

Refugee Artisans of Worcester: Helping Local Refugee Artisans



WPI

Worcester Community
Project Center



Team members, from left to right, are Jingyi (Betty) Liao, Haozhe (Percy) Jiang, Andrew Jalbert, and loom construction advisor from WPI, Russell Lang.

Abstract

Worcester Massachusetts is home to one of the largest refugee populations in the state. A subset of these refugees are artisans which rely on their craft to preserve their culture and identity. We worked with Refugee Artisans of Worcester to adapt floor looms for refugee weavers so they can continue their craft. Through our semi-standardized interviews, direct observations, and home visits with the weavers, we identified their needs in looms and understood the role weaving plays in their lives. Additionally, we assessed our resources and reached out to the community to gather necessary materials and information for loom adaptations. Ultimately, we adapted four looms, created an instructional video documenting our work, secured a donated portable loom for demonstration purposes, and contributed to the preservation of the refugees' culture and identity.

Team Members

Andrew Jalbert

Haozhe (Percy) Jiang

Jingyi (Betty) Liao

Summer E term June 19, 2018

Project Advisor

Laura Roberts

Project Sponsor

Refugee Artisans of
Worcester (RAW)



An Interactive Qualifying Project submitted to the Faculty of Worcester Polytechnic Institute in partial fulfillment
of the requirements for the Degree of Bachelor of Science



WPI

Refugees Around the World

“One person becomes displaced every 3 seconds” (UNHCR, 2018). According to the United Nations High Commissioner for Refugees (UNHCR), “Over the past two decades, the global population of forcibly displaced people grew substantially from 33.9 million in 1997 to 65.6 million in 2016” (Global Trends, 2016). As Figure 1 below shows, the number of displaced individuals will climb higher, which indicates that the refugee crisis is becoming more severe and needs to be solved.

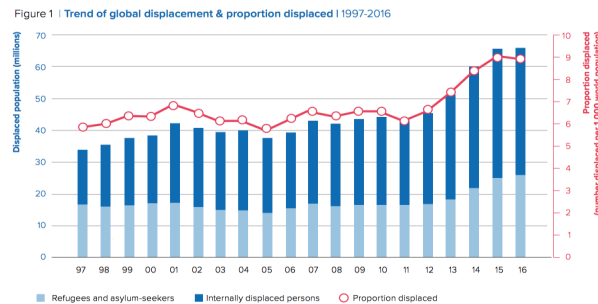


Figure 1: Trend of global displacement & proportion displaced (1997~2016). Retrieved From: <http://www.unhcr.org/5943e8a34>

According to the UNHCR, refugees are people who are forced to flee their countries because of persecution, war or violence. Fortunately, after appeals by the UNHCR, many countries around the world accept refugees and provide help in areas including education, financial support, places for

living, etc.. However, the wellbeing and mental health aspects of the refugee population cannot be easily assessed. In order to find out their wellbeing, we must go deep into the topic of their identity. What were their identities before they became refugees? Who are they now? How do they preserve their cultural identity and tradition? Their identities are directly related to their current living circumstance.

In this chapter, we explore the struggle refugees face preserving their cultural identities, organizations aimed to help uphold refugees' heritages, and present our sponsor Refugee Artisans of Worcester (RAW) which also helps refugees preserve their traditions through art.

Cultural Identity of Refugees

Many refugees around the world struggle to define their cultural identities when they are forced to flee from their home countries, lose their possessions, and resettle in a new place. For instance, some refugees were farmers in Bhutan, but they became artists in Nepal refugee camps after learning art skills. After resettling in the US, they became workers in restaurants or stores. In this case, refugees' cultural identities are deeply influenced by living in different places (Catotti, 2013). Basically, cultural identity is a sense of belonging (Chen, 2014; Serai, 2017). It is important because it helps people define themselves and connects people with the same cultural background, regardless of their location (Cultural Identity, 2003).

For example, agricultural living is one of the cultural identities of Bhutan. About 57% of Bhutanese are farmers who have their own lands and

farms (Trending Economic, 2017). Elder people follow Bhutanese traditional practice in which they recognize themselves as providers and believe that they will work to support their family until they die (Catotti, 2013). Before they became refugees, they lived in their motherland, had steady jobs, stayed with their families, and lived a happy life. However persecution, such as ethnic cleansing in Bhutan and wars in other countries, broke the peace of people's life. People were forced to leave their motherland and even separate from their families. They may lose their cultural identities because their new life and new culture blurred the sense of their original culture. For refugees, defining who they are becomes difficult (UNHCR).

Being physically disconnected from their homeland and forced to assimilate into the new community are two of the reasonable factors that prevent refugees from recognizing themselves and relating to others (Burnett, 2013). First of all, refugees who fled from their homelands are losing their sense of belonging to their respective cultures. Refugees may feel abandoned by their country due to persecution, such as ethnic cleansing. What is worse, by being labeled as a “refugee” people may also receive negative experiences such as discrimination when they resettle in a new place (Burnett, 2013). If neither their homelands nor their new resettled places support their original cultures, how would we expect them to maintain their cultural identity? Second, the connection between refugees and their own cultures is weakened because refugees need to adapt to foreign cultures of the new place (Wilding, 2012). On one hand, they need to adapt to the language or lifestyle of the new community. On the

other hand, they are socially pressured to conform to the norm of a foreign society. Refugees lose the familiar resources and belongings they used to have. Furthermore, children who are born and grow up in a new resettled place may easily lose their sense of connection with their original country (Burnett, 2013). “There is a natural tendency for children to try to adapt and conform to a new environment. The mother-tongue is often the first thing to be lost” (Refugee Children). Therefore, even though cultural identity is rooted in people’s hearts, it could be lost if it is not incorporated into the society and passed on to the next generation.

