
THE EXTENT TO WHICH THE INTERNET CAN TEACH KNITTING MASTERY
A RED STRING KNITS THESIS

A Thesis
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Abstract

Since its invention over a thousand years ago, the craft of knitting has been traditionally passed down through face-to-face instruction. Knitting techniques within communities were standardized, which led to the development of cultural knitting styles and techniques. However, with increased globalization and the rise of the Internet, face-to-face instruction is no longer the only way to learn the craft, and the geographical boundaries of cultural knitting techniques have become blurry. Prospective students can become virtual apprentices, learning techniques through multiple masters. Learning how to knit has become a more personalized and independent learning experience. With this new method of learning, the following question arises: to what extent can the Internet teach knitting mastery?

BACKGROUND


CASCADE 220
Sport

Why Knitting?

A Stretch from Mathematics Education or a True Relative?

As a Mathematics Education major, pursuing a thesis in knitting seems like a stretch. A degree in mathematics appears far removed from the arts, as mathematics is stereotyped for having staunch objectivity, straightforward algorithms, and rigid rules that allow for few exceptions. In reality, mathematics is a subject that thrives on creativity. Constructing a mathematical proof is comparable to creating something out of Lego pieces. Using only the fundamentals, can you construct something novel, useful, and structurally sound?

Mathematics demands creativity, but even more so, it demands intentionality, forethought, and consideration of relationships. There are many ideas about what mathematics is, but to describe the entire field in one sentence, it might be sufficient to define mathematics as the study of patterns and relationships. With this being the case, a study of knitting must also be considered a study of mathematics.

Knitting's Roots in Topology

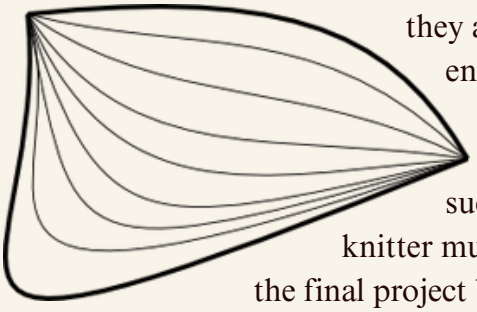
Topology, often called "rubber sheet geometry", is a field of mathematics that focuses on the properties of multidimensional spaces.

A subset of topology, knot theory, reveals another connection between knitting and mathematics. In a New York Times article titled "Knitting is Coding and Yarn is Programmable in This Physics Lab", Siobhan Roberts (2019) asserts that "knot theory is knit theory" (p. 1).

The article details the research of Elisabetta Matsumoto, an applied mathematician and physicist that is interested in the structure of knots. Her work combines knitting and topology, creating equivalence classes of stitch combinations, observing the compactness and connectedness of resulting fabrics, and investigating what determines a knit fabric's elasticity (Roberts, 2019). These are topics that I'm very familiar with, as my senior mathematics project was titled "The Fundamental Theorem of Algebra through a Topological Lens."

The Fundamental Theorem of Algebra, put simply, says that any non-constant polynomial with a highest degree "n" will have n real or complex roots, including multiplicity. Proving this theorem topologically involves a study of seemingly unrelated concepts. Here, I will explain some of these concepts, particularly the ones that coincide with Matsumoto's research.

First and foremost, Matsumoto's research seeks to categorize stitches. In topology, we call this creating "equivalence classes." The word equivalence can be misleading, however. In topology, spaces, paths, and loops do not have to look identical in order to be considered "equivalent." Rather, two objects are in the same equivalence class if one can be continuously deformed into another without "cutting" or "pasting." Take the image below. This is a collection of paths, all with the same initial and final point (Murata, 2006).



While all of these paths appear distinct, they are topologically identical. This image shows how the top bold line can be transformed into the bottom bold line in a continuous, smooth transition. This collection is an example of an equivalence class of paths.

With Matsumoto's research into equivalence classes of stitches, the idea is the same. If one stitch pattern can be continuously deformed into another without cutting or re-tying the yarn, these two stitches would be structurally identical.

Understanding the structure of knitting stitches has led to the creation of iconic knitting designs, such as the well-known cable knit and the equally beautiful, but perhaps lesser known, honeycomb stitch. Clearly, knitting and topology are compatible subjects.

Knitting as Numerical Creation

If the connection between knitting and topology doesn't appear strong enough, knitting can also be described as an intentional mathematical process. Lydia Arantes, a cultural anthropologist and Assistant Professor at the University of Graz, categorizes knitting as a form of "numerically bound form creation" (2020, p. 195).

She asserts that the knitter must be fully involved and mathematically aware of what they are doing throughout the entire process of making a project. Arantes points out that in order to create a successful knitting project, a knitter must have a concrete vision of the final project before any stitches are cast on to the needles. This intentionality is necessary, as knitting mistakes cannot be fixed retroactively once it is cast off the needles. Any attempt to change the project's shape after it is cast off requires an unraveling of stitches. Attempting to cut a loose thread could cause your entire project to fall apart, as knit fabrics are made such that all stitches are interdependent on one another.

Arantes' writing also solidifies knitting as geometry in practice. Understanding shape, relationship, and the geometric proportions that bring a garment to life are skills a master knitter must have.

The honeycomb stitch demonstrates the geometry inherent in knitting.

The size, tension, and bulk of knit stitches are dependent on the interaction between the yarn's weight, the selected needle size, the configuration of stitches, and how tightly the knitter pulls the yarn (Arantes, 2020, p. 196). While there may not be a mathematical formula that calculates what makes a perfect knit fabric, there are many variables that influence a project's relative success or failure.

Parallel Processes in Math and Creativity

Knitting has been established here as a mathematical process, but it is perhaps better known as a creative process. Creativity is considered to be the interplay between a person's cognitive skill set, unique qualities, and their environment, which combine to create something that is novel (Li & Kim, 2025). Creative tasks utilize a specific part of the brain, which can be identified using functional magnetic resonance imaging, or as it's more commonly known, an fMRI.

Using fMRI technology, researchers have discovered that creative tasks activate parts of the left hemisphere of the brain, including the left inferior frontal gyrus (IFG) and the left superior frontal gyrus (SFG) (Li & Kim, 2025). These same researchers also found that these two regions are similarly activated during mathematical tasks. The IFG is responsible for combining a variety of concepts into something novel, while the SFG helps control executive functioning and working memory. All of these processes are instrumental to both creative and mathematical processes. It has also been indicated that this frontoparietal network, which includes the IFG and SFG regions, is a network that mathematically proficient individuals rely upon in mathematical thinking processes (Li & Kim, 2025).

Thus, by taking an interdisciplinary approach to this thesis by combining mathematics and the creative arts, this project also reinforces the brain structure that connects these two fields together.

Knitting as an Extension of Prior Knowledge

Knitting was also chosen as the subject of this thesis because I had extensive experience with another fiber craft, crochet. I taught myself how to crochet when I was in high school, solely using the Internet as my teacher. There were other people in my life who knew how to crochet, but I had difficulty learning from them as I'm left handed. With fiber crafts, left handed learners have to mirror the actions of a right handed expert in order to produce the same product.

Colon

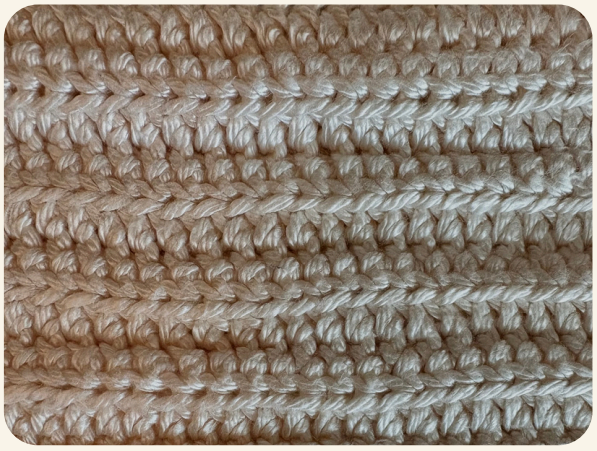
The Internet gave me access to the left handed instructors I needed, as well as access to a vast library of patterns, video instructions, and community support that I turned to frequently. For my thesis, I wanted to recreate this process and fully document the journey. If I could teach myself how to crochet and produce cardigans, then surely I could teach myself how to knit and make similarly successful garments.

Knitting and crochet can appear similar on the surface level. There have been many times where I've been knitting and people have asked me if I'm crocheting, and vice versa. When asked to identify the difference, most people will immediately jump to the fact that knitting uses two needles while crochet only uses one tool, a hook that's reminiscent of a shepherd's staff.

Another main difference between these two crafts lies not only in their different tools, but in the noticeable difference between how their fabrics are constructed. With crochet, fabric is always made in a snakelike pattern, first moving from one side to another, then building height by building off of a previous row, but in the opposite direction. This makes crochet stitches separate from one another. Forgetting to go back through one stitch, called "dropping a stitch", does not unravel other stitches.

In fact, with crochet, work can be decreased by leaving a stitch in a row behind, whereas with knitting, two stitches must be knit through as one to create the same effect.

Knitting, on the other hand, creates a fabric by building rows and columns of interconnected loops. An initial row of stitches is cast on to the needles, and then the fabric's height is created by pulling thread through each of the cast on loops, creating another loop that's vertically linked through the original. With knitting, if one stitch is "dropped", or accidentally slides off of the needle, it will begin to unravel the stitches in the column below it if it is not caught. Think of a line, or a "run", through an old pair of tights. This is the same idea.



A crochet fabric is made of independent rows of stitches.

In contrast to crochet, a knit fabric is made of dependent rows and columns.

Summary

Thus, knitting was chosen as the central focus for this project because of its connections to many aspects of my lived experience. Knitting is a true relative of Mathematics Education because of its connections to the field of Topology, the idea that knitting is a “numerically bound form creation”, the parallel processes in brain activity between mathematical and creative processes, and because of the background knowledge I had with another fiber craft, crocheting.

