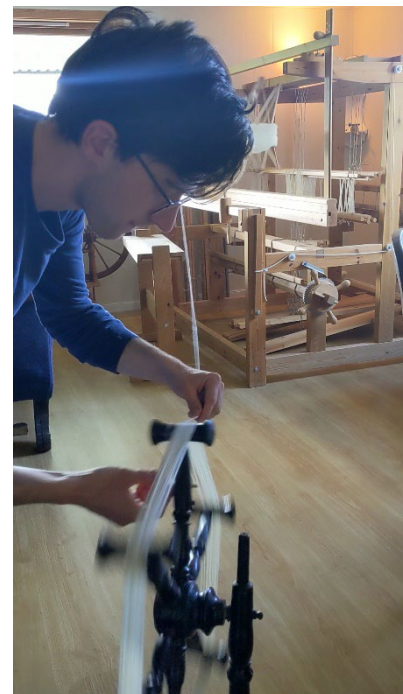
*Image 3* Lack of external, controllable lighting makes for bad lighting

lighting issues were issues of data storage. My shooting location was without Wifi, and I was using the app Rush to record the videos directly to the Adobe Creative Cloud. That caused the clips to be uploaded over data, which consequently used up my entire 100 GB allotment without my noticing. Additionally, the app saved the clips to my local image storage, which then got backed up both to Google Photos and Microsoft OneDrive, so there were now multi-gigabyte clips flying around the internet to my various cloud storage systems, chewing up data as they went. This was not a good system. Moving forward I would need a way to keep everything local, nothing should be being uploaded or downloaded without my express intention.

This first series of videos, which only ended up being edited down to one long video with a rough voiceover, shaped much of the way the coming videos would be made. It set me on a course to work in a certain way that was guided by discoveries made here. The main take-aways were as follows: demonstrate, don't narrate; plan, but don't script; and make some investments in tripods, lights, data storage, and the space being filmed in.

## 5.2.2 Series 2

I started educating myself more deeply in the nuances of filming tutorials for this series. I subscribed to SkillShare, an online platform for sharing tutorials about creative subjects. I began using some courses there to learn about filming, lighting, data-handling, and editing (Davidson, n.d.; Gonzalez, n.d.; Rowlands, n.d.). Even if I wasn't following their advice word for word I was able to glean much needed understanding of the tools I would be needing, what wasn't worth the investment, and how I could make use of well-placed investments to improve the quality of my videos without going over budget. The actual filming of series 2 began near the end of week 39, 2022. The fabric being woven here was to be used for a demonstration of fulling at a seminar about wool in Klæbu about a month later, this caused me to take only scant notes about the process, however this opens up a new paradigm for understanding how I've been capturing the skills used. By analyzing the video clips, themselves and using them as a sort of project log I can get an idea of how my thinking has changed between series 2 and 3.



*Image 4* The lighting in series 2 was shockingly poor

Series 2 was primarily filmed using the most budget-friendly equipment I wanted to test at that moment. Part of what I was looking to find out in these experiments was what equipment was necessary and should be invested in, and what I could get away with on a lower budget. For series 2 I was using the microphone from RØDE Vlogger Kit and the built-in microphone in the Pixel 4XL. This microphone is easy to use while filming and provides louder sound during playback, which gives more possibilities during editing. Lighting for these videos was a challenge, I had not invested in external lighting, so I was using natural light coming from my windows. Indoor lighting is challenging for filming, as there often isn't enough light to capture high quality video, and often light from windows is quite uneven.



*Image 6 Some clips had good lighting, and are filmed from an angle good for demonstration (above), others were poorly lit and at an odd angle for demonstration (below)*



*Image 6 Example of poor lighting*

Throughout the video clips it's clear how spontaneous the filming itself was. Within the folders that contain the clips for series 2 are both still photos, video clips, and clips filmed in portrait format, that is to say standing on the short edge. This shows lack of foresight for the videos, as videos meant for YouTube should always be filmed in landscape format, resting on the long edge. Videos filmed in portrait format are used on TikTok, Instagram, and YouTube Shorts, but that wasn't my intention for these videos. Throughout both series 1 and 2 I wasn't actively planning how each shot would look, or what would be shown, rather I would ask myself "Should I be filming this?" as I performed my craft. This more passive filming style made it easy to have the camera with me as I worked, I set up the camera, pressed play, and worked. Having already decided to not speak as I filmed was a relief, and just setting a new camera angle for each new process made it even easier to simply craft and worry about explaining what was happening later. It became clear that being able to work and demonstrate my craft to the camera without explaining it or carefully scripting my actions allowed me to connect more fully to my tacit knowledge, explaining or overly strict planning

could cause a separation between the proximal and distal understanding of the craft and cause me to make an error. It became clear that I needed to invest more into the lighting and sound of these videos if they were going to be of a quality good enough for watchable weaving tutorials.

Series 2 was my chance to learn more about the tool I had at hand, and in a new “studio” space. I was continuing to learn how I could maintain a closeness to the craft processes so that the camera would capture a true expression of the craft, and I was finding out what lighting and camera angles worked, and what didn’t. Knowing series 3 was going to be the final series I needed to have everything ready to film, and know how I was going to approach each video. I invested in a Westcott 18” ring lamp, which would not only provide better lighting, but a much better way to hold the camera/phone as I worked. During series 1 and 2 I was using a small gorilla tripod with bendable, grippy feet, and a chair. The ring lamp came with a stand for the lamp, and a mount inside the ring of the lamp, this made setting up the camera at a good angle very easy.

### 5.2.3 Series 3

The filming of series three took place over eleven weeks, with the bulk taking place at the start and end of this timespan, which is inherent to the craft of weaving itself. Preparation and finishing are complicated and important processes in weaving, and all those steps need to be filmed and explained, whereas the weaving itself is rather repetitive, yet takes time. In this analysis the focus will be on those first three or four weeks, as much of the learning occurred there. My praxis in those first weeks will also be compared to my praxis in the last few weeks of the eleven-week process. Even from the first weeks of filming I was already importing many of the clips into Adobe Premiere Pro, the video editing software I used for these videos. About halfway through these eleven weeks I already had about an hour’s worth of footage of the preparation for weaving that I wanted to film, and the work then shifted from filming to editing. I was unfamiliar with Premiere Pro, or video editing in general, so between Skillshare courses, YouTube tutorials, and the Adobe documentation I had to quickly scrape together a functional knowledge of how to edit video in a way that was watchable and conveys weaving skills. Looking back at the filming process for these videos from the beginning will give information useful for later evaluation.

#### *Preparation*

Before filming could begin I found it was not just useful, but critical to put to paper how I would be assembling the video, with shots, talking head segments, and skills before beginning to film. So, I took out an A3 piece of sketch paper, some pencils, and my Skill Tree (a list of skills



involved in the craft, see next chapter for details) that I had written up prior on my laptop. I sketched a bust of myself welcoming viewers to the video and briefly introducing them to the concepts, then I made several large circles on the paper and wrote in them the names of skills I would be demonstrating in each shot, connecting them with arrows from shot to shot, or circle to circle (see image 7). This gave me a rough overview of how I would be presenting these complex skills on the whole and I was able to then begin the detailed work of filming.

### Filming

All of these videos were filmed using my phone, initially a Pixel 4 XL, that later got replaced by a Pixel 7, both shooting on the ProShot app, a paid third-party camera app that allows me to save my videos locally to the phone's memory without risking them uploading to a cloud server, like by native camera app does. This app was only used for filming my tutorials, for everyday camera needs I used the phone's native camera app. This did have some functionality drawbacks, as the app didn't playback video in the in-app camera roll, so I needed to open the file browser app on my phone and manually navigate to the video files to watch them back, but it was worth it to not risk uploading an eleven-gigabyte file. The files got so large because I was filming in 4K, the highest resolution my phone camera could shoot at.

These first clips were, naturally, of the process of warping, and I began filming using a chair as a sort of tripod that I could clamp a gorilla grip to so the camera would have some height. I had, at this point, invested in a Westscott 18" ring lamp to provide light (see image 8); the thought initially was to use it only as an external light source to provide usable light for filming indoors and not as a camera tripod. Quickly it became apparent that using the back of a chair as a tripod was not versatile enough and I began using the phone mount inside the ring lamp as the main mount throughout the project, occasionally using chairs or other mounts for shots where the light sources and camera needed to be separated. For this film shoot I was making two warp braids of equal size using the warping mill, meaning I had two chances to film the process, and in the final cut nearly equal amount of both got used, even if it isn't specifically mentioned as such. In the later processes it was often the case that if the particular skill wasn't captured in the moment it would be too late

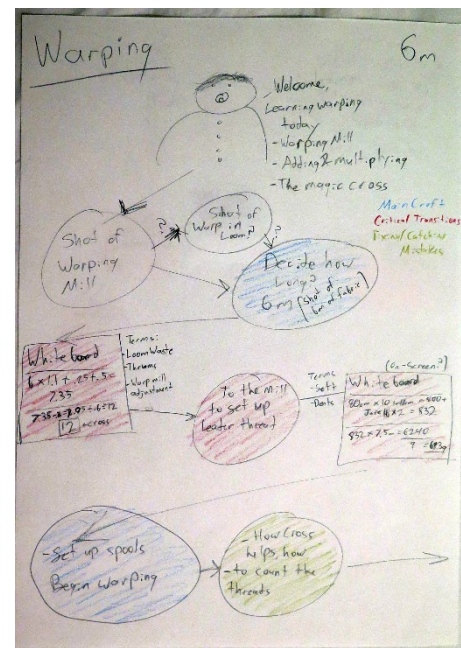


Image 7 The storyboard for the first tutorial video

and the crafting process would have moved on. This highlights the usefulness of a Skill Tree in planning what skills need capturing and guides the crafter in the process of filming their craft.