Although it is difficult to preserve cultural identity, there are still methods to preserve it. The most common examples of maintaining connection with original culture are celebrating national holidays and cooking traditional foods (Burnett, 2013). In addition, art is one of the methods to preserve cultural identity (Pasikowska-Schnass, 2017). Literature is not the only way to tell the stories of culture, many art forms including photography, painting, drama, and sculpture contribute to this as well. Art is able to express individual thinking which helps people build and develop their cultural identity (Sue, 2018; Stone, 2015). In Bhutan, weaving has become one of the distinct and integral parts of Bhutan’s cultural identity (Kelly, 2003). According to Ellen Ferrante and Joan Kariko, the co-founders of RAW, some of the weavers continued to weave the same traditional Bhutanese pattern if they were able to find or create the opportunity to do so even after they left Bhutan and resettled in foreign countries (personal communication, April 03, 2018). A sample of

traditional Bhutanese weaving pattern is shown in Figure 2 and 3 below. When the refugee artisans are producing art, they merge their homesickness into the art and comfort the hearts broken by leaving the homeland (RAW, 2014). Art is a “self-affirming activity” (Sue, 2018) that helps the refugees become both mentally and economically self-sufficient, and build a strong cultural connection with their host communities (MEHAN, 2016). Estimated by the UNHCR, about 51.3 thousand Syrian refugees in Lebanon and Turkey defined themselves as artisans (MEHAN, 2016; Global Trends, 2016). In addition, about 37% refugees in Burkina Faso were skilled artisans whose works comprised 20% of GDP of Burkina Faso (MEHAN, 2016). As such, large portions of the refugee population find their identities through arts when they define themselves as artisans on the path of seeking their cultural identities.



Figure 2 & 3: Traditional Bhutanese weaving pattern. Retrieved From: <http://www.refugee-artisans.org/>

Preserving Tradition

Given the struggle with cultural identity issues that refugees face, there has been a strong

response to preserving the refugees’ way of life. Numerous organizations around the world offer much needed support in affirming the refugee’s cultural identity through preserving tradition which often comes in the form of promoting art and providing a place for their culture to thrive. We examined a couple of these groups to gather a sense of what it is like for refugees to preserve tradition amid resettlement to a foreign nation.

Woven in Exile

In Akron, Ohio, there exists a small group of Bhutanese weavers marketing their art internationally. This group, “Woven in Exile,” was started in 2010 when Terry and Liz Kuhn “invited women from Akron’s Bhutanese-Nepali refugee community to attend an informational meeting about weaving” (Becka, 2018). The response was great—more than 50 women participated (Becka, 2018). The group began with selling purses at local fairs, then escalated to marketing online at the international level (Becka, 2018).

For Woven in Exile member Ash Maya Subba, the support the group has given her weaving is a “miracle” (Schultze, 2017). To Subba, this opportunity was “a way out of isolation” which also led her out of depression, low-self esteem, and tearful, hopeless nights (Schultze, 2017). Through weaving, Subba has been given a purpose and a sense of community. Figure 4 is a picture of Subba enjoying weaving with fellow artisans Mon Maya Rai and Mongali Rai.

Liz Kuhn describes that weaving brought everyone close, “especially the older women, some of

them would just be sitting there, just wanting to be a part of it. Not weaving. [sic] Just wanting to be there with everybody” (Schultze, 2017). By supporting the Bhutanese weaving, the women create a larger support network and community bond. All the community members can identify with this shared tradition even if they are not weavers.



Figure 4: From left to right, Woven in Exile members Mon Maya Rai, Mongali Rai and Ash Maya Subba. Retrieved From: http://www.cleveland.com/akron/index.ssf/2018/01/woven_in_exile_helps_akrons_bh.html

Additionally, the support of the community in purchasing their art means more than the supplementary income. The weavers initially did not think their craft was “good” but as demand and community support grew, the women gained much more confidence in themselves (Schultze, 2017). The Woven in Exile project gives its members a sense of pride, value, and confidence in themselves. Furthermore, activism with the artisan refugees give them a sense of belonging as they feel appreciated by the local community. Liz Kuhn hopes this inspires a new generation of weavers (Schultze, 2017) and

through preserving the Bhutanese woven art the community will strengthen their bond, traditions, and group identity.

Worcester Refugee Assistance Project (WRAP)

In Worcester there are many organizations that aid refugees. One of these is the Worcester Refugee Assistance Project, or WRAP for short. According to the WRAP website, their organization “is a network of individuals committed to assisting local refugees from Burma achieve sustainable self-reliance through mentoring, advocacy and providing material support as needed.” Their goal is to “assist our friends from Burma in attaining economic independence, establishing a true community and learning how to access services.”

Their focus lies in supporting young Burmese people that have been resettled through a youth group and activities such as college prep, teen mentoring, community excursions and more (Worcester Refugee). The activism of WRAP helps the young people identify with the American culture while teaching them valuable life lessons. Figure 5 is a picture of WRAP’s youth group.

Noraishah Yusuf, 20, describes his experience on a community excursion earnestly: “[It was] like so pretty, and cool, and awesome, and dope[sic]...That’s why youth group is awesome. They get me to see everything that is new to me” (Moulton, 2017). The enthusiasm of Noraishah showcases the goal of WRAP. A volunteer, Ms. Courtney Temple, explains that “One of the things we really notice with kids when they move from refugee camps to an urban

place is they lose that connection to nature... One of our goals is to make sure they can hold on to one of their most basic connections...and (also) live this American lifestyle that helps them succeed” (Moulton, 2017). Being outside in their previous home, living rurally, is part of the youths’ identity. Through activities such as excursions, WRAP is working to foster the young people’s identity and connection to their environment.



Figure 5: WRAP Youth Group visits Tougas Farm annually for apple-picking with their mentors. Retrieved From: http://www.worcesterrefugees.org/uploads/2/4/8/8/24888179/tougas-farm_orig.png

WRAP works to empower youth in the American environment. An example of this is the support given to Ms. Yusuf. She started at Burncoat High school as a 20 year old sophomore (Moulton, 2017). Ms. Yusuf said “because of my age I had a lot of struggle” (Moulton, 2017). As a result, WRAP aided her academic effort with extra instruction, instilling self-confidence and social openness in Ms.Yusuf (Moulton, 2017). By providing cultural

resources and education to Ms. Yusuf, she improved and became an empowered, connected member of society.