Colon

By learning how to knit, I am also exercising the skills I learned from my pedagogy courses. With a background in education and teaching, I have gone into this project understanding what makes for an effective learning environment. The organization of this learning environment as well as details about measuring progress are explored further in the methodology section.

METHODOLOGY

Gaining Mastery Through Reflection

Bloom's Taxonomy and the Choice of Writing a Blog

In order to measure the extent to which the Internet can teach knitting mastery, this project had to involve a variety of handmade knits and a way to measure knitting progress over time. The primary means of documenting and measuring progress for this project was through an online blog. This blog, redstringknits.com, was created through the WordPress platform, which was chosen for its ability to easily customize templates, its reputation among the blogging community, and its easy means of organization through content blocks.

The blog was organized into a few main pages: the "Genesis" page, which described the background for the project, the "Portfolio" page, which showcased finished projects, the skills learned in their creation, and links to their respective blog posts, and the "Blog" page, which was a compilation of all posts made on the website since its startup.

Each blog post was open for public comments so that knitting experts could give feedback or share facets of their own knitting experience.

Blogging was chosen as the main medium of documentation because of its reflective abilities, opportunities for feedback, and sense of accountability. Current literature supports blogging as an effective way for a knitter to build up their skill set.

According to Vilhunen et al. (2021), knitting blogging is an effective way for knitters to transform a hobby into something that persists through time and includes achievement goals. This research indicates that even though knitting blogging expands the role of the participant from a follower into a creator in their own right, the act of up-keeping a blog is made to benefit the knitting blogger more than anyone in their potential audience.

Blogging, even knitting blogging in particular, encompasses 4 main elements. Vilhunen et al. (2021) identifies these elements of blogging as 1) a means of gaining inspiration, 2) a means of connection to a broader community, 3) a way to gain encouragement through feedback, and 4) a way to continuously reflect (p. 48). These four elements of blogging benefit the knitting blogger more than anyone else. While seemingly selfish, this is a crucial component of the learning process. Learning is best when it is individualized, or differentiated, for the student.

By creating a knitting blog that offers feedback specific to the original publisher, a means of reflection, and inspiration which encourages the creative process, the knitter creates a learning environment that is tailored to their own needs. Another benefit of blogging not explicitly mentioned in the four reasons above, but one that is highlighted later in the research, is that the blog structure provides a way to organize information (2021, p. 53).

The redstringknits blog was separated into the pages defined previously to provide an easier means of organizing content. The blog entries themselves contain a wealth of information, but finding images of finished projects and information about their assembly can be a time-consuming treasure hunt. The blog entries themselves acted as an ongoing means of reflection and idea workshopping, while more organized chunks of content, like finished projects and a literature review, were more accessible elsewhere.

Another benefit of using blogging as a medium of documentation is the accountability factor that's built into it. When a blogger has a consistent following, no matter how small, there's pressure on the blogger to follow through with the goals they set. This accountability factor is important to ensure persistence in a project.

Understanding Education in the Digital Age

Researching the extent to which the Internet can teach knitting mastery involves an understanding of how skills can be accessible through the Internet. The Internet has become a wealth of knowledge for virtually any topic, but there is the question of how these resources can be used most effectively to enhance the learning process. The Internet has allowed for learning to occur in contexts outside of formal education, giving adults a chance to learn skills on their own time and of their own volition. Viana and Peralta (2021) state that when an adult becomes a designer, manager, and regulator of their own learning, they are engaged in a curriculum-making process (p. 126).

These researchers further state that curriculum creation involves seven main dimensions, which are as follows: 1) determining what information is to be learned, 2) creating guiding questions that address learning needs, 3) determining the activities and tasks that will guide learning, 4) developing resources, 5) organizing the learning environment, 6) creating a plan for learning, and 7) finding a way to measure progress. This framework was adopted in structuring the knitting curriculum for this thesis.

For this project, the information that I wanted to learn was dependent on my overarching goal for the thesis, or a final project that I wanted to complete. My goal for this thesis was to gain the skills necessary to design and knit my own Aran sweater or color work sweater, so I focused on sweater construction and stitch work. With this end goal in mind, I was able to discover the necessary skills to practice (1 and 3), answer questions about the underlying construction of a piece (2), and create a logical, scaffolded progression of projects (6).

As for organizing the learning environment (4) and organizing resources (5), the WordPress blog gave me the means to do so. Finally, the seventh (7) component of curriculum making, measuring progress, utilized Bloom's Taxonomy, a tool that was highly emphasized in my teacher education classes.

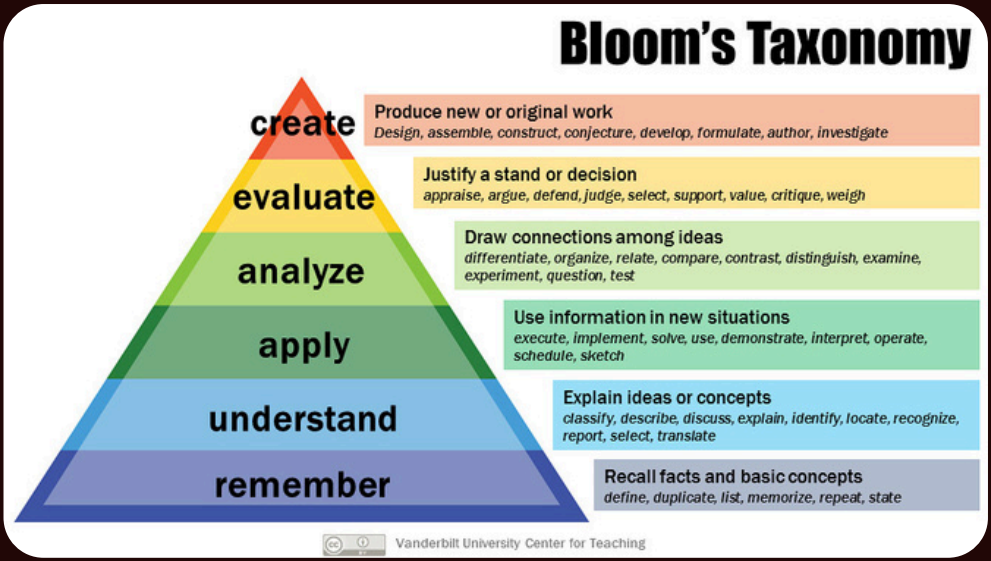
Measuring Mastery Using Bloom's Taxonomy

For this thesis project, knitting mastery was measured using Bloom's Taxonomy, a six tier pyramid that builds off of three lower order thinking skills, Remembering, Understanding, and Application, to reach three higher order thinking skills, Analysis, Evaluation, and Creation.

In Bloom's Taxonomy, the highest level of mastery is showcased through creation, which as defined before, involves making something that is novel or unique (Li & Kim, 2025). For this project, while all knitted garments could be considered a "creation", they will not be labeled as reaching Bloom's Creation tier unless I was the one who made the pattern.

Each knit work in this project reached at least the three lower order thinking skills of Remembering, Understanding, and Application. This thesis focuses on the attainment of the three higher order thinking skills, Analysis, Evaluation, and hopefully, Creation.

Bloom's Taxonomy defines the Analysis tier as anything that could be considered an "examination, comparison, or contrast" of work, while the Evaluation tier is determined by anything that is an "appraisal, critique, or judgment" (Armstrong, 2010).



Bloom's Taxonomy (Armstrong, 2010).

Formal and Informal Blog Posts

Throughout the process, multiple blog posts were made, both with the purposes of increasing engagement and promoting reflection. Originally, posts were made to discuss the premise of the blog and the completion of projects. However, as the projects became increasingly more complicated, going from a balaclava that could be knit in 4 days to a sweater that took a month to make, posts were made more frequently to write reflections in real time.

I found that if I waited until the end of a project to write a reflection of my process, I often forgot little details or potential struggle areas. Writing reflections in real time allowed me to get all my thoughts on paper and get a more complete record of my knitting growth.

Formal blog posts, ones that were write-ups of a completed project, followed a similar structure. The inspiration or link to the original pattern started off the post, then there was an analysis of the garment's structure and details of any struggles, a block called "Project Stats", which included project duration, yarn usage, and a cost estimate, and finally, the post ended with a justification for which levels of Bloom's Taxonomy the project achieved. All of the sweaters made, the Olga Jacket, the Unicorn Tapestry Sweater, and the Eclipse of Moths Sweater, reached the Evaluation Tier.

Online Resources and Materials

While the redstringknits blog served as the main organizational tool for the resources, finding and using appropriate resources was a huge factor in this thesis' success.

thesis's

A few websites in particular were indispensable when it came to finding knitting resources. The first was the social media platform Instagram. The three major projects for this thesis, The Olga Jacket, The Unicorn Tapestry Sweater, and the Eclipse of Moths Sweater, were all discovered through Instagram.

My first introduction to popular, tested, tried-and-true knitting patterns was through PetiteKnit, an account with over 1 million followers. I was introduced to her website through dozens of posts showcasing recreations of the Olga Jacket, a striped button-up cardigan. I found the patterns for the other two sweaters through a similar manner.

Instagram as a platform is renowned for its adaptability. If you use it enough times, a series of algorithms curates your feed to show you what you want. While the exact mechanisms of Instagram's algorithms are unknown, one of Instagram's "About" pages states that the items on a person's Explore page are determined by the posts you've liked, commented, and saved in the past (Mosseri, 2023).

I turned to Instagram as a means to find new knitting activity because the platform adapted to the types of knits I enjoyed. Based on the posts that I liked and put into my favorites folder, Instagram had a general idea of what knit garments were more to my taste. The explore page also refreshes each time the app opens, giving consistent new information.

Sampling New Means of Representation

During the last semester of my thesis, new methods of content creation were attempted to try and reach a broader audience. One of the original goals for the project was to use feedback to create a more objective rubric for grading. However, I found that creating an audience large enough to generate that kind of feedback in less than a year was challenging. Additionally, utilizing Q&A websites or Internet interest groups generated their own roadblocks, which will be detailed more in the results section.