The next day of filming was about dressing the loom. In the project log I note how difficult it was to foresee and plan how to capture what I know about weaving in these videos. In this process I really felt like my hands were tied, I want to be able to express what I know about the dressing process and all the considerations that can go into dressing a loom, but I didn't have the skills to properly express that on film. Additionally, I noted the difficulty of filming all the moving parts and mechanisms on a large floor loom. When dressing a loom, the weaver is often shifting between the front and the back of the loom, inserting sticks, drawing on, resetting weights, etc.

Capturing all this without confusing the viewer seemed daunting, and I didn't have the filming experience to really do it correctly, but I found a good, high angle with the camera mounted to the ring lamp and tried my best. Something that became very apparent all the way from series 1 to series 3 is that having a film area that is generally tidy and clean makes it easier to plan shots, as there isn't anything in the background that needs to be out of the shot, however these few days of filming did involve moving a lot of furniture to make room for the loom, cameras, and ring lamp. After filming the threading and tying of the warp I also filmed the tying down of the countermarch.

### ***Editing***

After filming these preparations for weaving most of the information needed to weave was already captured, so I had more than enough footage to start editing it into videos, and this portion represented a steep learning curve, but in the end I had tested a number of workflows and techniques for editing that ultimately resulted in the videos made for this study. I had invested in an external hard drive for this project, a one terabyte hard drive to begin with. I initially transferred each day's filming to the hard drive and attempted to sort the clips in the hard drive's folders



*Image 8* The investment in a LED ring lamp of good quality made filming much easier and the results better

before uploading them. After only the first few days it became clear that the better technique was to transfer each day's filming into a folder labeled with the number of the folder in the series (1,2,3...) then the date (11.3.23, 13.3.23...). These are referred to as "dailies" for this project. These files are what the editing software, Premiere Pro, will be working with. The software, however, has its own form of organization for clips and sequences that allows for a clearer workflow overall. By watching a few Skillshare courses, I was able to grasp the basics of editing, but was still missing some of the workflow basics (Gonzalez, n.d.). *Workflow* describes the way an individual editor in practice goes from footage to finished video, what types of hardware do they use, how do they import clips into the editing software, how do those clips get just, sequenced, cut again, and finally how are they encoded and compressed into the final product? In the project log I describe testing out various workflows and write out my processes, so I won't forget it in the future. These first attempts at editing I describe pulling clips directly from the Media Browser, the window in the software that directly reflects the files on the hard drive. This isn't the type of workflow Premiere is optimized for, I knew I was missing something. A call with my sister, who has a master's degree in filmmaking helped me sort some things out (Clara Riedlinger, personal communication, March 6, 2023).

Three things came out of that conversation that stuck with me throughout the project, first, import all the clips as dailies into their own file tree in Premiere. Second, all the videos associated with this project are saved in the same "project" in Premiere, not separate ones like I was doing before, use Sequences to differentiate videos. Third, save a Word-file on the same file-level as the Dailies folders on the hard drive and list what the contents of each folder is, ex. "-11.3.23: Warping, securing cross, braiding warp". This last piece of advice I didn't end up using for this project, but would like to in future projects. I continued experimenting with my workflow as I filmed more and more footage of me weaving, fixing mistakes, and fulling the cloth. Having a clear procedure for transferring the film files after filming each day, knowing how they would later be edited together in Premiere in a separate process allowed me to focus more attention on the actual process of filming and getting good shots, than worrying about how these shots would become a tutorial.

Once I had a system for transferring and saving the clips I filmed I needed to understand how to put them together into a timeline. In Premiere these timelines of clips are referred to as Sequences, and a Project can have many sequences, each comprised of clips, audio, effects, and graphics. To make the sequence I began by adding In and Out points to each clip, this roughly defines where the clip should begin and where it should end, cutting off useless beginnings and

endings where most of the footage is me getting into and out of the loom. Initially I followed my sister's advice and created *subclips* of each clip as I set In and Out points, this also allows me to easily rename the clips. Later I found it easier to rename each clip with the Ins and Outs set before moving it to a bin in the "Clipped" bin. Renaming the clips allows them to bear titles describing the contents of the clip instead of a string of numbers and letters like the camera gives. These names can later be searched if a clip goes missing. The Clipped bin is on the same level of the file tree as the Dailies folder, and contains bins for each tutorial video I'll be making. So inside Clipped are bins named "Warping", "Threading", "Weaving..." and so on, within each of those bins are the clips used in the sequence itself. At this point I have two large bins: Dailies and Clipped, the first containing the raw material sorted by date filmed, the second containing coarse cut, renamed, clips sorted into bins carrying the name of the tutorial video they would become.

Once the clips were course cut and all the skills for a tutorial video were included, as laid out in the storyboard and skill tree, they can be made into a sequence. This I did by highlighting all the clips, right clicking, and selecting "Make Sequence from Clip", this populates the Sequence Viewer with clips and audio, and marks the time to switch from the Assembly workspace to Editing. All these processes and possibilities withing Premiere were things I had to look up in documentation, watch an explainer video about, or just click things in Premiere hoping they'd do what I wanted them to do. Here it's laid out in a rather coherent manner, when in reality it was much more chaotic. On the first week of editing, I noted in my project log, "Working on editing these together really proves the point that to actually learn something you need to try it in the context of a real project. Just today I've learned so much" (see appendix D). Learning skills like video editing come from deciding on a project, committing, and just throwing yourself into it, it's not going to be perfect, but you'll learn so much along the way.

After coarse cutting came the fine cutting, this was the part that took time, but a regimented approach allows for an easy workflow. In the storyboarding phase a length for the finished video was determined, and in fine cutting it is actualized. After the coarsely cut clips were turned into a sequence the sequence was often a total length of between twenty and thirty minutes, this had to be shortened to six to eight minutes, which was the predetermined length I wanted my videos to be. I began the fine editing of each clip by looking at the three or four longest clips and deciding what parts of them should be eliminated, often there were stretches where I had to get a tool and left the shot, this gap would be cut out. Many of these long stretches were also processes that should be shown, but don't require detail in the movements of the hands or fingers,



and therefore little is lost in speeding up the film to four times the recorded speed. By doing this a skill can be demonstrated without using more of the viewer's time (or attention span) than necessary. Once I'd handled the longest clips in the sequence I found it most natural to start at the beginning of the sequence and watch through, making cuts and deleting as it played. I would repeat this several times until the entire sequence was the length I desired. Some of the videos demonstrating more complex skills ended up longer than eight minutes, such as weaving and fulling. This fine-cutting I did for each tutorial before going any further. Only the fulling video had yet to be filmed before all the others were at this point.

### *Voiceover*

The next step was to add the voiceovers to the videos. For this task I had ordered a Zoom H5 recorder/microphone. I had attempted to use it while filming the demonstrations, but found keeping track of the recordings and synchronizing the sound to be more of a challenge than it was worth. The recording was done by connecting the microphone directly to the computer and using the built-in record button on an otherwise empty audio track in Premiere. Recording in this way resulted in a natural sounding voiceover that didn't cut or jump with the cuts in the video. Trying to talk and explain what I was doing while filming would have made it nearly impossible to cut the video in a way that maintained a natural flow in the explanation. Initially I attempted to prepare myself to record the entire voiceovers in one take, without mistakes. But that was unrealistic and inevitably the voiceovers would have some errors. I quickly identified a tactic of recording the voiceover, marking mistakes with the M-key while listening back, then re-recording those segments. This re-recording takes some time, but is very worth it to get a natural sounding voiceover with as few mistakes as possible. The hardest part was sounding natural, and not stilted in my tone of voice. In the end I think it still sounds stilted, but was ultimately usable. For several of the videos I used the Transcription function in Premiere to create a sort of script that I could edit and use as a guide while I recorded the new segments of the voiceover. This was especially useful where detailed and sequential specifics needed to be explained concisely; I could simply read the script in a natural tone of voice. Once each voiceover was complete I would make a transcript of the whole video and read through that transcript with the voice over audio playing so I could make corrections to the transcript as it played. From these corrected transcripts I added captions, which required no more than the press of a button from me, and Premiere inserted the captions as necessary. The transcripts were easy to make, aided in the re-recording process, and can become captions with the click of a button. These captions improve the videos' accessibility to all and make

it so people who can't watch the video with sound can still understand what's being said. The automatic transcription function does not yet support Norwegian, so transcription would be more work for a Norwegian language video.