The central theme of these cases is a humanitarian effort to preserve the cultural identities, dignity, and self-sufficiency of refugees. Whether aid comes in the form of weaving endowing resettled Bhutanese people with greater self-esteem or supporting Burmese youth in their unaccustomed setting of Worcester, it is crucial to understand the fundamental power of the aid is not merely in the physical effort to promote art or self-sufficiency, but is derived from the greater resulting social impacts.

Refugee Artisans of Worcester (RAW)

Besides WRAP, our sponsor, Refugee Artisans of Worcester (RAW), is another Worcester organization that provides support to local refugees, with a special emphasis on their art and identity. RAW seeks to empower refugees to create art projects that draw on their cultural traditions and are able to be marketed to the public. The refugee artisans can benefit from the increased income and move toward economic self-sufficiency. According to RAW's website and RAW's booklet, *The Path to Empowerment*, RAW was established in 2010 after co-founders Joan Kariko and Ellen Ferrante met with two refugee weavers who recently left Bhutan (Rodgers & Umunna, 2017). Figure 6 is a picture of participants of RAW.

How RAW helps refugees

RAW collaborates with refugee artisans to encourage them to take pride in their identities through art. RAW recruits newly arrived refugees as members, provides them with tools to make artwork, and holds collaborative exhibitions with many other non-profits to sell their artwork. Refugee artisans can benefit directly from cash incomes in order to move toward economic self-sufficiency. RAW strives to help the refugee artisans find ways to take pride in their art and identities. RAW does not serve as a charity, they deem themselves as a forum for collaborating with deeply resilient refugee artisans who have much to offer the society (Rodgers & Umunna, 2017).



Figure 6: Participants of Refugee Artisans of Worcester, Retrieved From: <http://www.refugee-artisans.org/>

RAW has achieved a lot since it was first established in 2010. It has helped a large number of

refugees to improve their living standards in Worcester. According to Newcomer Arts Collectives and RAW's booklet, *The Path To Empowerment*, RAW manages a strong network of community partners—including the Worcester Arts Council—to help resettled refugee artisans to preserve their cultural artistic skills and designs (Rodgers & Umunna, 2017). RAW helps the artisans by producing and spreading the acknowledgement of their art forms among the public through sales events.

The loom is the major tool that RAW's refugee weavers use to make art. A loom, as shown in Figure 7, is an apparatus for making fabric by weaving yarn or thread. Handcrafting of beautiful objects such as woven textiles can offer pleasure and solace to people worldwide. When sold, such crafts can also augment household incomes in significant ways. (Templin, 2014).



Figure 7: Traditional American Loom, Retrieved From: <https://www.ashford.co.nz/news/product-news/343-jack-loom>

Limitations of Current Looms

The looms previously used by the refugee weavers were problematic because they were not designed for thin and short weavers with modestly sized homes. Most weavers from RAW have a short stature and some are elderly, contrasting to the taller stature of American weavers. The previous looms were too large for the weavers. They had to sit on pillows and stretch far to reach when they weaved.



Figure 8: Traditional Bhutanese Backstrap Loom, Retrieved From: <https://www.alamy.com/stock-photo-bhutan-weaving-complicated-designs-on-a-loom-a-fabric-making-project-78741995.html>

Looms from all over the world are not built with the same structure. That is, every culture has its own style of weaving and therefore its own design of looms. American looms handle awkwardly for traditional Bhutanese weavers. For example, a traditional Bhutanese loom requires a weaver to sit on the ground, put his or her legs under the warp threads, and wear a back support tied to a cloth roller. This stabilizes the loom and lets the weaver

control the tension of the warp and the rods as shown in Figure 8. This design is called a Backstrap loom.

The artisan weavers from RAW prefer the looms to be heavy but collapsible and portable. RAW requested help from the Worcester Community Project Center with adapting American looms to work better for traditional Bhutanese weavers. For this project, we adapted smaller and more portable looms for traditional Bhutanese weaver. The

Methodology

The goal of this project was to work with participants of Refugee Artisans of Worcester (RAW) from Nepal and Bhutan to help preserve their cultural identity through developing adapted, custom crafted weaving looms. To accomplish the goal, we focused on following six objectives.

Objective 1: Understand the Role of Weaving in the Artisans' Lives and How it Helps to Preserve Their Cultural Identity

We conducted interviews to learn the history behind weaving, the stories behind the weaver's motivations, and how weaving gave them a sense of purpose, which promoted positive mental health. We conducted Semi Standardized Interviews (Berg, 2007) because we had a set of questions to ask, but would follow up from there or add new questions. We also conducted background research, however,

the personal experiences and interpretations from the refugee artisan weavers were more informative to us than online information.

Objective 2: Identify the Loom Qualities Sought by the Weavers

We wanted to have specific ideas of the loom qualities our project should produce to guide our research, approach, and construction processes. During home visits, we interviewed the weavers for their expectations toward looms along with observing them weaving. In the style of Semi Standardized Interviews (Berg, 2007), we asked the weavers about physical characteristics of the looms such as the ideal height, length, width, and weight. Also, we asked them if there were any special features that they envisioned for future looms. Additionally, we conducted both Direct Observations and Participant Observations (Maxwell, 2013) on the process of making textiles. This allowed us to determine specific needs the weavers have by witnessing their physical interactions with the looms. Our observations were recorded in structured categories so we could compare them directly to our later observations of the weaver using loom-prototypes (Maxwell, 2013).

Objective 3: Analyze Where Improvements Could Be Made to Current Looms to Match the Needs of the Weavers

The goal of this objective was to identify

which parts of the current looms should be removed, added, or kept in order to meet the needs of the weavers. To accomplish this task, first, we visited four refugee weavers' homes and conduct Direct Observations of the current looms. We used tape measures to collect height, length and width measurements of the current looms. These physical measurements provided a basis of loom dimensions that we would utilize in our approaches. Second, we read and analyzed loom construction manuals, which were provided by our sponsors, to learn the technical functions of each part of the looms while identifying areas to improve portability. In addition, we met with the owner of SAORI Worcester, Ms. Mihoko Wakabayashi, who was wealth of loom knowledge to discuss the problems existing in current looms. Ms. Mihoko Wakabayashi also showed us a variety of looms styles that she has in her studio and provided suggestions for us to adapt current looms. Figure 9 is a SAORI loom that we used as a reference for our approaches.