Regardless, efforts to build a larger audience were made by creating an Instagram for redstringknits, as well as a YouTube channel that documented knitting progress on a weekly basis.

YouTube videos were recorded using an iPhone camera, audio was captured using a Jubolion lapel microphone, and the final cut was assembled using the iMovie program that came with my computer.

With the Instagram posts and YouTube videos, passive and active means of engagement were recorded to see their relative effectiveness when compared to the WordPress blog. More specifics are found in the results section.

Knitting Tools

Creating the knit works themselves didn't involve a wide variety of knitting supplies, just large quantities of a few things.

As I was knitting on a budget, the bulk of my supplies expenses were for yarn, which retailed for about $5 a skein across a few wool brands, and for patterns, which ranged from $8-13 each.

The only supplies that were absolutely necessary for knitting the projects in this thesis were needles in three sizes, 3.5 mm, 4.0mm, and 5.0mm. While some of these projects could certainly have been made with straight needles, I used exclusively circular needles with either a 32 inch or 9 inch cable. For the last project, a cable needle was used to help twist stitches.

Many of the projects called for the use of stitch markers to maintain symmetry and keep track of rows. While stitch markers specific to knitting and crochet do exist, I decided to use small hoop earrings I already had to cut down on costs.

The supply that I bought in the largest quantity, was of course, the yarn. All of the yarn used for this thesis was 100% wool. Wool was chosen because it is environmentally more sustainable, holds its shape better, and creates a more elastic fabric as opposed to acrylic and cotton yarns.

The Olga Jacket was made using "I Love This Wool" in the Ivory and Cocoa shades, while all other projects utilized the Cascade 220 Sport yarns in the shades Navy, White, Burgundy, and Pine Grove. All of the wool used in the project was sheep's wool, as opposed to llama, alpaca, rabbit, or goat wool. A photo of the Cascade 220 sport yarns in Burgundy and Pine Grove is shown above.

✗This concludes the Methodology section.

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RESULTS

Gaining Mastery:

A Reflection on Completed Knits and the Process of Making Them

The three main projects were chosen on the basis of skill requirement and perceived level of difficulty. The Olga Jacket was first because at the time, I thought that knitting a sweater in the round would be more difficult than knitting pieces in the flat and then seaming them together. With the Olga's striped pattern, I also had concerns about maintaining symmetry, as I had not yet learned to seamlessly change colors in the round without a jump in color called a "jog".

The next project, the Unicorn Tapestry Sweater, was chosen because I thought my color work background in crochet would easily transfer over to color work in knitting. To be fully transparent, this project was also chosen because I wanted to make something that *looked* hard to make.

Finally, the Eclipse of Moths Sweater was chosen last because of the perceived difficulty of knitting a sweater in the round. Also, this sweater would introduce this knitting in the round technique and build upon the color work techniques introduced with the Unicorn Tapestry Sweater.

Before, during, and after these projects were knit, I documented as much as I could on the blog. The following pages are compilations of these reflections and a summary of what occurred in the 6 months it took to knit these three projects. Additionally, any relevant feedback given for these projects are detailed, but most of the information provided is a result of personal reflections.

The Olga Jacket

The Olga Jacket was by far the project with the biggest learning curve, but it was also the most informative project I took on. I learned many foundational skills for knitting a sweater, like the German short rows technique, how to make increases that lean to the left or to the right, picking up stitches, creating a jogless join, which is essential for knitting with stripes, knitting a button band with appropriately sized holes, and most unique to my learning process, learning how to translate a pattern to account for my left-handedness.

This project was the first one where I truly realized how different left-handed knitting had to be. The only parts of the sweater that were knit in the round were the sleeves, and the tubular nature of the sleeves preserves symmetry, regardless of what direction it is knit in. However, in the flat, lefties knit from left to right instead of right to left, and patterning issues arise when the section of the garment loses lateral symmetry. Take, for example, shaping the inside collar.

The front panels of the sweater increase in width as they are knit from the top down to the bottom, as the top of the sweater needs to be narrow enough to close properly. To do this, increases, which turn one stitch into two, are worked along the inside edges of the cardigan. The Olga Jacket pattern, created by PetiteKnit, says that for the left shoulder panel, one should start a row with increases. I blindly worked this way for a few rows before I thought to myself:

"If I'm supposed to be shaping the neckline, why am I working increases near the sleeve?"

It was then I realized that I'd need to understand what the pattern was doing before I blindly followed the instructions. If the goal was to work increases on the neckline, then I'd have to decrease at the end of the row instead of at the beginning. Mindfulness is key. You must understand what you want to do before you try to do it.

MindFULness is KEY

Another, though perhaps a less fortunate, discovery I made while knitting this jacket was that up until this point, I had been knitting entirely incorrectly.

I previously discussed the importance of knitting left to right vs. right to left, but now I highlight the distinction between wrapping yarn clockwise or counterclockwise around the needle.

Before I took on the Olga Jacket, I did knit some minor projects, all of which are not substantial enough to produce an individual write-up in this paper. These projects included a balaclava and a tube scarf, items that were so minuscule and seasonal that I was not too invested in the details. I knew there was something a little off about these two projects, but because they were my first knitting endeavors, I was more preoccupied with a sense of accomplishment than a hankering for self-criticism.

While my first revelation about pattern editing was brought about through trial and error, a second revelation about my knitting process came to me through the Internet, through TikTok in particular. One night while knitting the sweater, I was scrolling through TikTok, another platform with a feed tailored to each user. While scrolling, I saw a video with a caption that loosely said the following:

"I was more than halfway through a sweater when I realized my stitches were twisted the whole time."

After conducting a Google search to discern what a twisted stitch was and how it differed from a normal stitch, I realized that I too, had knit half of a sweater using twisted stitches. In contrast to the nice, neat v's of the swatch on the previous page, the stitches on the body of the sweater had the following appearance.

Unlike the nice, predictable v's that knit works are known for, these stitches are shaped in a way that it's hard to discern if the stitches are meant to point upwards or downwards.

The solution to this problem was easily found using the Internet once more, using a YouTube tutorial. I revisited the original knitting for lefties tutorial I started with, and realized that I had been wrapping my yarn around the needle in a clockwise manner instead of a counterclockwise manner. These were the two errors that I stumbled upon and had to address in this project, my first major knitting undertaking.

CRITIQUES AND STATS

Overall, I was extremely satisfied with this project when I initially posted the final results. Now that I look back on the work with an experienced eye, I am better able to give a full critique.

The jacket itself is well-constructed with a surprising amount of symmetry between the front pieces and the sleeves. The front and back panels are knit with twisted stitches while the sleeves were knit correctly. However, one sleeve has a more noticeable gap between color changes than another. For a first project, it has great structure and relative uniformity in stitch width and height.

If I had to redo this project, one major improvement I would focus on is the fit. I used a thicker yarn with larger needles than the original pattern specified, and before I knit the cardigan I did not create my own swatch. I blindly followed the gauge written on the yarn label. A gauge swatch tells you how many stitches are necessary for a 4 inch width and how many rows must be worked for a 4 inch height. A 4x4 block is standard for a swatch. While not completing my own gauge swatch did not wildly affect the final project, the cardigan was a lot more loose fitting than I expected. This could also be due to the way I blocked the sweater. I may have stretched the fibers too much while it was drying.

Two other dimensions I want to highlight for this project are the dimensions of time and money.

This project took approximately 1 month to complete. Some reasons for its relatively quick completion time is that this was knit from mid December to mid January. This time frame represented a portion of the year where I lacked major commitments. I could afford to spend a majority of my day knitting. Additionally, this sweater had the largest weight yarn and needle size of this thesis, with a weight 4 yarn and 5.0mm needles. Thicker yarn and bigger needles creates larger stitches. Cardigan length could be worked up a lot quicker with this yarn.

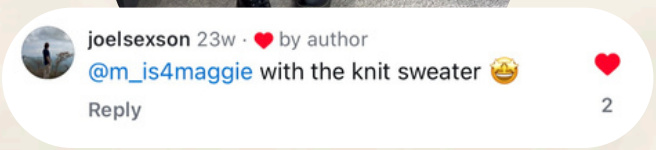
For the dimension of cost, this sweater cost $40 to make, which includes approximately 5 skeins of yarn split among two colors, a six pack of buttons, and the pattern itself, which retailed for $8. While this sounds relatively inexpensive for a 100% wool garment, if priced to include the labor cost, this garment would be well over $100. Knitting this sweater made me realize why knitters sell their garments for what feels like a high price compared to garments from a major retail company. You're not paying for just the materials, you're paying for the time it took for the craftsman to make the final product.