### *Talking Head*

The talking head segments are the introductions and the conclusions of each tutorial video, they welcome the viewer and tell a bit about what they'll be seeing, and they send the viewer off, either to the next video or into the wide world of craft. The way I decided to make them was all in a row in one foul swoop! To record these intros and outros I set up my ring lamp facing away from me, into the ceiling, that way it would cast a soft white light over the room. I set up my microphone just under the camera's frame of view, pointed in my direction. Before recording I wrote up a bullet point script for each video over the points I wanted to touch on in the intros. This script I taped onto the ring lamp under the camera. The microphone, I was using the Zoom H5, was mounted to the gorilla grip tripod and mounted to my desk just out of sight of the camera. It didn't mount well enough, so I had to tape the legs to the surface of the desk so it wouldn't fall (again). The script was written on both sides, so halfway through I had to stop the recording, flip the paper over, and keep recording. I also changed shirts so it didn't seem like I recorded it on the same day, even if I did. I spoke off the cuff, but made sure to hit the points outlined in the script. I would snap my fingers between intros and outros for the different tutorials; this way I could easily sync the audio and video, and easily know where to separate the various clips. From here I transferred the videos and audio to my hard drive and began editing them in Premiere Pro. The clips and audio were synced and I could place cuts on each of the snaps, which were easily visible in the audio's waveform. From here I could watch each intro and outros and decided for those that I rerecorded, which I kept. I decided to have premiere transcribe all of the intros and outros for me, so that I could correct them and turn them into closed captions. From here I could cut and paste each intro to before the demonstration segments, and the outros were pasted after. This means there are closed captions under the entirety of the videos, but this would likely have been more efficient to, either not make the transcripts until after the talking head segments, or place In and Out segments on each of the intros and outros and modify the transcript only on the intros and outros. Just before encoding I also added titles and watched all the videos through one last time, correcting any mistakes as I went.

### *Encoding*

The very last step was encoding the videos, also known as exporting. Instead of exporting each video separately in the Export pane of Premiere I opened Adobe Media Encoder to do this. Encoding is the process of stitching all these clips, audio files, effects, and captions together into one video file, or seven video files, in this case. I had to experiment a bit before finding a good system for encoding, but I knew I wanted two copies of each video: one in full resolution, that's to say 4K, and one in a lower resolution for a smaller file size. Initially I tried setting Media Encoder's queue to encode each video into both format presets immediately. However, this would take roughly one hour per video, more for the longer videos. Instead, I exported in full resolution to begin with, which took about four hours total. Then I re-encoded those finished videos in 480p Wide, a lower resolution. And with that the tutorials were complete.

The last three subchapters document the process of learning how to make, and making the seven tutorials about weaving for this study. The data for this documentation is the Project log, and to some extent, my memory. The follow Elemental Analysis takes a look at the way the techniques and equipment I used for this study affected the outcome of the videos, and documents the different approaches I took to creating these videos. By comparing the various elements used throughout my praxis is possible to make some conclusions about the ways I have found to make these tutorials from the vantage of the craftsman.

### **5.3 Elemental analysis**

Throughout my time making these tutorials I used different pieces of equipment, different camera angles, and different approaches to planning and executing the filming of craft tutorials. The way these *elements*, or individual parts of the filmmaking praxis, interact and are used by the filmmaker affect the quality of video they make. Through my filming praxis I learned what did and did not work well for my mode of working and for the types of films I was interested in making. It's those techniques and technologies that will be compared here to demonstrate the usefulness of certain investments, and what a new tutorial-filmmaker can save some money on. This analysis is divided into three sections that compare different categories that arose throughout the filmmaking study as having a particularly high rate of trial and error. The mode of planning for the videos is the first category, as it is the first part of the process the filmmaker has to think about.

### 5.3.1 Modes of Planning

The first three elements of this analysis are *Passive planning mode*, *Skill Trees*, and *Storyboard*. The latter two make up *Active planning mode*. This first part of the Elemental Analysis represents my own journey into designing craft tutorials, I began by using the Passive Planning mode, before figuring out the best way to plan out these tutorials so that I could approach from a way that put the craft in focus, which I refer to as the *Active planning mode*. This first part of the Elemental analysis is different from the coming two (Equipment, and Camera Angles) because it represents growth from one element to the next and is comprised of only a few, large elements. The coming analyses will compare smaller elements that work together to help make these tutorials.

#### **Passive planning mode**

*Passive planning* is how I will refer to the act of filming wherein the tutorial-maker does not pre-plan the demonstration itself, they know what will be shown, but do not have a script or timeline. This is the first method for filming that came to mind as I began attempting to film. It's based on the thought that as a craftsperson capturing my praxis and narrating it by voiceover when putting together the instructional video would reveal to the viewer my thoughts and action throughout the process. This seemed the easier and most comfortable way of filming, that comfort being a necessary part of not creating an overly unnatural setting during the crafting processes. Nicola Wood has identified several times difficulties in master craftspeople in seeing the nuances in their own craft (Wood et al., 2009). Thus, by interrupting the craft process as little as possible during filming the craftsperson can demonstrate skills without the distraction of over-analyzing proximal particulars as those particulars are in use, this would cause a temporary breakdown of ability, as Polanyi discusses (Polanyi, 1966). To focus on and explain proximal knowledge while it's in use can cause a breakdown of the ability to use this knowledge, however this is also what reflection over one's praxis looks like, so it is necessary at some point. This method poses that the best time to reflect is after the demonstration and use of the skill at hand is completed. After it has been filmed it can be voiced over by the craftsperson as they reflect over their own praxis. A possible advantage is also that watching one's own praxis back again can reveal new understanding, thus enriching the reflection.

The technique at the center of this study is the weaving of wadmals on a floor loom, and in my own praxis I've implemented this *passive planning* method in the first two rounds of filming and weaving. The first series of clips I filmed focus on weaving a scarf: from designing it, through

warping and dressing the loom, to finishing the woven scarf. Initially I attempted to explain my thoughts and actions as I filmed, but the clip ended up being over half an hour and I had only really started the design process. After that attempt I began constantly asking myself “Should I film this?” if the answer is yes, I will film it. During filming I first shoot about ten seconds, then watch it back, checking for hands, elbows, or heads that get in the way. If they do I think about where the camera can go to capture a better shot. Another ten seconds are filmed and reviewed. If this is adequate I film the entire sequence, or enough to demonstrate the skill.

This more regimented method of passive planning only came about after filming many clips in both series one and two of filming. Truly it was only upon reflecting over *how* I had been filming that it was revealed what I had been doing. Upon further reflection it becomes clear that this method generates many long clips, which take up quite a bit of memory on a phone or computer. As well it generates quite a few poorly composed or badly lit clips, which reduce the overall quality of the finished video. When all this gets put onto a computer for the purpose of editing it becomes quite a bit of raw footage to sort through. As the first two series of weaving clips were filmed in entirety before editing this leaves quite a number of clips to be sorted before editing can begin. For both the first and second series these clips were sorted based on the logical division within the weaving processes; for example, “warping”, “dressing the loom”, “threading”, etc. Placing clips into these folders allows them to be more easily reviewed, and useless clips deleted. For series three a new approach was taken, that of actually thinking about how I would film the demonstration segments of the tutorials. It may seem obvious to plan demonstrations beforehand, but a large number of the tutorials included in the Media study seemed to be filmed using this Passive planning approach.

### **Active Planning Mode**

This planning method uses the framework of the craft tutorials with the most learning impact starting with a talking-head segment introducing the topic and skills to be taught, a body composed of various shots demonstrating the skills which are narrated by a scripted voice-over, then concluded with a talking-head summarizing what’s been learned. Not only does this style of video feel more relatable than one without a talking-head, but it takes a lot of pressure off the crafter in the video in not having to explain what they are doing as they are doing it. Active planning refers to an approach where the tutorial-maker is consciously laying out and planning the demonstrations

before filming. This method of filming begins by breaking down the craft into procedures using the Skill tree (see full Skill Tree for weaving wadmals in appendix F).

### Skill Tree

A skill tree is a way to better understand the act of weaving wadmals and all skills that the weaver must use. The Skill tree technique for understanding crafting processes is roughly based on the flowcharts Nicola Wood used for developing learning materials for knifemaking (Wood, 2010). On my Skill tree each leaf represents a skill, that being a particular of tacit knowledge that cannot be further understood or communicated without proximal knowledge of the act that makes up the skill. An example being *sleying a dent*, any further division of the skill would be a description of how to do the skill on a proximal level. These skills naturally group themselves together into “techniques” that often give rise to the name of the process being performed, an example of a “technique” is *Dressing the Loom*; this technique involves many steps and requires many skills of the weaver to perform. *Weaving* is itself a technique that can be said to be comprised of many, more granular techniques: *Warping*, *Dressing the Loom*, *Threading*, *Sleying the Reed*, and so forth. These mentioned techniques must occur sequentially but contain skills nested within them that also must occur sequentially. Some techniques contain many sub-techniques, each of which having any number of skills required to perform. The skills and techniques involved in craft will be acting as the branches and leaves of a tree. The stem is labeled “*Wadmals weaving*” and the three main limbs are “*Spinning*”, “*Weaving*”, and “*Fulling*”, the second of the three having the most branches and leaves.