Objective 4: Develop an Approach for Adapting Looms that Meet the Functional Requirements of the Weavers

The fourth objective was accomplished through analyzing the descriptions provided by the weavers during the interviews and observations mentioned in objectives two and three along with assessing areas of improvement to current looms. First, we used Qualitative Data Analysis (Maxwell, 2013) to categorize weavers' opinions about the

looms into a table (Maxwell, 2013). Second, we visited the Worcester Center for Crafts (WCC) with our sponsor to determine spare, donated, and unused looms that could be used for our project. Through an analysis of the features each weaver wanted, we identified different approaches to meet the needs of the weavers within our available resources.



Figure 9. A sample of SAORI Loom

Table 1. Objectives, and methods of the project.

Objectives	Methods
1. Understand the role of weaving in the artisans' lives and how it helps to preserve their cultural identity.	Home Visits; Direct Observation; Semi Standardized Interview; Listen & Take notes
2. Identify the loom qualities sought by the weavers.	Home Visits; Direct & Participant Observation; Semi Standardized Interview; Listen & Take notes
3. Analyze where improvements could be made to current looms to match the needs of the weavers.	Home Visits; Direct Observation; Semi Standardized Interview; Compared Findings
4. Develop an approach for adapting looms that meet the functional requirements of the weavers.	Qualitative Data Analysis; Drafted loom approaches; Evaluated approaches
5. Prototype the loom adaptations to evaluate their ability to best meet the needs of the weavers.	Constructed Prototypes; Evaluated & Polished Prototypes
6. Determine the best ways to communicate loom adaptation considerations and procedures.	Evaluated Communication Obstacles; Created Optimal Instructions

Objective 5: Prototype the Loom Adaptations to Evaluate Their Ability to Best Meet the Needs of the Weavers

Upon completing the requested loom adaptations, we invited the weavers to test our loom modifications. Based on their feedback, we made additional adaptations and prepared the completed loom for their use. We documented each loom's construction, features, and specifications in written documents and visual media. During this process, we constructed and stored the looms in a secure lab on the WPI campus. Looms and parts were donated by the Worcester Center for Crafts in addition to parts provided by our sponsor. Each weaver had their own needs, so we approached each loom differently using the table we created in objective 4. Figure 10 shows one of our team member modifying a part of a loom.



Figure 10. Using a power tool to modify part of the loom.

The Weavers visited WPI's campus to test the adapted looms. During these participant observations, the questions were organized in a structured way to assess the different qualities of the looms rather than observe weaving phenomena in general (Maxwell, 2013). Using their feedback, we made additional adaptations and delivered completed looms meeting all of their needs.

Objective 6: Determine the Best Ways to Communicate Loom Adaptation Considerations and Procedures

We determined that an instructional video was the best way to record and communicate our approach to the adaptations. We created a high quality instructional video demonstrating in detail how to implement each 'solution' on a loom. This medium of communication was determined to be best given time constraints and use of visuals. Visuals broke the language barrier between the weavers and offered more precision than text descriptions.

Findings

Our project had two main themes grouping our findings. The first theme was social findings which dealt with the weavers' identities, and the role weaving had in their lives. The second theme was technical findings which dealt with the physical loom aspects the weavers' preferred, and the best ways to implement these preferences within the constraints of the loom design.

Social Findings

With support from the Refugee Artisans of Worcester, the weavers and artisans have a forum to collaborate and showcase their craft to the local community. The refugees can continue their traditions with RAW's support which is invaluable to affirming their cultural identity. Furthermore, RAW respects the weavers' lifestyles which are often busy with work leaving few hours a day to weave. Allowing the weavers to work at their own pace and in their homes is ideal and does not add any additional stress or pressure to an activity they enjoy. RAW also connects families of weavers so they can unite in their craft along with teaching younger members. By continuing to make the atmosphere around crafts fun and rewarding, RAW members gain great satisfaction from their art. RAW also supports its members with long term, lasting resources and connections which is ideal since its weavers continue to craft indefinitely. Table 2 is a brief summary of weaver's interview about role of weaving in their life. See each weaver's complete answers in Appendix H of Supplemental Materials.

Finding 1: Weaving is a Tradition for the Weavers, not Merely a Hobby

Weaving has a deeply rooted history in Nepal and Bhutan (Textile in Bhutan, 2018). Despite the fact that the indigenous weavers are resettled in Worcester, they feel compelled to uphold the tradition of weaving. Respondents in our interviews cited the fact that weaving was a tradition passed from generation to generation. For example, Weaver 3 first learned weaving from her grandmother when

she was a child and she has not stopped weaving since then. (personal communication, May 18, 2018) Additionally, the weavers' works are marketed to the Worcester public which parallels the income weaving would bring in Nepal and Bhutan. For the weavers, their craft is more than a hobby. Their art is displayed throughout their homes as a reminder of their homeland. At home visits with each of the weavers, we observed their decorated homes - every doorway and wall had traditional art (observation, May 18, 2018, June 6, 2018). Additionally, Weavers 1, 3, and 4 had small gardens and we saw Weaver 1's shrine (observation, May 16, 2018). Weaving also provides an outlet for creative expression of designs rooted in generations of art. Traditional Bhutanese patterns are highly geometric, which was apparent in all the weavers' works, but the weavers also worked in a "freeform" style meaning they didn't use predetermined patterns (Weaver 1, personal communication, May 16, 2018, Weaver 2 & 3, personal communication, May 18, 2018, Weaver 4, personal communication, June 6, 2018). They used the inspiration in the moment and their imaginations to create beautiful designs (Weaver 1, personal communication, May 16, 2018, Weaver 2 & 3, personal communication, May 18, 2018, Weaver 4, personal communication, June 6, 2018). Each weaver had their preference. Weaver 2 utilized a limited palette with darker colors and traditional patterns (personal communication, May 18, 2018). Weaver 3 used a lighter and broader palette trying creative variations of traditional patterns (personal communication, May 18, 2018). Weaver 4 was similar to Weaver 2 stylistically, but preferred larger thread for 'industrial' (many works done in a short

time) weaving of larger works (personal communication, May 18, 2018). Weaver 1 did not have a working loom for many months before our interview, but her past works indicate a style very similar to Weaver 2 (personal communication, May 16, 2018). See each weaver's background story and weaving pattern in Appendix G of Supplemental Materials.