Scaffolding and Feedback

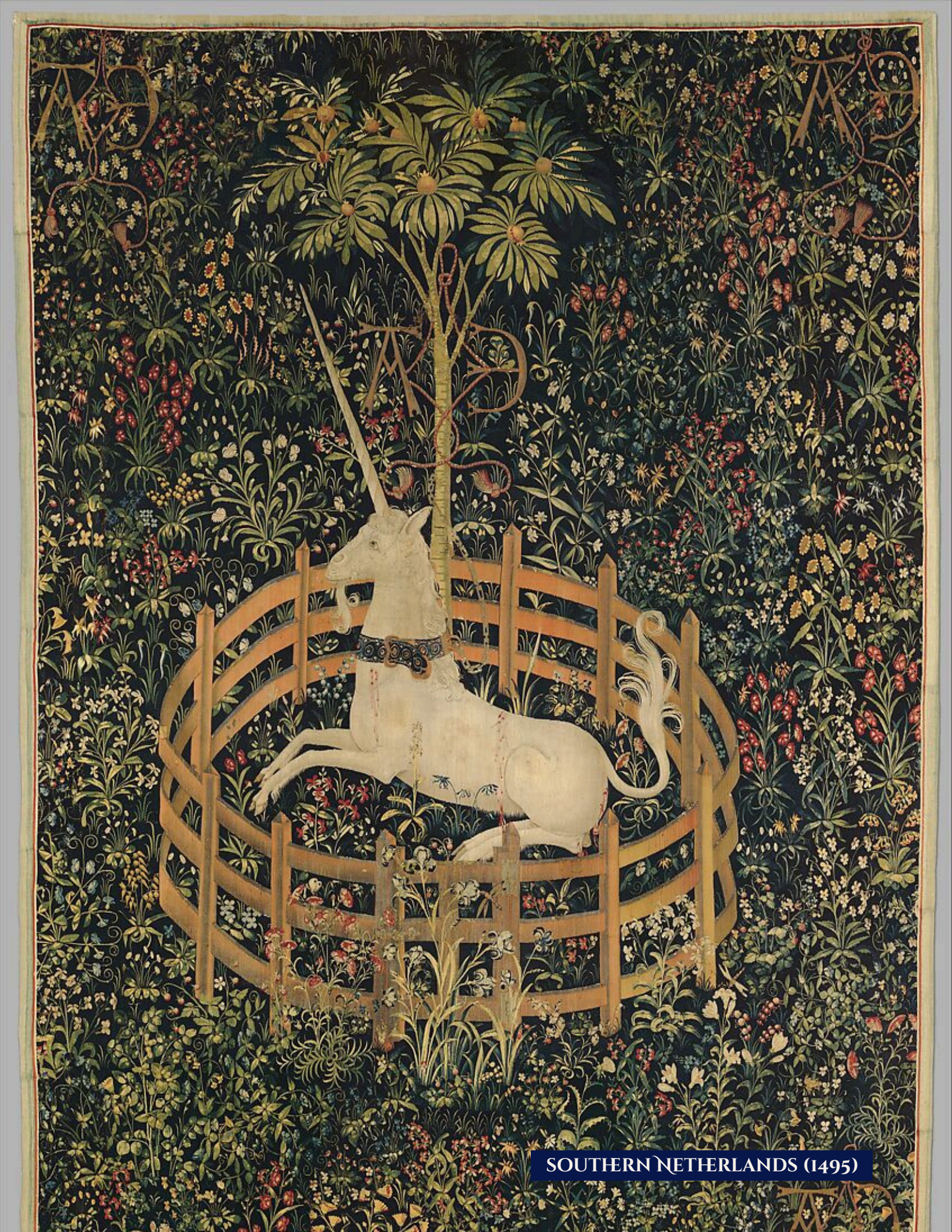
I believe that the Olga Jacket was the correct first project to take on. It was just the right level of challenging without bleeding into frustration territory. I was introduced to a variety of new skills, and I had the opportunity to correct my knitting foundations early in the thesis.

The type of feedback that I received for this project would mirror my experience with feedback in other projects. Almost all of the feedback that I received for the Olga Jacket was given in person *or* through Instagram.

Since I completed this project in winter, I wore it outside on more than one occasion. I also brought this garment to the library frequently, both as something to wear and something to work on while I attended evening lectures. One day, while I was wearing this at the library, I was stopped by someone from the UWF Instagram team. I was then asked if I wanted to be featured in a "fit check" video with my sweater. This moment felt very special to me, because I felt like I was spotted for my outfit *because* of the sweater, something that I made with my very own hands. The photo on the right is the clip that made it into the video. Included with this image is a comment that was left behind on the video by one of my friends.



While my blog post on The Olga Jacket ended up being my most viewed post with 132 total views, the original post has no comments. Most of the feedback I received was given in person, almost all of which came from people I knew: the library barista, my parents, cousins, friends, classmates, etc. This theme will be common throughout the projects. The best way to gain feedback might be through people you already know, regardless of whether or not they have knitting experience. You might not have to be an expert to know what looks good.


SOUTHERN NETHERLANDS (1495)

THE UNICORN TAPESTRY SWEATER

This was, by far, my most complex undertaking, and it was perhaps a little ambitious for the skill level I started with. This sweater is knit in the flat on the front and back panels, then in the round for the sleeves. The sweater utilizes not two, but three strand color work. The resulting design is based off one of the 1400s Unicorn Tapestries, specifically *The Unicorn Rests in a Garden*.

This sweater, developed by @starcrossed.knits on Instagram, took the longest to make of the three projects. This is due to two reasons. First, this sweater was knit in the midst of midterms and finals. Second, a major error in construction was addressed after a significant number of rows were knit.

This was a project that I had definitely been influenced to make by the Instagram community. I kept seeing iterations of this sweater on my curated feed, and I bought a copy of the pattern close to its initial day of release. Spurred on by my childhood obsession with C. S. Lewis' Narnia books and My Little Pony, the Unicorn Tapestry Sweater had the steepest learning curve but the biggest payoff of the three sweaters. This sweater was also a central display for my table at the UWF Spring Scholars Symposium, a valuable source of feedback.

This project was a 3 month long learning experience as well as a practice in patience and stamina. This project was also the one that I received the most feedback on, both through social media and in person.

The construction of the sweater wasn't too difficult for me to grasp, as it was similar to the Olga Jacket except for the front panel. The only difference between the front and back was the design on the front panel and slight variations in shaping the sleeve holes. This project built off of skills initially developed in the Olga Jacket, like German short rows for shaping the yoke, stitch increases that lean to the left or right, 1x1

ribbing for the sleeves, and a bind off method called the Italian bind off, a technique that sews live loops closed to finish off a project. The sleeves were also sewn in the round like the Olga Jacket, but these were actually easier to complete because these sleeves were one solid color instead of uniformly striped rows.

The main challenge with this project was not the actual construction of the garment itself, but the decorative color work piece in the front. Working with three different yarns at once is a multi-dimensional process, something that I learned through trial and error.

The first issue that I came across was keeping the three strands of yarn untangled, which is maintained through a technique called “yarn dominance”. Yarn dominance not only keeps strands from staying untangled, but the technique also ensures that the white and green colors of the design stand out against the navy blue background.

With knitting that requires two or more strands, the easiest way to practice yarn dominance is by combining the two main knitting styles: English and Continental. I had initially taught myself to knit using the English style, which involves throwing a strand of yarn over a needle and then pulling the yarn through to bring up a loop. Continental, on the other hand, was a style that I had not even previously attempted. This project was my introduction to a second knitting method.

Teaching myself how to knit Continental style was an extremely frustrating process. It felt like teaching myself how to write with my non-dominant hand. Continental style, in contrast to English style knitting, is when yarn is held in the non dominant hand behind the live loops. Instead of throwing the yarn over a needle, the needle reaches through a loop and pulls the yarn through. In this technique, yarn is held like sewing thread in a bobbin, constantly pulling from the center. See the image above. The blue yarn in my right hand is being knit using the Continental style, while the white yarn will be thrown over the needle in the English style.

Separating the threads this way, holding one strand of yarn per hand, was very efficient at keeping my two balls of yarn separate. However, as stated before, picking up a new technique was difficult. The two styles involve entirely different hand movements and angles. I taught myself this technique using YouTube, and like many of my experiences learning through videos, constant rewinds, trials, errors, yarn frogging, and repetition became the norm.

Learning how to knit through a YouTube tutorial is a process that experts have found to be relatively inefficient and often erroneous. Heinemann and Möller (2016) state that when not in the presence of someone who can immediately correct an error, knitters who learn a skill through a video tutorial often practice the skill incorrectly until errors accumulate and become more prominent in the final project.

Already, I had experienced a consequence of this. In the Olga Jacket experience, I discovered that I had been doing the simple knit stitch incorrectly, twisting my stitches for the first month or two of knitting. This trend would continue as I taught myself to knit Continental style and knit with three strand color work. With knitting in the Continental style, my only issue was with moving my hands the correct way. With color work, a plethora of problems hindered my progress.

The main issue was tension. Tension is how consistently the working yarn is held while knitting and purling. These stitches are the two main building blocks of the fiber craft. Purl stitches typically require a tighter tension, and I had adjusted my hands to knit in the flat this way. Keeping consistent tension is relatively easy when using one active strand of yarn. For this project, when there are up to three live strands of yarn per row, tension has to be approached a little differently.

While there are many different ways to add color to a design, stranded color work is a technique that continuously pulls the live strands of yarn through to the end of the piece. This technique is contrary to adding color later using a cross stitch technique, or by continuously adding and cutting yarn whenever a color change is demanded. Pulling colors through the end leaves less loose yarn ends to weave in, but the knitter needs to be more conscientious with tension. When correct yarn dominance is maintained, one element of tension, string order, is addressed. However, tension issues can also arise during color changes and the lengths between changes. See the image below. The strings that appear on the backs of the work represent lengths between color changes in the white and green yarns.

Notice, however, that some of the gaps between color changes are much larger in some places than in others. This photo was taken during my initial trial run of the color work section. While bigger yarn gaps, called “floats”, do not compromise the initial structure of the garment, it could impact the longevity of the sweater. Larger floats create more opportunity for snags. Since all three strand are interwoven together, yarn that is snagged, or tightened

in one section, will cause a nearby section to loosen up. This can oftentimes create unwanted slack and inconsistencies in the garment. Ironically, while the floats were initially too loose, my actual stitches were too tight. I believed that the key to maintaining correct tension for multiple yarns was in making stitches that were very tight. I thought tight stitches would make up for loose floats. This led to a puckered sweater.

In reality, this ended up distorting the color work piece, making lines blurry and contours jagged. Not only was the puckering affecting the design, but the intensity of the puckering was affecting the overall fit of the sweater. As is shown in the image below, quite a bit of the color work portion was completed in a way that was not aesthetically pleasing nor indicative of mastery.

I was under the assumption, then, that the puckering would be resolved by blocking. Blocking, the process of wetting fibers and stretching them slightly, can affect the final fit of a garment. However, as I discovered in a Reddit forum post, not even the most intense blocking could have solved puckering that was as prominent as my own.