	A	B	C	D	E	F
1	<b>Wadmals</b>	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
2		Weaving				
3			Warping			
4				Calculating warp		
5				Using warping mill		
6					Securing cross and warp	
7					Braiding warp	
8			Dressing the loom			
9				Partitioning in rattle		
10				Moving to loom		
11					Readying loom	
12					Placing rattle in loom	
13						Centering rattle
14					Moving warp to warp rod	
15				Tensioning warp		
16				Packing warp		
17					Placing sticks	
18					Wrapping cardboard	
19				Cutting over and tying off ends		
20			Threading			
21				Readying for threading		
22					Hanging shafts	
23					Counting heddles	
24					Placing bench	
25					Adjusting for good posture	

Figure 16 A portion of the Excel spreadsheet for identifying and categorizing skills in wadmals weaving.

A tree is by no means a perfect metaphor for this systematic representation as the skills need performing in sequence and do not exist simultaneously, as well some skills are repeated many times before the completion of a technique, whereas others are performed only once. Some techniques are performed very quickly, where others take time, some take time to complete once, whereas others take time because the skills involved need repeating so many times, like *Sleying the Reed*. The tree metaphor shows how these techniques and skills branch off from each other.

I begin the skill tree in Excel with the upper-right most cell being the name of the overall technique, in this case “Wadmal” (see figure 16). From there each column to the right is another level of granulation in technique. Under and to the right of *Wadmal* comes *Spinning*, under and to the right of that comes *Selecting Wool*, this process continues by listing all of the skills required for spinning wool to yarn for wadmal weaving. After this comes the Technique of *Weaving*, listed in the same column as *Spinning*. Each sub-Technique is listed and since sub-sub-techniques are required for completing larger scale Techniques. These are placed in a column further to the right. At the most granular level of these techniques are the Skills, which cannot be further subdivided without proximal knowledge, however this boundary between Technique and Skill can be hard to define.

What the Skill Tree provides that can otherwise be difficult to define clearly is a nuanced and detailed understanding of the crafter’s process from A to Z, as each crafter’s processes will be different. If twenty weavers were asked to detail each skill they use throughout their weaving process and group them based on the named techniques used in the field, as the method above describes, there would likely be twenty different answers, but the names of the categories might all be the same. This method focusses on the ways of crafting, that is to say the skills and techniques used to obtain the resulting object, rather than being focused on the object itself. Once the Skill tree for the craft was drawn up it became much easier to sketch up a storyboard.

### ***Storyboard***

Storyboarding is a key part of the active planning method I’ve been using in these videos. It begins with a sort of sketch of the video that’s in the making, this being bullet points of what’s to be taught in the video, I’ve been pulling these points directly from the skill tree created earlier. Using the skill tree first as a tool of reflection over one’s own crafting process, then as a tool for planning the videos gives clarity and guidance to the process of creating the tutorial, making the process much easier. This storyboard shows the skills to be taught in the video; the sketch is then augmented with a talking head segment at the start and end of the video quickly summarizing

what's going to be taught, then concluding with what was learned (see image 7, page 49). The body of the sketch is filled with notes on talking points that are to be delivered and what shots they are to be paired with.

The storyboard can largely set the framework for the filming process, as it provides a clear structure for planning the shots. Essentially the process looks like this: the crafter creates a Skill tree by noting each particular of each process used throughout the craft and notes it, forming groups of skills based on the terminology within the craft. From the Skill tree the Storyboard can be sketched out, then augmented with talking points and talking-head style intros and outros. From there camera angles and set-ups are chosen to best illustrate the skills, these camera angles are discussed in full in chapter 5.3.3. The next phase of filming these tutorials is actually beginning to film. For that we'll need lights, a camera, and some extra gear for data storage and voice recording, that's discussed in the next subchapter.

### 5.3.2 Equipment

As I made these videos I needed to invest in different pieces of equipment to make sure I would get the shots I needed for the tutorials. The previous subchapter lays out the different elements I used to plan the videos, whether passively or actively, and gave me an understanding of the crafting processes that needed inclusion, but to actually capture these clips to create the tutorial I needed equipment. While thinking, planning, and designing are free, the equipment is not, and I needed to be able to test out my new ideas of how to make tutorials without going into too much debt. Additionally, I wanted to propose ways for new tutorial-makers to film their crafts without having to invest huge amounts of money, putting up barriers to entry. I stuck to low-cost, basic equipment that could get the job done well, without spending more money than really necessary. The most apparent choice in this sense is using my smartphone throughout the filmmaking process to do all the filming that went into the tutorials. Most smartphones have very good cameras, high resolution video and images, video-stabilization, and software that automatically can adjust white-balance, focus, and retouch photos and video. The clearest drawbacks are audio quality and some lack of control over the process. While I did consider investing in a good video camera I found time and time again it just wouldn't be worth it in terms of convenience and affordability. Most people already have a smartphone and are familiar with how it works, so learning how to make tutorials using it as the main camera is useful. Beyond the choice of camera, however, there were some more difficult decisions to be made. Such as lighting, camera mounting, and memory storage.



A full documentation of all the elements with pros and cons listed, as well as how I personally used them and felt about them can be found in appendix G *Elemental Analysis: Equipment*, but a summary will follow here. The elements of equipment I used include: *Pixel 4 XL*, *Pixel 7*, *Lenovo ThinkBook*, *1TB WD Elements Hard Drive*, *RØDE Vlogger Kit*, *RØDE USB-C Microphone*, *RØDE Mini-tripod*, *Westscott 18" Ring lamp*, *Zoom H5 Microphone*, and *Gorilla Grip Tripod*. Most of these elements got used often and were great investments to the filmmaking process, besides the smartphones I was using as cameras, one element stands out as having contributed immensely to this project, that being the *Westscott 18" ring lamp*. While it was one of the larger investments for this project the fact that I got both a large, color and strength adjustable LED lamp and a stand together made it worth it. Many stands alone can cost as much as this ring lamp does, and most LED lamps do not come with a stand. The ring lamp also made it possible to mount the phone in the middle of the ring, making wider shots of the loom much easier. The *1TB WD Elements Hard Drive* was a necessary investment for this project and made it so I could easily work with large video files. Later in the process I bought a Lacie 4TB hard drive for saving back-ups of all the files.

Several of these elements proved not worth the investment. Those include nearly everything that came in the *RØDE Vlogger Kit*. The lamp was too weak to ever be useful, it didn't even get listed as an element. The *RØDE USB-C Microphone* had too low audio quality to be worth the fuss of mounting it and changing the audio settings every time I recorded. The only part of the kit that got used significantly was the *RØDE Mini-tripod* which held up the *Zoom H5 Microphone* during voiceovers. I would not recommend the vlogger kit to aspiring tutorial makers. Having tested and compared these elements it becomes easier to know what to recommend and not recommend to future tutorial makers. The priorities should be: external hard drive, ring lamp with stand, and H5 microphone, or other good voiceover microphone, provided they already have a smartphone that records video well, and a laptop that can edit video. Once a tutorial maker has this equipment it's a matter of filming, the next elemental analysis is about using the camera and equipment to capture useful footage of the crafting process.

### 5.3.3 Camera Angles

With the camera as the new third participant in the workshop time and effort must be spent to integrate its presence and function into the dance of the craftsperson, assuming they are the one doing the filming. As in craft, having guidelines or a procedure for how to set, move, and interact

with the camera allows the craftsperson to master the tasks at hand, and by using the understanding gained by actively using the camera in for the purpose of filming crafting as the craftsperson I hope to lay out a set of guidelines for how craftspeople can interact with their cameras and other filming equipment to best capture their work.

Appendix G, *Elemental Analysis: Camera Angles* lays out the individual angles used throughout the filming, as well as the advantages and disadvantages of each, but a summary of the table will follow. The act of putting pictures into the forms and filling in pros and cons lists, as well as writing descriptions and reviews of each element allowed me to reflect over these techniques and modes of working. Throughout this reflection I was able to draw up several categories and ways of working that may suit some readers of this thesis who are looking to film tutorials of their own.

The angles used throughout the first half of the filming process are as follows: *Talking Head, Over the Shoulder, Hanging from loom, Treadling, Warping mill angle 1, Warping mill angle 2, Counting Warp threads, rattle-reed angles 1 and 2, Rattle-reed angle 3, Dressing the loom, Changing the Cross, Hanging weights, Threading, over shoulder, Threading close up, Tie down, Placing sticks, close up*. From these 16 camera angles, many of which are very similar to each other, categories can be drawn up that can prove instructive for future tutorial making.