Table 2. Summary of weavers' interview about role of weaving in life.

Questions	Weaver 1	Weaver 2	Weaver 3	Weaver 4
Why do you weave?	- Fun - Enjoyable - A break	- Satisfying - Exercise - Relaxing - Extra Income	- Tradition - Satisfying	- Happy - Relaxing
How did you get started weaving?	Learned from Aunt in Bhutan	Used to weave in Nepal	Learned from grandmother and mother in Bhutan	Learned from brother's wife in Nepal
How long have you been weaving?	Around 7 to 8 years	Around 20 years	Many decades, likely over 40 years	Around 16 to 17 years
How long does it take to make a piece on average?	About a week or more.	About a month or more.	2 to 3 days for a small piece; about a month for a large piece	2 to 3 days for a piece like length of scraf
Does the next generation learn weaving from the weaver?	Her mother taught how to weave. She did not have a child.	(No answer)	She taught her grandchild to weave.	(No answer)
Besides weaving, what else do you do?	Two part time jobs.	Full time work.	Care for home.	Full time work.

Finding 2: Weaving is Just One Part of the Weavers' Lives and Can Be Neglected When the Weaver is Busy

The refugee's identified themselves as weavers, but this is only one facet of their lives. Often, the weavers worked full time hours in order to generate a livable income. Weaver 1 worked two part time jobs which occupied much of her time (personal communication, May 16, 2018). Weaver 2 worked full time as did Weaver 4 (personal communication, May 18, 2018, June 6, 2018). Weaver 3 did not have a full time work schedule, but attended English as Second Language (ESL) classes regularly during the week (personal communication, May 18, 2018). Additionally, the weavers had to care for their homes and families. Weaver 1 was the only English-speaking member of her household which put tremendous responsibility and strain on her schedule and personal life (personal communication, May 16, 2018). Weavers 2 and 4 also care for their children (Weaver 2, personal communication, May 18, 2018, Weaver 4, personal communication, June 6, 2018). Weaver 3 was a grandmother and acted as the matriarch for the family for two generations of family including children,

teens, and adults (personal communication, May 18, 2018). With all the competing responsibilities, time is a luxury the weavers do not have. Weavers 1 and 2 typically only have one to two hours a day to work on their art (Weaver 1, personal communication, May 16, 2018, Weaver 2, personal communication, May 18, 2018). Weavers 3 and 4 are able to devote three or more hours per day but it was rare for them to spend an entire day weaving. (personal communication, May 18, 2018, June 6, 2018). Nonetheless, all weavers found satisfaction from weaving and found it worthwhile to make time to pursue (Weaver 1, personal communication, May 16, 2018, Weaver 2 & 3, personal communication, May 18, 2018, Weaver 4, personal communication, June 6, 2018).

Finding 3: The Long-Held Art of Weaving Passed Down by Family Members Unites Them

Weaving is passed from generation to generation much like a thread is woven through a textile. In Bhutanese / Nepalese tradition, only the women weave while the men may spin yarn and collect fibers (Arts & Crafts, 2018). Accordingly, it is common for a young weaver to learn the craft from her mother, grandmother, or aunt. When asked about how they began weaving, all our respondents described learning it from an older female family member such as an aunt or grandmother (Weaver 1, personal communication, May 16, 2018, Weaver 2 & 3, personal communication, May 18, 2018, Weaver 4, personal communication, June 6, 2018). In another sense, sharing the skill of weaving is a way to

connect family members and bond over the shared craft. Weaver 1 remembered the patterns she learned from her aunt years ago in Nepal and still wove them from memory (personal communication, May 16, 2018). Additionally, three of the weavers used their loom predominantly in a central room of their home (Weaver 1, personal communication, May 16, 2018, Weaver 2, personal communication, May 18, 2018, Weaver 4, personal communication, June 6, 2018). In the case of Weaver 1, when she used the loom, other family members noticed and were inspired to create their own art (personal communication, May 16, 2018). Weaving is a long held tradition in Bhutanese / Nepalese tradition so it was not surprising to find all the weavers planned to continue their craft indefinitely. The weavers are considered “master level” (Ferrante and Kariko, personal communication, May 16, 2018). The youngest, Weaver 1, has woven for about seven or eight years, while the eldest, Weaver 3, has done so for many decades (Weaver 1, personal communication, May 16, 2018, Weaver 3, personal communication, May 18, 2018). The apparent skill level is directly proportional to the time spent weaving; the oldest weaver creates the most elaborate works compared to the others (observation, May 16, 2018, May 18, 2018, June 6, 2018).

Finding 4: Weavers Enjoy Creating Art, Find Weaving Fun and Soothing, and Also Enjoy the Extra Income from Sales of Their Crafts

The weavers found many aspects of their

craft satisfying. It appeared difficult for the weavers to pinpoint precisely why weaving was appealing, but we found common trends that indicated sources of their enjoyment. All the weavers were the ‘creative type’ and found satisfaction in making something from scratch (Weaver 1, personal communication, May 16, 2018, Weaver 2 & 3, personal communication, May 18, 2018, Weaver 4, personal communication, June 6, 2018). Weaving was also described as a “fun” and “relaxing” activity which indicates its role as a peaceful outlet for the weavers’ often hectic lives (Weaver 1, personal communication, May 16, 2018, Weaver 2 & 3, personal communication, May 18, 2018, Weaver 4, personal communication, June 6, 2018). Through various community events organized by RAW, the weavers’ creations are sold to the public. As a result, the Weavers are able to generate a modest amount of additional income along with the mental health benefits of weaving (Weaver 2 & 3, personal communication, May 18, 2018). Lastly, Weaver 2 shared that weaving is a light form of exercise which benefits her physical health and happiness (personal communication, May 18, 2018).