Social media was my guide for identifying errors. For the Olga Jacket, I discovered my stitches were twisted by accident, but for my tension issues in this project, my receipt of feedback was premeditated. Thanks to a previous user's question as to whether or not blocking would fix color work puckering, I gathered the courage to "frog", or undo my yarn. I undid my progress back to the first row where the white yarn was joined in.

Humbled by the experience of undoing 70 rows of knitting, I went back and reviewed the pattern more carefully. I understood from trial that I had to knit my stitches more loosely, but a small sentence in the pattern gave the answer to my float problem. The pattern mentioned "catching" floats every 5 stitches.

A quick consultation with YouTube's search engine revealed that catching floats was a technique where dormant yarn was invisibly twisted through a knit stitch made in the background color. This technique creates smaller floats without altering the gaps between colored stitches on the right side of the work. Smaller floats and looser stitches ended up creating what is shown

here, a smooth, even fabric that accurately resembles the medieval tapestry of inspiration. In my eyes, this change was as prominent as the difference between night and day. Thankfully, this new and improved color work portion was finished just in time for the UWF Student Scholars Symposium.

Once the color work portion was done and the front and back were seamed together using a crochet hook, knitting the sleeves was an easy process that mimicked what I had done with the Olga Jacket. A couple of weeks of work later, this sweater was finally cast off of my needles.

CRITIQUES AND STATS

There was a considerable amount of frustration that went into this project, but I am very satisfied with the final result. I do not regret undoing the 70 rows of knitting in order to make something that I am truly proud to call my own. My primary motivation for undoing these rows was because the UWF Student Scholars Symposium was quickly approaching, and the product that I currently had was not the one I wanted to use to represent my thesis. Having this form of accountability, like the blog method supported by Vilhunen et al. (2021), motivated me to pursue a higher level of quality for this project. I do feel that if I hadn't had to display this sweater to the public, I wouldn't have felt the strong need to fix my error.

Unlike the Olga Jacket where many of my critiques came after the completion of the project, many of the critiques I had about the Unicorn Tapestry Sweater were addressed before the sweater was cast off my needles. The Unicorn Tapestry Sweater involved undoing and redoing significant portions of the project, while the Olga Jacket only required minor frogging.

Unlike the Olga Jacket, I didn't have this lingering sense of "this is what I would have done if I had to do this again." This is because, in a way, I felt like I had knit this sweater twice over. Rather, I left this project with a feeling that I could have taken a better approach to scaffold up to this high level project.

As stated previously, this project took 3 months to complete, from February 14th to May 22nd. The sweater used 7 full skeins of Cascade 220 Sport Yarn, 6 skeins of Navy and 1 skein of White. The green accents for the flowers were made using spare acrylic yarn that was in my yarn stash.

This was the time cost, but the materials cost for this sweater was higher than the Olga Jacket. This is because I used a sport yarn that was weight 2 instead of a chunky weight 4. This caused me to use about 7 total skeins of yarn instead of the 5 needed for the Olga Jacket. The raw materials cost came out to be $52, and the total cost including pattern for this sweater was $65.

While noticeably more expensive than the Olga Jacket, I believe that this sweater was more high quality because of the yarn that was used. One of the benefits of this project was I used the exact same yarn the original creator did, eliminating my need to create my own gauge swatch and do extra calculations. This project introduced me to a yarn brand that has quickly become my favorite. Cascade 220 Sport Yarn is relatively cheap and available online. It can be hard to find certain shades in bulk, however.

SCAFFOLDING AND FEEDBACK

As alluded to previously, this project was not the best next step in terms of scaffolding. Completing a project that incorporated two strand color work before beginning this project would have led to a much smoother, continuous learning experience. Construction-wise, however, this project mirrored the composition of the Olga Jacket, which was the reason why I chose this sequence.

More importantly, however, was the feedback that I received for the Unicorn Tapestry Sweater. As noted before, a huge motivator for doing this project correctly was because of the pressure of presenting at the UWF Student Scholars Symposium in April. I had my very own table at the Symposium, and I displayed my work from 9-1. I was physically present at the booth from 11-1. While at the Symposium, I displayed the Unicorn Tapestry Sweater and the Olga Jacket. Thanks to a frivolous purchase in my high school years, I had a mannequin to help display my work. I also brought my laptop to show the blog alongside the knits.

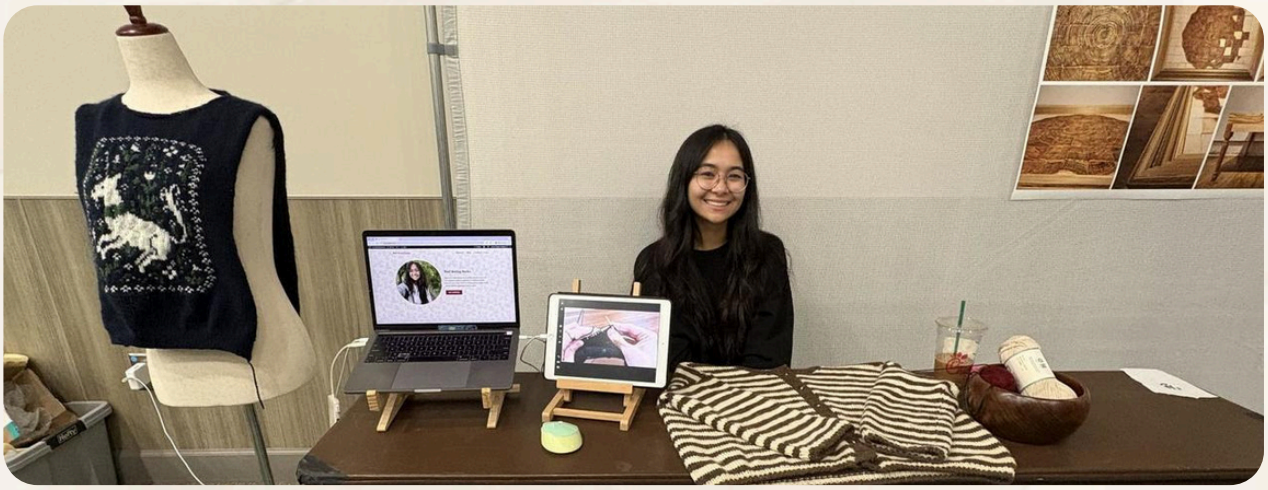
9 AM to 1 PM

11 AM to 1 PM

Most of the comments that I received at the Symposium were targeted towards the Unicorn Tapestry Sweater rather than the Olga Jacket, most likely because this project looks more impressive and includes an iconic design.

The feedback I received at the Symposium related to the clarity of the design, the feel of the fabric, and how the works I presented were very impressive for someone that had only started their knitting journey half a year ago. I was also able to connect to other unicorn enthusiasts at this event. The booth directly across from me, as well as one around the corner from me, were also displaying unicorn-related works.

The Symposium gave me the opportunity to discuss the unicorn as an inspiration and the ability to connect to other artists. I did meet other knitters while presenting, and to my surprise, the knitters that came by were from a variety of age groups. I had a woman about my mother's age come up to me, saying that she came back to the art display to see who was behind this sweater. I had another person around my age come up to me to talk about fiber craft. To my surprise, I was talking to another leftie. We were able to talk about the left handed crafting experience, and she even directed me to a local fiber craft group that met regularly at Barnes & Noble. The opportunity for in-person connection at the Symposium was invaluable. Hearing real-time feedback gave me more confidence in the project as a whole. I was also able to feel more connected to my community.



An unexpected piece of feedback that I received was about my writing style. As shown above, my display included my laptop, which allowed for any viewers to look through my blog. Later, when I came to sit at the table, I was asked if I had considered graduate school because of the way I wrote. This was a reminder that my knit works were only half of the project. My communication of ideas, both through the blog and through this paper, were aspects of this thesis I had often overlooked. While I received a lot of in-person feedback, the following details the comments I received through the Internet.

The above image was taken by my honors director and included in the April 22nd newsletter. I was one of many Kugelman Honors students that presented their research at the Symposium. The following is what Kugelman Honors director Dr. Evans wrote about my project. This feedback touched my heart greatly, and, like the other comments made at the Symposium, strengthened my belief in this thesis. Without motivation and determination, a project cannot continue. This was also a reminder that I could not have done this project without the support of the Honors program.

"At the symposium, Maggie Johnson displayed her knitting projects alongside video of her creative process ... She wanted to focus her thesis on the extent to which the internet can teach knitting mastery ... I just love this example because it shows so wonderfully how ambition and achievement do not have to be juxtaposed against belonging and balance."