Four groups, or “families”, of angles became apparent. The first family is the Talking Head, and only one element is in this family, the *Talking Head* angle. It is shot with a presenter seated looking into the camera lens and addressing the camera as if it is the audience. The presenter is lit from the front with a soft light, and the background is lit separately to separate the presenter from the background in the image. Using the equipment, I found most efficient for my use the set-up included turning the ring lamp away from the presenter and facing it upwards, so as to bounce a soft light over the presenter and fill the room. The camera was mounted inside the ring lamp, and the microphone placed far enough away to be out of shot, but pointed towards the presenter to capture the voice well.

The second family of shots is the establishing shot. While this may sound odd in a craft context these types of angles do the same thing an establishing shot in cinematography does, it gives the audience the context of what is being shown and makes them feel comfortable by understanding the context. Examples of these shots include: *Over the Shoulder, Warping Mill angle 1 and 2, Dressing the loom, Hanging weights, Threading over shoulder, and Tie down*. These shots typically include the body of the craftsperson and don't focus closely on the fingers or hands, rather larger movements. These shots often require the camera to be mounted high on a tripod or stand,

as well as several lights for not just the object of the shot, but also the background. Mounting the camera in the ring lamp with a secondary light source for the background, as well as general room lighting is often what I choose for these types of shots.

The third family of shots is Close-Up shots; these show the hands, fingers, tools, and objects of the craft in detail. These types of shots are what teach the minutia of craft to the audience. Knots, patterns, and precise operations are demonstrated through close-ups. Elements in this family include: *Counting warp threads*, *Rattle-reed angles 1 and 2*, *Changing the Cross*, *Threading close up*, and *Placing sticks close up*. Often these were filmed with the camera mounted low on the tripod or even on the back of a chair. The ring lamp and camera were placed separately so the shadows would provide contrast rather than confusing flatness to the objects being filmed. When filming these shots, it's important to be aware of the placement of hands, shoulders, and the head relative to the lens so as not to block what is being shown. Clever placement of the camera can make it easier to work undisturbed by the nuisance of worrying about blocking the line of sight.

The fourth family of shots is the Backwards shot. In this type of shot the back side of the object being worked with is shown. It will often provide context that neither the establishing nor the close-up can provide and give greater understanding of the way the tools, hands, and materials are interacting. The family of Backwards shots became apparent after looking at the elements: *Treadling*, *Rattle-Reed angle 3*, and *Hanging from loom*. When dressing the loom, a backwards shot was also used to show the back side of the loom where the warp is being drawn on, however this angle wasn't recorded as an element. More generally this type of angle could be thought of as providing an angle that isn't the typical one for a learner to see when interacting with their craft, so even if a shot isn't taken from directly behind the object it can still be classed as a Backwards shot.

A close look at these camera angles and how they are used to capture crafting processes provides a way of designing filming routines so tutorial makers can set up their camera, or even multiple cameras in a way that captures both an establishing angle of the entirety of the process, as well as the fine movements of the hands and fingers working with smaller elements of the craft. These analyses of both the Project log and the Elements used during filming allow for interpretations and give rise to the findings of this research project. The Project log gave a documentation of the process as it occurred and brought forward insights that were had during the act of crafting, both in the loom and behind the camera. The Elemental analysis allowed for a deeper understanding of the parts and pieces, both equipment and techniques that went into

making these videos. In the next chapter the findings from these analyses will be presented and the ways in which those findings can be applied in the future will be elucidated upon.

## 6 Findings and Applications

Having completed the Filming study and presenting the analysis a more concrete picture of the findings makes it easy to see what's been learned by making these videos. The Filming study represents an exploration into a new craft on my part. Having not made tutorials before it was critical to test many different ways of doing things, both in planning, execution, and using unfamiliar technology. Documenting and analyzing my meeting with a new craft has brought forward insights about aspects of the craft that a practitioner familiar with filmmaking likely would not even question, they already know how to do nearly all of it. Approaching a craft with a beginner's mind opens the field for a deeper questioning of the processes involved in the craft itself. This chapter is meant to function as several things, a presentation of the results from the Filming study, a guide for new tutorial-makers wishing to follow my approach, and a list of reminders for myself in the future. It begins with an overview of the approach, then looks at each part in detail.

### 6.1 The Four Step mode

Having made three series of videos using different modes of capture I found myself settling into a mode that combined some of the advantages of Active planning, with the ease and approachability of Passive planning. This is what I call the Four Step mode. The mode allows a crafter to approach the video making from the perspective of the craft. The **first** step is writing the Skill Tree, as described in chapter 5.3.1, preferably at the same time as performing the craft, as it is far too easy to miss a step if only going through the crafting process in one's mind.

The **second** step is to turn the skill tree into a storyboard. In general terms each skill is turned into a rough sketch of a camera shot that will capture that skill. Start with a A3 piece of paper, sketch a head, as the opening should be a talking head introduction to what will be taught, then begin with the first skill to be taught, design a shot, and sketch it. Continue for every skill in that category that is being taught, being careful to understand the time constraint of 6-12 minutes. This limit derives from the statistical analysis of videos in the Media study. End the story board with a talking head segment summarizing what has been taught and a taste of what's to come.

The **third** step is to actually film all of the clips needed to make the video. Each storyboard frame should provide the set-up for the shot needed to make the filming easier. A ring lamp, external microphone, and gorilla grip tripod for the camera makes filming cheap and easy, while still

giving acceptable quality video. In this step the person doing the craft should not attempt to explain what they are doing as they do it, as this will get in the way. Audio is only necessary to film for skills where the audio would add to the overall experience of the act. The beat of the loom while weaving, for example, adds to the visual of the weaver doing their craft. Each day's filming is transferred to an external hard drive, preferably two, into a folder marked with the date of filming.

The **fourth**, and final, step is editing. In my case this is done in Adobe Premiere Pro and begins by going back to the storyboard, finding the clips for each skill, setting in and out points in the software, and renaming the clips to the names of the skills they demonstrate. From here the clips are ordered into video sequences and dead space and awkward timings are removed. Once the appropriate timing is met, the talking head segments can be added as introduction and conclusion, and a voice over for the demonstration portion of the video made. Using the video itself as a guide for the voicing over allows the voice to be recorded naturally, without odd starts and stops for the cuts in the video. After the voiceover helpful text and titles can be added where necessary. At the start and end of the video it must fade to black. From here it can be exported and shared and/or uploaded to YouTube or another site.

This mode of filming provides for a clear path from craft to video that should be accessible for those wishing to film their craft. These steps can be followed regardless of accessibility to high-quality filming equipment. This also provides good documentation of the craft separate from the videos in the form of the Skill trees. These trees will provide unique insight into the ways different craftspeople understand and perform their craft if they created such Skill trees of their own. As well these trees can be combined with other craft research methods, such as Time geographies used to create a temporal mapping of a craft process, for an even more nuanced and analytical approach to understanding craft (Jarefjäll, 2016). The following subchapters will highlight new knowledge gained during this study.

## **6.2 Skill trees and Storyboards**

This study has shown that building a Skill Tree (see appendix F) is a very useful exercise for reflecting over the craft itself and putting to paper the concrete skills involved in the craft being taught. Making the skill tree is easiest when a specific and concrete project is chosen, in this study it was weaving and fulling six meters of wadmál. Trying to include other patterns, colors, ways of doing things, would make this exercise much more difficult. For this project I decided to start with machine spun yarn as hand spinning enough yarn was unrealistic for this project, but felling a tree

for a wood working project that a crafter is making a tutorial for might not be unrealistic, so it's up to the crafter to determine where they want the tutorial to begin in the crafting process. The tutorials must, however, begin at a point that is realistic for the viewer to get to themselves, starting with a warp on a looms is a bit unrealistic for most weavers. Once the crafter has decided where to start the craft from they can begin this exercise of making a Skill Tree.

To do the exercise for a new tutorial video the crafter must start with the craft or project they will be documenting and a notepad and pencil, or a computer. Before starting to perform the craft the crafter can begin by noting overarching processes throughout the entire course of the project. These typically have names already, that crafts people use to refer to the processes, examples for weaving wadmals include *warping*, *threading*, *weaving*, *fulling*. These overarching processes will form the limbs of the skill tree.

Beginning the craft, the crafter should start noting every distinct action they perform in executing the craft. See the attached Skill Tree for weaving, note that even the smallest actions are included, because these small actions are the heart of every craft (appendix F). Each action leads to the next, and they build on each other, so omitting an action from the Skill Tree would be to undervalue its importance in the crafting process. The crafter should note every skill with as few words as possible, as the actions being described should be small and build on each other rather than require many words to explain.

As each overarching process is populated with skills, or "leaves", the skill tree will begin to represent the entirety of the crafting process for the craft at hand. Skills that are repeated many times, such as threading heddles in the loom, are only noted once in the skill tree. Patterns and crafting decision making is largely stripped away using the Skill Tree method, which is likely it's largest weakness. The Skill Tree method is designed as a guide for making crafting tutorials and visualizing all the skills needed in a craft, but won't provide an entirely realistic picture of the time required to perform skill throughout the crafting process.