Technical Findings

In addition to the social findings detailed above, the project also resulted in a number of technical findings. Throughout the course of the project, it became apparent that there was no “one size fits all” solution to adapting the looms for the weavers. Not only did the features of the available looms vary, but the desires of the weavers also varied. The technical findings detailed below reflect

this challenge.

Table 3. Summary of weavers desired loom features

Desired Features	Weaver 1	Weaver 2	Weaver 3	Weaver 4
Reduced Overall Length of Loom	X	X		X
Reduced Overall Weight of Loom	X	X		
Only 2 Pedals/Shafts	X	X		X
Repaired Beater Bar			X	
Reduced Height of Front Warp Bar		X		
More Loom Mobility	X	X		X
New Reed	X		X	X
More Heddles	X		X	X

Finding 1: The process of acquiring suitable looms presents a challenge for RAW

Most of the refugee artisans began as back-strap weavers in their home countries and RAW originally planned to supply them with back-strap looms (Ellen Ferrante, personal communication, June 07, 2018). As the refugee artisans age and their bodies became less mobile, back-strap weaving became more physically challenging for them. As a

result, RAW altered their plan and began seeking donated American floor looms for them. American floor looms typically costs more than \$1500 and are

too expensive for the refugee artisans to afford personally. RAW sought to gather donated American floor looms for the refugee artisans. The first few looms that RAW acquired were from a museum in Framingham that was ending their weaving programs . RAW was able to purchase the looms for just a few hundreds dollars each. More recently, RAW has acquired looms from the Worcester Center for Crafts (WCC). In most cases, the looms were donated to WCC, which no longer has a weaving program, and

the WCC would then donate them to RAW.

Finding 2: Weavers preferred smaller and lighter looms

The weavers we interviewed are relatively short (between 4.9 ~ 5.3ft) and live in very small three bedroom apartments. Due to limited space in the weavers' homes and the height of the weavers, the weavers preferred smaller and lighter looms. For example, Weaver 1 shared that the loom was so big that it was difficult for her to move it to the living room where she has the space to weave (personal communication, May 16, 2018). All the weavers we met lived in small apartments shared with many family members. Like Weaver 1, the weavers did not have a dedicated space in their home to accommodate the large donated American floor looms. In addition, the weavers only have one to two hours per day to weave and moving and setting up the loom would further shorten their available weaving time. Weaver 2 shared that she works full time at night so her working schedule is very busy, she usually weaves before going to work (personal communication, May 18, 2018). However, like Weaver 1, who needed to move her loom out of her bedroom to her living room with great effort, it was exhausting and inconvenient for her to use the heavy donated looms.

The weavers also had difficulty with the looms because of their height. Most of the weavers we interviewed were only 5 feet tall and found it difficult to reach the beater bar of the donated American looms. For example, Weaver 2 requested that we reduce the height of the front warping bar

and the beater bar because she had to stretch herself or stand up in order to reach the beater bar when weaving. This slows her down and causes her to take longer to complete weaving projects. Fourth, among all of the four weavers we met, only Weaver 3 had a loom that was perfectly matched for her size. Therefore, it was necessary to adjust the three of the looms to be smaller and lighter for the weavers.

Finding 3: Some parts of weavers' looms were preventing the proper function of the looms

Many of the donated American looms were old and had broken, loose, or non-functioning parts. While the refugee artisans we interviewed were master weavers, they were not skilled in repair or maintenance of looms. For example, Weaver 1 stopped using her loom because some crucial parts of the loom fell apart and loosened affecting the functionality of the loom. The loom was so unstable, it appeared as though it would fall apart if she continued weaving on it (Weaver 1, observation, May 16, 2018). The loom used by Weaver 2 did not have any broken parts but the shafts were sticky requiring her to press the pedals really hard or press them several times to get the shafts move (observation, May 18, 2018). Her weaving time was already limited due to employment and the sticky shafts slowed her down further. Weaver 3 also experienced sticky shafts but was further limited by a broken beater bar. When she first began using the loom, the beater bar was already slightly broken. Weaver 3 was a strong weaver who wanted to tightly weave her textiles, as a result, she used her beater bar

aggressively and it was not strong enough to bear her weaving any longer (observation, May 18, 2018). A summary of the features of looms that each weaver requested is shown in Table 3.

Finding 4: Most of the weavers require only two pedals

Most traditional American floor looms have four or more pedals allowing them to be used for larger and more complicated patterns. Each pedal is connected to a shaft and therefore controls only one shaft. Occasionally, a loom will have extra pedals that are connected to more than one shaft. These extra pedals are only used to weave more complicated patterns. Figure 11 below illustrates how the pedals are connected with the shafts through strings. The Weavers we interviewed did not have a use for the extra pedals and shafts and they only served to increase the overall weight of the looms. As Table 1 shows, Weavers 1, 2, and 4 required only two pedals. Weaver 3 is the only weaver who requested to keep four pedals because she plans to use the extra pedals and shafts for more elaborate weaving in the future (personal communication, May 18, 2018). Weaver 3 did not have to move her loom so keeping the extra pedals and the additional weight of the loom were not a concern (observation, May 18, 2018).