-Dr. Evans, 2025

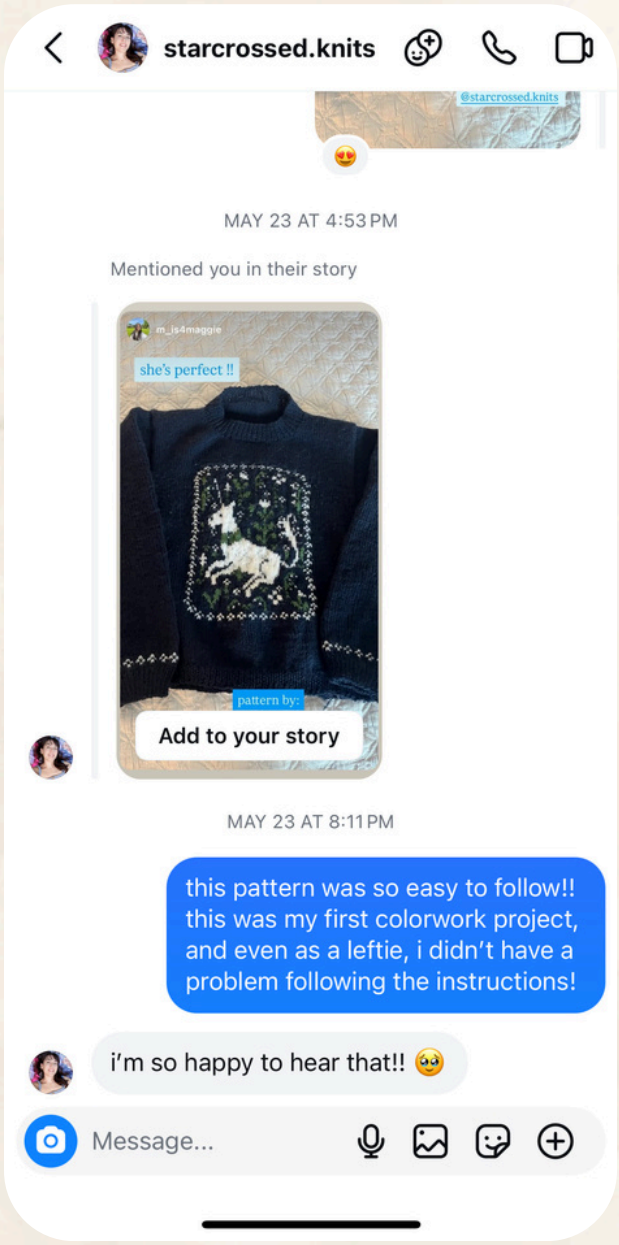
Finally, feedback for this project cannot fully be discussed without mentioning the wealth of support that came from Instagram. While blog entries were essential for personal reflection, the rest of the feedback I received through social media came through Instagram.

I do not know why I was so surprised that the people I knew in real life were the people that showed the most interest in this project. I believe I was under the false impression that knitting showcases could only be appreciated by people who were themselves knitters.

The post that I made about this sweater reconnected me to people that I had not spoken to in months. This post also strengthened connections I had to people I had just befriended. The next page shows the comments from this post.

This project did, however, connect me in a big way to someone that I had no real life connections with. When I initially finished the sweater, I included it on an Instagram story, a piece of content that stays displayed for only 24 hours. I tagged the original creator of the pattern, @starcrossed.knits, keeping with the academic tradition of always citing sources.

To my surprise, Tamara from @starcrossed.knits not only reposted my story onto her account, but also responded to an instant message I sent her about my experience knitting the sweater. The following is our Instagram interaction.



This type of interaction was more than I could have asked for. It was unexpected and brief. This interaction made me realize that contacting experts was a difficult endeavor without an established relationship. While the Internet can make contact with experts more accessible, this does not necessarily imply that experts have an increased probability of responding.

annalisewagner_ 8w · ❤ by author

she's perfect

Reply Reply with a reel Hide

❤ 1

joelsexson 8w · ❤ by author

God, I love it

Reply Reply with a reel Hide

❤ 1

nayiiun 7w · ❤ by author

knitting since past October ?! woooow so talented !!

Reply Reply with a reel Hide

❤ 1

starcrossed.knits 8w · ❤ by author

this sounds like such an interesting project, excited to read more!!!

Reply Reply with a reel Hide

❤ 1

The Eclipse of Moths Sweater

While chronologically this project was completed after the Unicorn Tapestry Sweater, I believe the Eclipse of Moths Sweater would have been the best intermediate step between the previous two projects. With its top down, knit in the round motif structure, this pattern was arguably the easiest of the three to follow.

Unlike the previous two sweaters, this garment was not a series of panels that were knit together. Rather, this sweater was knit continuously from the collar to the hem. This means this sweater was knit fully in the round as compared to half in the flat, half in the round. This type of construction felt inexplicably daunting before I attempted it myself.

However, as I began knitting this sweater, whose pattern was developed by @klaraceciliaknitwear on Instagram, I discovered that the construction of top down sweaters was identical for left handed knitters and right handed knitters. This is because in the round, there is no real distinction between left-leaning and right-leaning increases.

The sweater begins with the collar. The collar is worked in 1x1 rib (one knit stitch, then one purl stitch) for about 12 rows and then increased along the shoulders until the sweater resembles a large pizza. The moth motif is worked throughout the increase rows, repeating the moth design seven times, once every 20 stitches. After the knit circle is large enough to fully cover the circumference of the chest, something called “splitting the yoke” occurs. Two sections of the sweater are pinched together at the sides to form the arm holes. The sleeve stitches are momentarily put on hold while the rest of the main body tube is worked. For reference, this in-progress photo helps to show the point at which the circular build is separated into body and sleeve.

While the rest of the body was worked, the live sleeve stitches that were left behind were transferred to two other sets of knitting needles. This did make completion of the body a little bit of a hassle, as there were three pairs of needles attached to the sweater at one time.

However, a momentary struggle led to a long term payoff. Finishing the sleeves for the Eclipse of Moths Sweater was an even easier feat than the other two sweaters.

For the other sweaters, which were not knit in a continuous form, the sleeves had to be started by picking up stitches. Picking up stitches is the act of creating new stitches from closed loops. However, these new stitches are often going a different direction from the stitches they are based off of. Additionally, picking up stitches isn't always a 1:1 task. For the Unicorn Tapestry Sweater, approximately 2 out of every 3 stitches were picked up, leaving tiny gaps at the foundation of each sleeve. From 100 stitches around the sleeve circumference, about 76 of these stitches were picked up. With this method, a little bit of guesswork is involved. The knitter tries to distribute these new stitches as evenly as possible. When using this method twice, like for two sleeves, differences in the two sleeves can occur.

With the Eclipse of Moths Sweater, only about 10 stitches had to be picked up. The rest of the stitches were already live, as in the stitches hadn't been securely bound off yet. This made weight distribution much more uniform, and any differences between sleeves were miniscule.

Ending the sweater was only a matter of creating 1.5 inch ribbing cuffs on the bottom of the body and the sleeves, and while tedious, it was not a complicated endeavor. The sweater was completed in only a month's time.

CRITIQUES AND STATS

Surprisingly, no new knitting techniques were introduced with this project. While construction-wise, knitting a sweater from collar to bottom hem was new to me, this process built off of techniques I had learned previously. I already knew how to knit German short rows, increases, backwards loop cast ons, 1x1 ribbing, etc. This sweater utilized pre-existing skills but combined these skills in a new way.

My main critique for the final sweater is that I shouldn't have overextended myself to finish this project on time. I began this project in late May and finished it in mid-June. I felt immense pressure to complete a fourth project, a sweater of my own creation, before I finished my thesis. To get to this final project faster, I overworked myself and took a shortcut.

Normally, to make the ribbing look more uniform, a knitting needle about 0.50mm smaller than the primary needle is used. Making this needle switch helps address the tension differences that come from continuously switching from knit to purl stitches. However, a smaller needle creates smaller stitches. More rows have to be worked to create the same height. So, instead of switching to a smaller needle for the ribbing, I finished the project off with my standard needles. This led to the rib stitches being inconsistent. Additionally, the join stitch, or the stitch at start of each round, had very loose stitches. See below.

The financial cost for this project was comparable to that of the Unicorn Tapestry Sweater. The yarn cost $42, which included 6 skeins of Cascade 220 Sport in Burgundy. The beige accents were made using yarn I had in my stash. Finally, the pattern for this sweater cost $8, bringing the overall total to $50.

FEEDBACK AND SCAFFOLDING

Because of a self-imposed need to complete this project quickly and jump straight into another one, this project does not have its own write up on the blog. This project was, however, included in two YouTube videos and an Instagram post.

comma

While I was knitting this project I started a YouTube channel in an attempt to get more knitting feedback before my thesis deadline passed. Of the three videos that were published, two of them documented weekly knitting progress. These videos included construction of the Eclipse of Moths Sweater. While these videos reached a combined 128 views, no sweater specific comments were left.

The Instagram post made for this project was published only on an account that was launched for this thesis. The previous posts I made for the Unicorn Tapestry Sweater and Olga Jacket were made in collaboration with my main Instagram account. The Eclipse of Moths sweater, which was posted to an account without an established community, received very little engagement and no comments. Later, it will be discussed that an established community seems to be an important condition for consistent feedback.

In terms of scaffolding, as mentioned before, this project should have be an intermediary step between the previous two projects. While I had no difficulty completing it after taking on the Unicorn Tapestry Sweater, this sweater did not ramp up the difficulty level as expected.

CREATION: AN ONGOING ATTEMPT

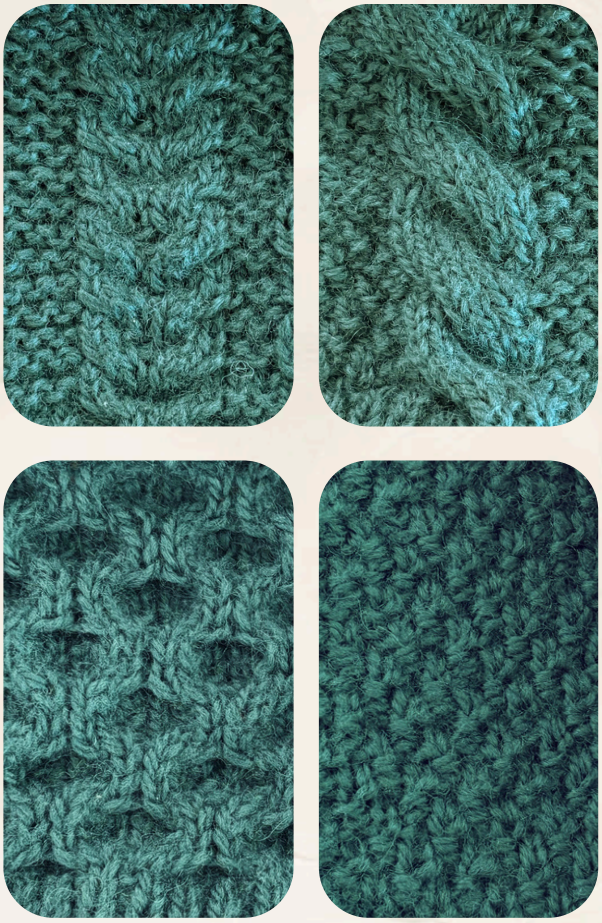
When using Bloom's Taxonomy as a framework for mastery, the highest two tiers are evaluation and creation. The three projects detailed here all reached the evaluation tier, but none quite achieved creation. In the last month of thesis, a fourth project was started, a creation attempt that would be fully designed and knit by me. The goal was to create a sweater in the Aran Island style, which focuses on combinations of intricate stitches. Famous Aran stitches are the standard cable, the seed stitch, horseshoe cables, diamond cables, the honeycomb stitch, etc.