### **6.3 The Four camera-angle families**

Putting the images of different camera set ups used during filming into the elemental comparison forms allowed me to reflect over what types of camera angles were being used. By the end of this reflexive exercise, I saw four main *families* of angles being used. Note that these angle families are based on data from the types of camera set-up I was using during filming and are by no means a complete representation of angles that can be used.

Since I mostly was filming on one camera I had to switch set-ups frequently, but by using a multi-camera set up establishing shots, close-ups, and backwards shots could all be filmed at once and cameras switched between during editing. A telephoto lens for the close-up camera may be necessary to prevent it from being caught in the shot of the establishing camera, or one may just accept that the Backwards or Close-Up cameras are just in the frame of the Establishing camera.

By having a regimented approach to camera angle and set-up a tutorial-maker can focus more on the actual craft, and demonstrating that, than having to design a new camera angle for every new skill. If multiple cameras can be involved it can make for a very dynamic and interesting tutorial by being able to change shots, like in a filmed interview. During the voicing over the tutorial maker could even swap between close-up, establishing, and backwards angles as they saw fit, thereby creating a stronger relationship between the voiceover and demonstration.

## **6.4 Finding the Workflow**

After much experimentation with workflow and effective means of editing I've found a sort of recipe that led to the tutorials presented alongside this thesis. Before using the editing software, I had an outline for how to approach the videomaking process, and this outline can represent a summarized version of the "recipe" below. The tutorial was to begin with a talking head, or bust, of the presenter welcoming viewers and giving a summary of the skills to be shown in the tutorial; the body of the tutorial is a demonstration of the skills with a voiceover narrating what is being shown and providing direction, after all the skills are demonstrated the presenter would, again, summarize the skills seen and thank the viewers for watching. This outline shows how the filming and workflow for editing must be done.

First the demonstrations are filmed, without the crafter speaking about them as they are filmed. The files are then transferred to an external hard drive each day into a dailies folder for later editing. The editing can begin before all the tutorials are filmed, but it likely will be a more organized process to wait until all the demonstrations are finished. From here the editing can begin. Coarse clipping is the first step in editing, to focus each clip on the skill, or skills, to be shown. Once each clip is roughly cut they are to be sorted and organized into each video that is being made and ordered in the order in which they will be presented in the tutorials. The coarsely cut clips are then turned into sequences, one for each video to be made, and then the finer clipping can begin. All unhelpful footage is removed, and some footage is sped up to demonstrate the technique without wasting time. Once the demonstration sections are fully edited and shortened to within six to



fifteen minutes the voiceovers can be made. The voiceover is recorded by the crafter as they watch the edited demonstration video. Doing the voiceover this way allow for flow in the narration even as the video may have many cuts and edits in it. Each voiceover is recorded and edited directly in the editing software and is recorded to fit the length of the video demonstration itself. Once all the demonstration sections are complete the talking head segments can be filmed. These are then cut apart and placed at the start and end of each video. After all the videos are assembled they can be transcribed and had captions put in. Captions make the videos more accessible for all viewers. Finally, the title slides can be added between the introduction and the demonstration, and the tutorials are complete. The final steps are to export the videos and upload to YouTube.

Throughout this process of finding my workflow I used many different ways of accomplishing the same tasks, but more efficiently. I re-organized my workflow around how Premiere Pro is designed to be used, and I tuned by filming process to make the editing process easier and clearer. The following is what I found to be the most useful workflow (all shortcuts for Premiere Pro on Windows 11, check Mac shortcuts to find the equivalents).

### ***Detailed workflow***

1. Import Dailies
  - a. After filming, transfer the clips onto an external hard drive with the folder title “Number: Date of Transfer”.
  - b. In the Import pane of Premiere select that folder(s) from the hard drive and import them each as separate bins with the same titles as the folder.
  - c. These bins are kept in a larger bin in Premiere with the title “Dailies”.
2. Coarse cutting
  - a. Open the Assembly workspace in Premiere and minimize the sequence viewer by dragging it.
  - b. Open the folder from the Dailies bin with the clips you want to work with, usually start with the first one.
  - c. Scroll over each clip to view it quickly and see if it demonstrates well the skill(s) you’re needing for this video, refer to the storyboard or Skill tree as necessary.
  - d. Sort the clips into the sequence in which they will appear in the tutorial, refer to storyboard.
  - e. Drag each clip into the Source Viewer and use I and O to set In and Out points in the clip.

- f. Right click and rename clip to the name of the skill demonstrated, or something logical that describes the contents.
- g. Continue until all the clips have logical names, clear any clips that aren't going to be used.
- h. This bin's contents can then be sorted by cutting and pasting into other bins in the Clipped bin, each bin the Clipped bin will become a sequence and its own tutorial video.

### 3. Fine cutting

- a. Check that all clips are in the correct order for the video, reorder any clips that aren't.
- b. Select all the clips in a bin that will become one tutorial video, right click, and select Make Sequence from Clip.
- c. Rename the sequence to the name of the tutorial.
- d. Starting with the longest clips then moving to viewing the clips as they appear in sequence use Ctrl+K (cut) to cut and Q and W to delete unnecessary footage, making sure to maintain clarity in the demonstration of the skill.
- e. Repetitive or slow processes that do not require fine detail in the movements of the fingers and hands can be shortened by speeding up the film. Increasing to 400% playback speed is a good rule of thumb.
- f. Continue cutting and speeding up footage until the required length is met, preferably somewhere between 6 and 12 minutes per tutorial. Delete bad audio tracks.
- g. Watch through the entirety to ensure it captures all the required skills.

### 4. Voiceover

- a. Sit in a comfortable room, in a good speaking position and make sure there are no extraneous noises around.
- b. Plug in microphone and set it to be the audio interface for the computer, that way it can record directly into Premiere Pro.
- c. Begin narrating the film, making sure to explain in clear language the skills that are shown, describing the actions being shown and how certain skills *feel* that are hard to understand just by watching the film.

- d. Next listen back and use the M key to mark errors in the recording. Stumbling over words, poor phrasing, gaps, other issues.
- e. Go back to these errors and decide how best to correct them, often the best option is to rerecord with several seconds to a half-minute on either side of the error.
- f. Repeat the steps of listening for errors and fixing them until the voiceover is natural and explains in adequate detail the skills demonstrated.
- g. Some fine editing can also be done to the video clips to make them match the voiceover. Some clips may be added or taken away.

## 5. Talking Head

- a. Set up the background so it's clean, clear, and organized. Decorate the desk with some tools or materials related to the craft at hand.
- b. Set up the ring lamp facing away from the speaker, and into the ceiling to create a soft light over the whole room. Set up the microphone just out of sight of the camera.
- c. A script in the form of bullet points should be written up creating a summary of three points for each tutorial intro and outro to be filmed. Tape this to the tripod under the ring lamp.
- d. Start the microphone and camera recording. To synchronize video and audio snap your fingers.
- e. In a clear and steady voice welcome the viewers to the tutorial, go through each point and introduce what they'll be watching in the coming demonstration.
- f. Between the intro and outro of each tutorial snap your fingers to allow the clips to be cut and manipulated without losing the synchronization points.
- g. If any part needs to be re-recorded, snap your fingers, and begin from the beginning of the segment.
- h. Once all the intros and outros for each tutorial has been recorded stop the camera and microphone and transfer into its own folder in the Dailies folder of the hard drive.
- i. In Premiere Pro create a Sequence of the video and audio recorded and synchronize them using the finger snaps.
- j. Merge the video and audio of each segment together by selecting the clips, right click, Merge Clips.

- k. Use Ctrl+K to cut the audio and video at each snap to cut the entire recording into segments.
- l. Then name them with the tutorial name + Intro or Outro, ex. "Weaving Intro". Rerecords get a number after, ex. "Weaving Intro 3".
- m. For segments with multiple re-records choose the best one (often the last) and clear the others. From here there should be one intro and one outro for each tutorial.
- n. Cut and paste each intro and outro to before and after the demonstration sections for each tutorial.

## 6. Captions

- a. Switch to the Captions and Graphics workspace.
- b. Click Transcribe Sequence
- c. Play the video and listen to the voiceover while reading the transcription and correct transcription errors as you listen. Jargon and craft-specific words will often be incorrectly transcribed.
- d. Click CC button to create closed captioning.
- e. Check that the video's captions appear correctly
- f. Add a title between the talking head segment and the demonstration segment, Premiere pro has many free to use built in title graphics, just insert a title and subtitle.
- g. Watch all tutorials one last time to fix any errors.