Results

With support from the Refugee Artisans of Worcester, our team adapted four American floor looms to meet the desires of four refugee artisan weavers. We also acquired a donated SAORI loom from the WPI Student Development & Counseling

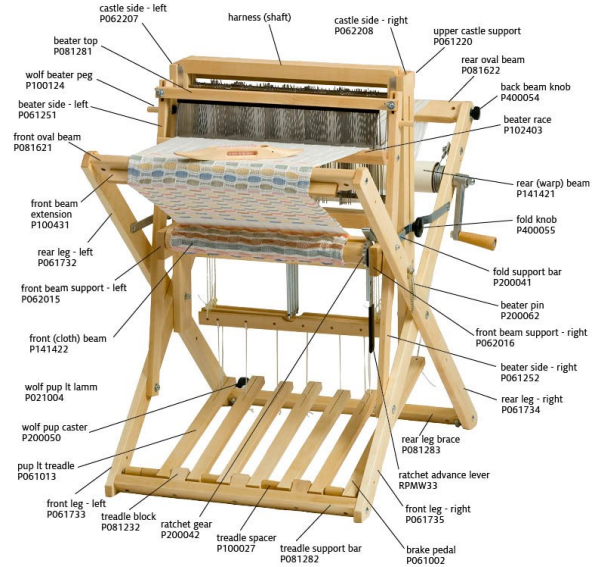


Figure 11. Name on each part of the loom. Retrieved From: <https://www.pinterest.com.au/pin/368098969535382126/>

Center (SDCC) for demonstration purposes. In addition to the physical deliverables, we also documented our process for adapting the looms in our final project video. The results of our project contributed to RAW's overall process of empowering local refugee artisans.

Result 1: Provided four refugee artisans with adapted looms

Through home visits and interviews, we discovered that the donated traditional American floor looms had several attributes that were not ideal to the weavers.

Our interviews with the weavers showed that

the looms were generally too heavy and too large to move. We adapted the looms to make them smaller and lighter by reducing the width of the loom and replacing parts of the loom or the entire loom.

Moreover, since some of the donated looms were old and unused for a long time, we found that some parts of these donated looms did not function incorrectly or did not function at all. Thus, according to what we have discovered during our adaptations of four different looms, we repaired the non-functioning parts of the loom prone to damage. We repaired the beater bar by attaching a metal piece to the side of the beater bar to strengthen the stability of the beater bar or replacing it. We repaired the brake through replacing the lever with a longer one to make it easier for the brake to work in cases where the brake is controlled by a lever. We repaired the front warp bar ratchet by adding a spring to its rear to replace extra force if a lever is not locking well.

In addition, we offered to construct extra features beyond those of their current looms. This includes more loom mobility or a shelf on top of the loom. We increased the loom mobility by adding wheels to the loom.

A summary of our approaches to each modification are listed in Table 4. Detailed instruction of most of the modifications can be found in our final project video. Figure 12 shows a picture of Loom 1 before modifying and after modifying. Figure 13 shows a picture of loom with wheels when it was in open position.

Features desired	Methods	Approaches
Make the Loom Smaller and Lighter	Reduce	<ul style="list-style-type: none"> ● Cut parts of the loom to the desired size in order to reduce the overall size and weight
	Replace	<ul style="list-style-type: none"> ● Take off unnecessary parts of the loom to make the loom lighter ● Replace some parts of the loom with lighter ones ● Replace the current loom with a smaller and lighter one
Repair the Non-functioning Parts	Repair the Beater Bar	<ul style="list-style-type: none"> ● Replace the current beater bar with a new optimally sized beater bar ● Attach a metal piece to the side of the beater bar to strengthen the stability of the beater bar.
	Repair the Brake	<ul style="list-style-type: none"> ● In cases where the brake is 'too tight' and the brake is controlled by a lever, replacing the lever with a longer one would make it easier to brake
	Repair the Front Warp Bar Ratchet	<ul style="list-style-type: none"> ● If a lever is not locking with the ratchet well, add a spring to its rear to provide extra force
	Replace the Reed	<ul style="list-style-type: none"> ● Replace old reed with finer, cleaner, and custom cut reed
	Add more Heddles	<ul style="list-style-type: none"> ● Collect quality donated heddles of correct size
	Fix a small crack	<ul style="list-style-type: none"> ● Add wood glue to the crack and use crank to press the crack tight until the glue is dry
	Stabilize the Loom	<ul style="list-style-type: none"> ● Tighten all the screws of the looms or check if there were screws missing
Others	Increase Loom Mobility	<ul style="list-style-type: none"> ● Add wheels to the loom ● Add handles to the side bars of the loom ● Add a furniture slider
	Add a Shelf	<ul style="list-style-type: none"> ● Add a shelf at the top of the loom

Table 4. Summary of the desired features, methods, and approaches.



Figure 12. Comparison of Loom 1 before modification and after modification. Note the reduction in the number of pedals and additional of wheels on the bottom of the loom.

Result 2: Acquired a lightweight and portable loom to be used by RAW for demonstration purposes

The WPI Student Development & Counseling Center (SDCC) very generously donated a SAORI loom to our group. Figure 14 shows the SAORI loom donated by SDCC. SAORI looms are more user friendly comparing to other traditional looms since they offer a simple but effective tensioning method, are portable and not too large, adjustable to the weaver's preference, and allow current projects to be taken on and off the loom at will (Mihoko Wakabayashi, personal communication, May 15,

2018). RAW decided to use it as a demonstration loom because the SAORI loom is the ideal loom for every weaver, however, if RAW provided a SAORI loom to one of their weavers, then other weavers would want the same quality of loom. Currently, when RAW attends public events, RAW cofounder, Joan Kariko, must remove her weaving project from her personal loom and make special arrangements to transport the large loom to the event (Joan Kariko, personal communication, May 31, 2018). Dressing the loom can take up to four hours of time. The donation of the SAORI loom will make it easier for RAW to attend public events without these inconveniences.



Figure 13. Loom with wheels in open position. Note that the wheels did not touch the floor when the loom was open.

Result 3: Produced an educational video on loom care and modification

Throughout the project, we recorded most of the modifications we made to the looms and documented the process in our final project video. The content of our final project video includes cleaning the looms, reducing the number of pedals, removing shafts, fixing a crack, and adding the wheels. The video will serve as an instructional video for RAW to use in the future when they need to modify other looms.



Figure 14. The donated SAORI loom by WPI Student Development & Counseling Center (SDCC).