My main inspiration for this creation attempt was a sweater that inspired this entire thesis project. Last summer I went on a study abroad trip to Ireland in conjunction with the Kugelman Honors Program. While there, I allowed myself to splurge on one big souvenir, a knit sweater. I was fascinated by the intricacy of the design and decided that I wanted to make something similar to that one day in the future.

The sweater, pictured to the right, has rows of honeycombs in the center, cable borders, basket weave lattices on the sleeves, and tiny rows of seed stitches throughout. I had completed swatches of all of these stitches before I officially began my thesis journey. Worry not, however, because I learned how to make these stitches solely through the Internet.

Before I began any attempt at making something similar, I conducted a quick Google search to determine what method of construction would work best. I had hoped to work this sweater in the round like the Eclipse of Moths Sweater, primarily because I didn't want to differentiate between right and wrong sides. However, discussions on Reddit recommended that not only should these sweaters be knit in the flat, they should be knit in a bottom up construction rather than a top down construction. As the name implies, bottom up construction is when the sweater is knit from the bottom ribbing up instead of beginning at the collar.

For me, this type of construction was the best way to go about making this sweater. The stitches that I wanted to use, the horseshoe cable, standard cable, seed stitches, and honeycomb stitches, had to be cast on in multiples of 8 or 2. Starting at the collar would require a lot of reverse engineering. I would need to know how many stitches the bottom of the sweater needed, how the increases would be worked to maintain multiples of 8s and 2s for each section of stitches, how to incorporate newly cast on stitches into a pre-existing pattern, and so on and so forth.



Row 1: Horseshoe Stitch, Cable Stitch
Row 2: Honeycomb Stitch, Seed Stitch

Decreasing stitches from an existing foundation was easier than adding stitches on and determining how to incorporate them into a symmetric design.

After deciding that I would knit the sweater from the bottom up, I made test swatches for each of the four stitches I wanted to use in the design. Even though I had experience working with Cascade 220 Sport yarn and knew how many stitches were necessary for a standard 4 in. x 4 in. swatch, cable stitches use yarn differently. Because cables consistently twist yarn, cables need more yarn to create the same width and height as standard stockinette.

I created my swatches, decided what I wanted my design to look like and how many stitches I needed to cast on for a 17 inch front panel, and I got to work knitting.

Unfortunately, I was not able to finish this sweater before the thesis deadline. While the dimension of time affected this final result, the main deterrent of progress for this sweater was the physical toll knitting was taking on my hands.

Knitting, like many activities that require repetitive hand motion, can easily strain finger and wrist muscles when done excessively and without breaks. By rushing to complete the Eclipse of Moths Sweater and pushing to finish a second sweater in two months, I had worked my hands to where they cramped and popped every time I picked up my needles.

Issues with physical strain were not absent from the previous three projects. My hands frequently cramped, popped, and ached from hours long stints of knitting, but this strain wasn't nearly as pronounced until my most recent project.

Bracing, icing, heating, and frequent breaks weren't effective solutions to this problem because I had made knitting such an integral part of my every day routine. In the middle of July, I began a knitting hiatus to fully give my hands a rest.

Below is the current progress of this Aran Island sweater. While it is not the product I hoped to display for this final project, I believe that with time, patience, and lack of a pressing deadline, this sweater will come together as wonderfully as the other projects presented.

This concludes the analysis of works subsection. The last portion of the results section will focus on an analysis of the different social media platforms utilized in this thesis. Instagram, Wordpress, and YouTube were all utilized as a way to publish the ongoing findings of this research. These platforms were used primarily with the hope of gaining expert feedback.

Analyzing Media Use: Instagram, Blog, and YouTube

As stated in the literature review, feedback is an important component of the learning process, regardless of whether or not the learning takes place in person or online. To supplement the process of individual learning, I utilized three social media platforms in an attempt to receive feedback from experts: Instagram, the Wordpress blog, and YouTube.

The Wordpress blog functioned as more than just a feedback center. Primarily, the blog was a means to organize information and document my learning process. Instagram was primarily used to share information about the project to my preexisting community of family and friends. The YouTube channel, which started relatively late in the project, was a third attempt to get feedback. The YouTube channel was started from the belief that gaining an audience on YouTube would happen relatively quicker. Like Instagram, YouTube has a curated algorithm process that pushes content out to users that share a niche.

To compare these three platforms' relative success in gathering feedback, I will be using the following two metrics: active engagement and passive engagement. Passive engagement with a post is equivalent to viewing the post and giving no further interaction.

Active engagement, on the other hand, is interaction with a post that involves "button pushing". The two means of active engagement that will be included are likes and comments.

From October to July, the WordPress blog logged 638 page views, 59 likes, and 6 comments. With 24 pages in the blog, this averages to about 26.6 views, 2.5 likes, and 0.25 comments per post. This does not, on average, create a large amount of engagement per post. However, of the likes that were given over the 24 posts, many of the likes were given by the same 5 people. Of the 59 likes registered on the blog, 46 of these likes were from the same 5 users. One user left 19 likes, liking nearly every post on the blog. While my audience was not large by industry standards, I had 5 consistently active viewers. All of these five are people that I do not have a real life connection with.

The YouTube channel accumulated 137 views over 3 videos. It is not quite fair to calculate average views per video, as 88% of the views logged came from the first video posted. In terms of active engagement, the videos averaged 3 likes per video. This comparison is more fair as two videos logged 2 likes and the first video logged 5. The only 2 comments left on the channel were left on the first video.

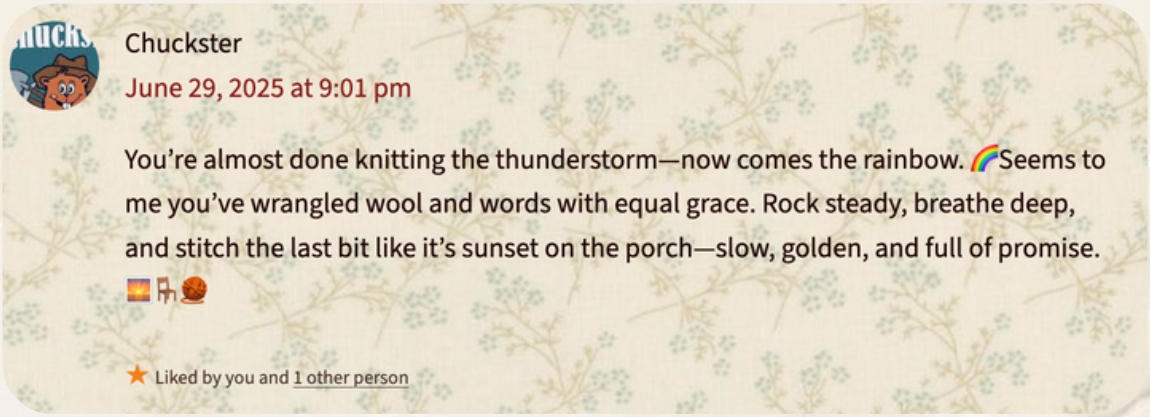
In every metric listed here, the WordPress blog beats YouTube as a more reliable way of gaining consistent viewership. This could be due to the fact that the WordPress blog has been running longer and on a more consistent basis than the YouTube channel. Additionally, while feedback in the form of comments were left on both the WordPress and YouTube pages, none of the comments were specific with the quality or relative mastery shown in my knitting.

The comments I received on the YouTube channel showed excitement about following the journey of thesis development. The comments on the WordPress blog were unexpectedly directed towards my writing style. One such comment is shown below.

The final method of gaining feedback, Instagram, was by far the best platform for receiving consistent, active feedback, and passive feedback, on the condition that the Instagram account already has an established following. As mentioned before, my post about the Eclipse of Moths Sweater that was exclusive to my thesis Instagram account had very little engagement. However, the blog post I made in collaboration with my primary Instagram account logged 49 likes and 10 comments, already well and beyond the numbers of the WordPress blog and YouTube channel. Additionally, any Instagram Story that featured a project from the blogged averaged 11 likes per post. Unfortunately, Instagram does not offer data on passive engagement for posts and Stories that are older than 24 hours, but based on the active engagement data, Instagram surpasses the other two platforms.

In conclusion, of the three platforms used, Instagram was the best platform to use to get consistent engagement. However, YouTube's position in the rankings might be due to my channel's youth. My blog has been around for a little over half a year, while my Instagram page has been active for about a decade.

The three platforms used were also platforms that center around the creator, not necessarily a community. Other platforms I could have utilized to seek learner-specific feedback include Facebook



knitting support groups and subreddits dedicated to answering knitting questions and answers. I did attempt to use these platforms towards the last month of thesis, but wasn't able to get many benefits from them. Facebook and Reddit are platforms that are consistently infiltrated by fake users, or bots. To protect against spam posts by these bots, most Facebook groups and subreddits will not allow accounts younger than 1 month to make a public post. This was my situation. If I had tried to access these platforms earlier in thesis, there would be more data on the frequency and type of feedback I received.

However, since this project used social media platforms that revolved around a single profile rather than a support group, the feedback received was not construction-related feedback given by experts.