## 7. Encoding

- a. Open Adobe Media Encoder.
- b. Go to File, Add or Ctrl+I to Add Source.
- c. Navigate to your Adobe Project File and open it, select all sequences that you wish to turn into finished tutorials.
- d. Use the highest quality export preset to get the highest quality video, compressing to lower quality formats will give smaller file sizes.
- e. Change the Output location to a new folder on the Hard drive, these folders will be big.
- f. Let the computer work encoding the files, this could take several hours.
- g. Once the encoding is complete, so are your tutorials, now it's just a matter of uploading to YouTube.

This workflow represents what I have found to work well in Premiere Pro, a similar workflow should also be possible in Davinci Resolve, which has a free and paid version of the software. Other software could likely follow a similar workflow, but some of the details might not match another software (certainly not the keyboard shortcuts).

Part of the goal with this chapter is for it to function as a reference and guide for others wishing to make tutorials about craft for YouTube using the techniques I have found during this study. As well it's a guide for myself next time I make tutorials. These findings are useful on their own, but the following chapter will dig more into the implications and further research that can be done in this field. A summary of the entire study will help to round off and gather together the ideas presented throughout the thesis.

## 7 Summary and Discussion

Weaving on YouTube is a multi-faceted issue, and the findings presented in this thesis shed light on a few specific questions in specific ways. In this chapter I will summarize these findings and discuss possible implications of these findings for the wider field. I will also be looking at how different theoretical perspectives might have changed the types of answers these data provide and how this could lead to new research connected to craft tutorials. Before going further into the summary and discussion a reminder of what the research questions for this study are:

*How can craft tutorials teach the skills required for weaving wadmál?*

*How is weaving taught on YouTube?*

*How does a craftsman behave in the act of content creation?*

The first question establishes the overarching aim for the study, in this case specifically relating to weaving of wadmál, a traditional fabric woven in the Nordics for hundreds of years. The next two questions break down that overarching question into smaller parts for easier handling. *How is weaving taught on YouTube* sets up the Media study of existing weaving tutorials on YouTube. The analysis and findings from this study are presented in chapter 4. The third research question views this phenomenon from a different angle, looking at it from the perspective of the craftsman making the tutorials and how they might interact with a camera and editing software. This journey of creating my own tutorials has been very informative for understanding how tutorials are created, there's lots of information out there about how to film, edit, and upload videos, tutorials, and YouTube content, but having a concrete project to work through these problems with makes it very clear where the issues arise and document how they are overcome.

In the Media Study the 107 videos collected and reviewed all related to weaving, but not all taught skills directly useful for weavers wishing to weave wadmál on a floor loom. On the whole if one were to try to learn to weave on a floor loom from YouTube alone, they would need to cobble together a working knowledge from many different videos and sources. From all the videos I saw I would say it's possible, but probably not recommended as a learner would likely find a video that says to do a certain skill one way, perhaps for a specific type of loom or specific project, and another video telling them to do it in a totally different way, not making it clear it was for a different type of project. As well the videos studied had a clear tendency towards smaller, simpler loom types. There were videos about damask looms and how to use them, but there were even more about wooden frame looms and small table looms. It's hard to say if it's demand for videos showing smaller looms that is pushing them to be made, or if these videos are just easier to make therefore

they are the ones that get made. The tutorials and documentaries that are on YouTube about weaving are many and varied. They, however, represent what a new weaver wanting to learn would have easiest access to from their home at little effort. They are an introduction to the craft, but don't seem to entirely represent the craft itself as many of the videos and series that they are a part of don't include enough parts of the preparation for weaving for a new learner to use them alone. With such an open and powerful platform like YouTube it's crucial that passionate and knowledgeable people are making new videos for more viewers to watch and learn from.

Leading up to this final set of tutorials (see appendix D) there were two trial series which let me test equipment and techniques vital to the success of the final series. In making these series some of the most valuable findings are as follows: the Four Step mode, the four camera angle families, a tutorial-tailored workflow, and Skill trees.

The Four-step mode of first drawing a Skill tree, then turning it into a storyboard, before filming and lastly, editing and voicing over allows a structured approach to tutorial making. A craftsperson wishing to make a tutorial will likely get stuck trying to figure out the best means of approaching the matter, just as I did. The Four step mode could help by giving a clear set of steps to follow so anyone wishing to make a tutorial about craft can go about it in a rigorous and regimented way. This mode gives the craftsperson tools that they can use as they see fit. The tools include using the Skill tree, the storyboard, and not narrating during filming, rather as a voiceover. By freeing themselves from narration during the craft they allow their tacit knowledge to flow and their engrained understanding of the craft to be captured by the camera. Each of these tools can be worked with even more by tutorial-making craftspeople to fit their needs as they see fit. I did not plan each camera angle in detail on the storyboard, but someone else might find that that helps them plan and capture the skill better. I did not script my voiceovers in detail, but others might find at this gives them better control in presenting what is being shown in a clear and pedagogical way.

One tool I did investigate at a deeper level was the camera angles available to me. These findings were made possible by the elemental analysis and my documenting of the camera set-ups I used throughout the first half of filming. Through this I was able to identify the families of Establishing shot, Close-up, and Backwards shot to be useful during the filming of the demonstration portion, and the Talking Head shot to provide good intros and outros to the videos. These four families of camera shots allow a tutorial maker to plan which type of shot will best capture each skill and can note it on the storyboard for reference during filming. Additional types of shots could be developed by each tutorial-maker to suit their craft and filming style, but keeping it

to a limited number, like four, keeps the planning process organized. The final finding was on workflow in the editing software.

Editing videos was entirely new to me, and not something I tested much during the first two trial series. The workflow presented in chapter 6.4 represents what I found to work well for making tutorials based on the Four-step mode. Keeping dailies folders on an external hard drive with a document detailing what was filmed each day is a key organizational tool. Beginning to sort the clips anymore than just deleting unusable footage will cause confusion. I do all file sorting in the editing software. Once the video clips are placed in sequence and edited together the voiceover is much easier, as the tutorial-maker has re-familiarized themselves with the content of the video before voicing over. After all the voiceovers were complete I filmed the talking head segments all in a row, then cut and moved each intro and outro to before and after its respective tutorial. This was a very easy and efficient way of making the talking head segments, and it forced them to remain short.

The Skill tree, developed from Nicola Wood's flowchart, leads to new ways of documenting craft processes (Wood, 2010). In the future I hope to document more crafts using this method to test the resiliency and usefulness of this type of documentation. By capturing in words and visualizations the skills and techniques behind a whole craft process, that process can be better understood and researched. The Skill tree can be paired with time-use studies to create a statistical representation of a craft or project that then can be compared to other crafts or ways of working. A Skill tree paired with a time geography showing the skills and time required to spin and weave a Viking age textile could be compared to the skills and time involved in weaving wadmál in the nineteenth century. This form of documentation provides a granular understanding of a craft, and allows it to be expressed in written form. This finding is what I think is most interesting out of all of these, because this seems like it could provide a new way to document and understand crafts, the processes, and the people behind them.

Once these findings are published and begin to circulate in the wider community of craftspeople they could likely have impacts on the field itself, the same is true when I publish my tutorials to YouTube. In the following I speculate as to what implications these findings may have.

## **7.1 Implications**

For my own work the most valuable implication is being able to use what I've learned making these tutorials to make new ones. As I made these tutorials I was continuously thinking about how I



would do things differently the next time and how I want to improve my process during filming and during editing to improve the aesthetic and pedagogical quality of the tutorials. In that sense this project was a kickstart to me making more tutorial videos. A layer removed from that is using what I've learned to teach others how to make tutorials focusing specifically on how to translate craft skills and projects into tutorials using the Four-step mode. Before I would feel comfortable teaching others tutorial making I need to get more experienced at it myself, but this research can help others translate craft skills into useful tutorials who are already experienced at filming and editing.

The Media Study has implications for organizations that work with traditional crafts and promote traditional crafts to the public, like the Norwegian Folk Arts and Crafts Association. Knowing that YouTube has a plurality of videos solely focused on the weaving process means the focus of new tutorials can be on the preparation of the loom. Only two videos were found that were relevant to fulling wadmal, so more tutorials about fulling would fill a gap. Furthermore, by seeing the high number of videos that use narration during the recording process gives the sense that a craftsperson should speak while filming, but that approach might make the craftsperson uncomfortable. Findings from the Filming study shows that this tendency might not be productive. Understanding the ways creators teach craft on YouTube and the wider internet can provide enormous insight into how to reach out to potential new learners to promote and preserve traditional knowledge. The data gathered for this Media study represents what a new weaver is going to meet on the most easily accessible video server on the internet, YouTube. Looking into what new weavers are meeting on YouTube gives a lot of information about how the craft is changing in today's world, doing this for other crafts will provide even more understanding.

## **7.2 Other perspectives**

The thesis I wanted to write, but that got away from me, would have asked "How has YouTube changed the ways we pass on traditions in weaving?" I say it got away from me because for a long time I thought that is what I was researching, but about halfway through the process it became clear I wasn't focused on the traditions, but rather on the content of the craft. What I became concerned with, as any tutorial-maker would, was how to teach the craft itself. How to show the movements of the hands and body to thread the heddles, advance the loom, and throw the shuttle, but the technical aspects of weaving are just a part of the tradition. While the way we weave is in itself an aspect of tradition the traditional context is harder to convey over a short instructional video. Many of the videos analyzed for the Media study were documentaries that specifically called

the crafts they were documenting “traditional”, and in those documentaries they showed some of the processes, talked to the craftspeople behind them, and gathered the context of the craft into a coherent storyline. Research into the wider context of tradition and how it is affected by digitalization of craft learning could be a fascinating study in the future.

What I did have the distinct impression of after watching these 107 videos is that YouTube’s weaving community seems to have its own conventions and practices, potentially laying a foundation for new traditions to form on the platform. The creators who post these weaving tutorials, as well as weavers who are learning and post vlogs about ongoing projects, seem to use tools, techniques, colors, and patterns that are specific to their community: YouTube.

At an earlier stage in the research process of this thesis I wanted to use Walter Benjamin’s *The Work of Art in the Age of Mechanical Reproduction*, but found that my methods and data were leading me in a different direction. The differences between an In-person weaving course taught over a week and an online weaving course taught over an hour’s worth of videos are not the same, research into the concrete ways this new form of instruction, delving into new medias’ influence, would bring much needed understanding to the impacts this paradigm shift in craft teaching has wrought. Benjamin’s philosophies on the *aura* and *authority* of original performances can also be applied to the classroom or course-based instruction of new crafters and digital, tutorial-based instruction of new crafters (Benjamin, 2015).

Along with Walter Benjamin’s critical theories of technology I considered incorporating elements of communication and mediation theories into the collection and analysis of these data. The theoretical perspective of how the structuring of communicated messages into media changes the reception and, ultimately, the meaning of the message to the receiver can reveal a great deal about how mediating craft learning within the frame of YouTube dramatically alters the reception of that learning for the learner. A course in weaving, for example, may easily stretch over six days, whereas the tutorials made for this study are only a little over an hour of video. On YouTube tutorials are short, rarely more than a few minutes, but the viewer can always re-watch the content, and access it whenever they want to. Beyond the video itself is the frame of YouTube, in addition to being a media server YouTube is a social network that allows liking, commenting, and sharing videos, as well it recommends new videos for viewers. This frame for the media changes the way that those wishing to learn crafts access that learning, and will change the way the learning is received. From this vantage it is easy to see the ways in which new research can be conducted to

further our understanding of how new media is changing how traditional crafts are taught and learned.

These alternate theoretical perspectives show that there are many other ways of approaching this phenomenon that would give new and interesting data, and answers to questions important to this field. These perspectives were not included in the data collection and analysis for this thesis because of the need to have set boundaries for the analysis of data to keep the study's research questions in focus. New, future research might be able to look at the phenomenon of craft tutorials on YouTube through these alternate lenses.

### **7.3 Further research**

Of course, any research project will not simply answer the questions at hand without discovering dozens of other interesting and relevant questions along the way. Throughout this research project I've navigated between several different theoretical perspectives, methods, and phrasings of the research questions that leave open new lines of research that I feel deserve attention in the future.

The line of inquiry that I most wish I could have spent more time looking into is the impact YouTube has on traditions surrounding craft. Specifically, a study concerned with the presence of *tradition* on YouTube using Walter Benjamin's theories as a framework for analysis could give some really interesting results, showing how new media changes the format of traditions. As mentioned in the previous subchapter YouTube shows signs of having its own traditions and culture surrounding craft, a study mapping these traditions and comparing them to existing craft traditions within various cultures could reveal a great deal about how these traditions change, and continue to change as new technologies are introduced and influence cultures and traditions.

The Media study for this project was naturally limited by the research question and the topic at hand, it was bound to only gather videos specifically about weaving. The videos analyzed are useful for this study but are harder to generalize about all crafts, future study could provide a better understanding about the state of craft tutorials over a more general range of crafting than what's being analyzed here. A larger study investigating more types of crafts and more traditions within craft can be analyzed in relation to in-person courses or classes. A wider Media study of craft tutorials on YouTube will provide an even wider and more general understanding of how craft unfolds on the Internet and how it might continue to change and impact traditional craft in the future.

Another possibility for future research could focus on how using Skill Trees as a method for documenting craft could be used to better understand the crafts themselves. Drawing Skill Trees helps a tutorial-maker better visualize the individual skills involved in each project. Another method for documenting a crafting process is drawing a Time Geography, a method I used in my bachelor's degree. This method visualizes the length of time a craftsperson is performing each process or skill and creates a visualization that can be analyzed to better understand different craft processes temporally (Jarefjäll, 2016). Through my time working with the Skill Tree for wadmäl weaving I also began categorizing the processes into three different types of process: *Main craft*, *Critical Transitional Moment*, and *Checking*. These three categories of processes are the different ways I had noticed myself working while I was crafting. A study looking into the ways these different means of analyzing crafting processes could reveal powerful methodologies for future research into craft. Many other questions arose during my time working with making tutorials for how to weave wadmäl, but these few were the largest and seemingly most important new research possibilities that arose.

## 7.4 Closing remarks

Regardless of how anyone may feel about learning new skills on the internet, whether a positive force that democratizes knowledge and skills, or a negative force that erases tradition and cultural diversity and replaces it with Westernized pop-culture, people use YouTube, Tik-Tok, blogs, and other digital media to learn all sorts of new skills. Tutorials offered on YouTube change the context of learning; skills formerly taught in apprentice-master or mother-daughter relationships, or in a course/classroom setting with one teacher and several pupils, are being augmented by possibilities for digital teaching and learning. It's now possible to use YouTube to learn these skills, like knitting, whittling, or weaving. New ways to teach crafts offers new possibilities for preserving and transmitting these crafts and traditions to new generations.

Building off the work of other researchers such as Nicola Wood and Tellef Kvifte allowed my research to grow in a way that would have been impossible to achieve without their research. By understanding the ways by which digital media has already been researched as a means for transmitting skills in craft I was able to develop my own methods for creating tutorials directly from the craft, as a craftsperson. Mapping the state of the art, or the state of the field of digitalization of tacit knowledge as a means of transmitting it provides a foundation for my own work and informs future research in the field.

This research is the result of many months of hard work to understand and document the ways that this fascinating fabric is created. Wadmál is a fabric that for centuries has been woven throughout the Nordic countries to protect from wind and weather. This fabric, both handwoven and woven by machine has been used all the way to the modern day, nowadays being nearly exclusively used in folk costumes, bunad. Many in Norway still fondly remember wandering in the mountains in trousers of wadmál, braving the elements, with the thick wool fabric keeping them dry and warm. The making and use of wadmál is a tradition with long roots in Norway, and by creating tutorials to spread this knowledge will hopefully strengthen this tradition for years to come.



*Image 9* The finished product: Wadmál

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# List of tables and charts

## Figures

Figure 1 Modes of Knowing (Nelson 2016, p.37) Diagram replicated. ....	19
Figure 2 A page from the video gathering list. This form of listing allows the researcher to reconstruct the path taken from one video to another in the process of searching and watching YouTube videos. ....	23
Figure 3 Number of videos collected per search term used .....	28
Figure 4 Different types of videos included in the data .....	29
Figure 5 Types of looms being demonstrated on in the videos .....	29
Figure 6 Techniques demonstrated in the videos collected .....	30
Figure 7 (above) Reproducibility rankings .....	31
Figure 8 (above) Reproducibility, ranks split in two, 5 divided equally.....	31
Figure 9 Showing how creators identify themselves relative to tradition .....	32
Figure 10 Number of videos per rank relative to perceived ability to convey tradition.....	32
Figure 11 Camera angles used in the videos analyzed .....	33
Figure 12 Narration styles in collected videos .....	34
Figure 13 Using other content, like text and images, in the videos collected .....	35
Figure 14 Number of videos per range of views.....	36
Figure 15 Length of videos gathered for the Media study .....	36
Figure 16 A portion of the Excel spreadsheet for identifying and categorizing skills in wadmål weaving.....	58
<b>Images All images photographed by author</b>	
Image 1 The fulling mill at Mjonøy, with the weaving class's wadmål being fullled .....	42
Image 2 Speaking while demonstrating made video clips much longer than expected.....	44
Image 3 Lack of external, controllable lighting makes for bad lighting.....	45
Image 4 The lighting in series 2 was shockingly poor .....	46
Image 6 Some clips had good lighting, and are filmed from an angle good for demonstration (above), others were poorly lit and at an odd angle for demonstration (below) .....	47
Image 6 Example of poor lighting .....	47
Image 7 The storyboard for the first tutorial video .....	49
Image 8 The investment in a LED ring lamp of good quality made filming much easier and the results better .....	50
Image 9 The finished product: Wadmål.....	81

# Appendixes

- A- Data Collection form
- B- Codebook
- C- Project log, Week 10 2023
- D- Videos gathered from YouTube
- E- Tutorials: Weaving Wadmál
- F- Skill tree
- G- Elemental Analysis