This concludes the results section. From October to July, a time frame of 10 months, three sweaters were knit on the road to achieving knitting mastery. While knitting these sweaters, a variety of skills were gained and many public postings were made. The project did not garner a lot of expert-related feedback as anticipated, but rather, the project gathered a small but consistent audience through the WordPress and Instagram platforms. Finding feedback by means of an online knitting support group may have restrictions that could make these platforms more inaccessible.

Overall, the WordPress blog, the main source of feedback, served its purpose as a means of accountability and organization as predicted by the research of Vilhunen et al. (2021) and Viana and Peralta (2021).

Before discussing overall conclusions for this thesis, answering the question of the extent to which the Internet can teach knitting mastery, a curriculum is discussed. For knitters interested in learning the hobby online, a recommended course of action is given along with the materials necessary to begin this hobby.

CURRICULUM

Curriculum |

The reliability of an experiment depends on its reproducibility. For anyone that would like to repeat this experiment and learn to knit using the Internet, the following pages detail a knitting curriculum modeled after my own experience. The curriculum includes two pathways. Both of these pathways lead to the final goal of creating sweaters, as that is the garment my project fixated on. The first curriculum pathway centers around the goal of creating a color work sweater while the second pathway has an end goal of an Aran Island style sweater. These two pathways share a few foundational skills, which will be detailed first, and then the point at which these pathways diverge will be notated.

THE FOUNDATIONS

1 BASIC STITCH WORK

Before a knitter can knit anything, even a testing swatch, they need to have four basic knitting skills under their belt. They are the following:

- THE KNIT STITCH
- THE PURL STITCH
- CASTING STITCHES ON THE NEEDLE
- CASTING STITCHES OFF THE NEEDLE

None of these four skills have a one-size-fits-all technique. As divulged in the Unicorn Tapestry Sweater analysis, there are two main styles of knitting: Continental Style and English Style. If you are entirely new to fiber crafts, I would recommend learning how to knit and purl using the English Style. If you are familiar to fiber crafts, crochet in particular, I would recommend learning to knit with the Continental Style. The Continental Style holds the yarn and moves the working needle in a way that better mimics the hand movements of crochet.

There are also multiple methods of casting stitches on the needles and for casting them off. Given that these pathways build up to sweater creation, I would recommend cast ons and cast offs that favor elasticity. The two cast on techniques I would recommend are the long tail cast on method and the thumb cast on. For cast offs, also called bind offs, I would recommend the Italian bind off, which is a sewn technique, or a technique called “Jenny’s Stretchy Bind Off”.

2 TROUBLESHOOTING WITH SWATCHES

Creating gauge swatches or test swatches are essential to ensuring a final project has the desired dimensions and aesthetics. The standard gauge swatch is 4 inches x 4 inches or 10 centimeters x 10 centimeters. When using a pattern, knowing the gauge for a specific needle and yarn combination allows for accurate pattern modification. Creating gauge swatches are also an easy way to identify errors and correct them early.

For knitters wanting to pursue Pathway 1, which revolves around color work, now is the time to experiment with tension, catching floats, and color changes. Begin with two strand color work and then progress to three strands. The Scottish Fair Isle technique is a good introduction to color work projects.

For knitters wanting to pursue Pathway 2, which revolves around Aran Island sweaters, begin experimenting with different cable stitches. Easy decorative stitches to learn are the basic cable and the seed stitch. When comfortable with these two techniques, horseshoe cables and honeycomb stitches are great scaffolding points.

It is here that the two pathways diverge. The next step is for knitters interested in color work sweaters or monochrome sweaters that do not use intricate stitch work like the Aran Island style sweaters.

PATHWAY 1

3a PROJECT 1: TOP DOWN, 2 COLOR MOTIF SWEATER KNIT IN THE ROUND

From my experience, the easiest type of sweater to begin with is a "top down" sweater, one that is worked almost continuously from the collar down to the ribbed hem. With this type of sweater there are no true differentiations between right and left, so lefties can knit these sweaters without worrying about translating the written pattern. This type of sweater is great for beginners because there is minimal turning of work. Almost all of the rows are pure knit stitches. This simplicity allows the knitter to focus on color work techniques and stitch uniformity.

Additionally, it is best to begin color work with a 2 strand design, even more so with a design that is repeated identically throughout the sweater, called a motif. I would highly recommend following a Klara Cecilia Knitwear pattern. She currently offers 10 sweaters that follow this construction style on Ravelry with more always in development.

PROJECT 2: INCREASINGLY COMPLEX COLOR WORK LIKE SCOTTISH FAIR ISLE KNITTING

After working a first color work motif project, anything becomes fair game. Appropriate next steps would be a three strand color work project like the Unicorn Tapestry Sweater, or another sweater in the round that incorporates more complex, geometric designs. This would also be an appropriate time to knit sweaters with slightly different constructions. For example, a seamed sweater, a sweater knit in panels then sewn together, or a button-up cardigan would be good next steps.

CREATE YOUR OWN SWEATER

The creation tier becomes feasible to reach once a knitter has knit sweaters with a variety in structure. By this time, the knitter knows which cast on, bind off, increase, and construction styles they prefer. To create a dream sweater, combine instructions from previous patterns with a unique creative vision and be patient with the trial and error process.

This is the end of the first pathway curriculum. Pathway 2, which focuses on sweaters with intricate stitch work, is now discussed.

3b

PROJECT 1: BOTTOM UP SWEATER

Because this pathway builds up to knitting an Aran Island style sweater, the focus is on bottom up sweaters rather than top down sweaters. It is recommended to try a monochrome bottom up sweater that doesn't involve intricate stitch work before attempting an Aran Island sweater. This is done to solidify a foundation in knitting basics.

4b

PROJECT 2: ARAN STYLE KNIT SWEATER

Using a premade pattern as a guideline, it is now appropriate to knit a sweater with this intricate stitch work. It is not recommended to begin with a cardigan style project or a sweater that requires a zipper. These are more complex forms of construction that should be explored after a basic sweater or pullover is designed.

5b

CREATE YOUR OWN SWEATER

Like the first pathway, creation comes at the end of the curriculum. After working a variety of projects, perhaps moving on to a steeked cardigan after knitting a basic sweater, utilize information from previous patterns, experience, and creativity to make a sweater of your own design.

This concludes information about the two knitting pathways described here. These are not the only pathways that a knitter can take to achieve mastery, as the skill of knitting is as diverse as each one of its practicioners. These pathways are based on personal experience, and as I am not a master with a fully comprehensive knowledge bank of the knitting field, these are the two pathways I am confident to give advice in. I now move to discussing the necessary materials for starting to knit.

Materials |

A variety of knitting devices are marketed as “must-haves” for the hobby, but the following materials are the only ones that are truly necessary to make works similar to the ones I have described here.

THE TRUE NECESSITIES

• 2 sets of needles with a 0.50 mm size difference.

(Note: To maximize use with only two needles, I recommend 3.50 mm and 4.00 mm circular needles with a connecting cable around 32 inches long.)

• Yarn that is either Weight 2 (Sport) or Weight 3 (DK, Double Knitting)

• A pair of scissors

• Stitch markers

(Note: Craft stores will sell items specially made to be stitch markers. However, hoop earrings with a circumference slightly larger than your needles will do the trick.)

• Darning needle with an appropriate eye size

• Cable needle with the same circumference as your primary knitting needle

To knit your dream sweater, these six supplies are truly all that a knitter could need. The final bullet point, the cable needle, is only necessary for knitters using Pathway 2. For those who are only interested in monochrome sweaters or color work techniques, a cable needle is not necessary. The only additional items not detailed here are any patterns a knitter wants to buy. Patterns typically range from $0-15. While $15 can sound quite expensive, I will say that patterns are worth their weight in gold for a beginner. I do not regret buying any of the patterns I used for this thesis. Additionally, patterns do not have to be followed to a T. They can be treated as templates that can be modified to fit your needs. I modified every pattern I bought, mostly because I’m left handed. At the end of the day, you are the creator of your own art work. A pattern is just another tool that can be used to achieve your final vision.

CONCLUSIONS

THE EXTENT TO WHICH THE INTERNET CAN TEACH KNITTING MASTERY

With all of this information given, it is now the time to discuss the extent to which the Internet can teach knitting mastery. Based on my experience, the answer to this question relies on two dimensions, both of which vary with each knitter: the costs they are willing to pay and certain dimensions of their personality.

The first dimension, the willingness to pay for the costs of knitting are not just limited to finances. As seen through the projects and the relatively few amounts of necessary materials, a knitter can begin their journey to mastery with $50 or less. The cost dimension also takes into account the time necessary to attain mastery and the physical strain knitting can put on the body.

The road to mastery is not a road with built-in shortcuts. Achieving knitting mastery takes a substantial amount of time. In my case, a little under a year has passed and I feel it would be generous to call myself an Intermediate knitter. That's not to say that substantial progress can't take place in a relatively short amount of time. I went from taking a half hour to cast stitches on to the needle to completing full length sweaters in relatively no time at all.

Finally, in terms of the physical cost, this can be limited by taking frequent breaks, stretching out the wrists and fingers, bracing, and using heat and cold as needed.

Another dimension that determines the relative success of using the Internet as a tool for gaining mastery is the personality of the knitter. This project thrives off of an organized, consistent means of writing reflections and posting content to a public place. Structuring an online curriculum, as the research of Viana and Peralta (2021) suggests, requires foresight, planning, organization, an understanding of creating a learning progression, and reflection.

For this project, most of the errors were caught from the high level of scrutiny consistently used. This online curriculum benefits those that are very detail oriented and even ruminative. The knitter must also be open to making mistakes and must exercise a high level of patience. Overall, however, many of these characteristics are shared by successful learners in a traditional academic setting. After all, this project was modeled after personal experience from being both a student and teacher.

I believe that with more time, more consistent social media posts, and more attempts to join online support groups, knitting mastery is more than possible with the Internet. However, in person feedback and connection is an invaluable resource that should be pursued in addition to the vast resources the Internet can provide. The Internet alone is powerful, but not the entire solution to knitting mastery.

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