Conclusion

Refugee Artisans of Worcester wanted to better meet the needs of their weavers. Over the course of this project we identified the weavers' needs, evaluated our resources and options, adapted four floor looms for the organization, and created an instructional video along with recommendations for future adaptations. Future use of our video and recommendations will help Refugee Artisans of Worcester create adapted, custom crafted floor looms for their weavers with greater ease and lower cost. We hope that our project will continue to serve Refugee Artisans of Worcester well so they can continue empowering local artisans to create their indigenous craft. This cultural expression will sustain diversity in Worcester and garner increased support for the arts.

Acknowledgements

Our group would like to express our gratitude to the following individuals who contributed immensely to the success of our project:

- Our Advisor, **Laura Roberts**
- Our Sponsors, **Ellen Ferrante** and **Joan Kariko** for tremendous help
- **Russell Lang** at WPI for providing tools, building advice, and solutions to many of our construction problems
- **Mihoko Wakabayashi** from SAORI Worcester for offering advice and insight about looms
- Preparatory Advisors, **Melissa Belz** and **Corey Dehner**
- **Peter Hefti** at WPI for lab assistance
- **Tom O'Malley**, **Honee Hess**, and the **Worcester Center for Crafts** for their extremely generous donation of looms, weaving materials, benches, and parts
- The **Student Development and Counseling Center** for the generous donation of a SAORI loom and weaving materials
- The **Weavers and their families** for agreeing to be interviewed and welcoming us into their homes

References

Arts & Crafts. (2018). Retrieved June 11, 2018, from <https://www.bhutan.travel/page/arts-crafts>

Becka, M. (2018, January 29). Woven in Exile helps Akron's Bhutanese-Nepalese refugees build confidence, community. Retrieved April 03, 2018, from http://www.cleveland.com/akron/index.ssf/2018/01/woven_in_exile_helps_akrons_bh.html

Berg, B. L. (2007). *Qualitative research methods for the social sciences*. Boston: Pearson/Allyn & Bacon.

Bhutan - Employment in agriculture (% of total employment). (2018). Retrieved April 13, 2018, from <https://tradingeconomics.com/bhutan/employment-in-agriculture-percent-of-total-employment-wb-data.html>

Burnett, K. (2013, January). Feeling like an outsider: A case study of refugee identity in the Czech Republic. Retrieved April 3, 2018, from <http://www.refworld.org/pdfid/510fad252.pdf>

Catotti, L. (2013). Diaspora and Bhutanese Refugee Identity. Retrieved April 13, 2018, from <http://kenan.ethics.duke.edu/uprooted-rerouted/reports/nepal-catotti.html>

Chris. S. (2015, September 22) The Role of Arts and Culture in Open Society. Retrieved April 02, 2018, from <https://www.opensocietyfoundations.org/voices/role-arts-and-culture-open-society>

Chen, V. H. (2014). Cultural Identity. Retrieved April 27, 2018, from <https://centerforinterculturaldialogue.files.wordpress.com/2014/07/key-concept-cultural-identity.pdf>

- Cultural Identity. (2003). Retrieved April 13, 2018, from <http://socialreport.msd.govt.nz/2003/cultural-identity/cultural-identity.shtml>
- Dunmore, C. (2016, March 02). How art is helping Syrian refugees keep their culture alive. Retrieved April 03, 2018, from <https://www.theguardian.com/global-development-professionals-network/2016/mar/02/art-helping-syrian-refugees-keep-culture-alive>
- Fabos, A. Pilgrim, M. Said-Ali, M. Krahe, J. Ostiller, Z. (Feb 2015). Understanding refugees in Worcester, MA. *Mosakowski Institute for Public Enterprise*. Retrieved from <http://commons.clarku.edu/mosakowskiinstitute/32/>
- Kelly, T. L. (2018). Retrieved April 13, 2018, from <http://www.thomaslkellyphotos.com/keyword/Bhutanese/>
- Lambo, I. (2012, May). In the shelter of each other: Notions of home and belonging amongst Somali refugees in Nairobi. Retrieved April 3, 2018, from <http://www.unhcr.org/4face3d09.pdf>
- Maxwell, J. A. (2013). *Qualitative research design: An interactive approach (3rd ed.)*. Thousand Oaks, CA: SAGE Publications.
- Mehan, S. (2016, November). From Care And Maintenance To Self-Reliance: Refugee Artisans to Swiss Markets Using Public-Private Partnerships. Retrieved April 3, 2018, from <http://www.unhcr.org/582346e07.pdf>
- Moulton, C. (2017, April 19). From refugee camp to Tower Hill: Burmese youth group eases assimilation. Retrieved April 03, 2018, from <http://www.telegram.com/news/20170418/from-refugee-camp-to-tower-hill-burmese-youth-group-eases-assimilation>
- Pasikowska-Schnass, M. (2017, October 20). Integration of refugees and migrants: Participation in cultural activities. Retrieved April 30, 2018, from <https://epthinktank.eu/2017/02/08/integration-of-refugees-and-migrants-participation-in-cultural-activities/>
- Refugee Artisans | What We Do. Refugee Artisans. Retrieved from <http://www.refugee-artisans.org/what-we-do>
- Refugee Artisans of Worcester (RAW). Newcomer Arts Collectives. Retrieved from <http://www.refugee-artisans.org/what-we-do>
- Refugee Children: Guidelines on Protection and Care. (n.d.). Retrieved April 25, 2018, from <http://www.unhcr.org/3b84c6c67.pdf>
- Refugees and Identity: Considerations for mobile-enabled registration and aid delivery. (2017). Retrieved April 3, 2018, from <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2017/06/Refugees-and-Identity.pdf>
- Rodgers, S., & Umunna, M. C. (2017). *Refugee Artisans of Worcester: The Path To Empowerment*. Worcester, MA: Center for Liberal Arts in the World.
- Schultze, M. (2017, October 4). Akron's Refugees Find an International Market for their Weaving. Retrieved April 03, 2018, from <http://wksu.org/post/akrons-refugees-find-international-market-their-weaving#stream/0>
- Serai, Y. (2017, September 28). What Is Culture Identity? Retrieved April 27, 2018, from <https://classroom.synonym.com/what-is-culture-identity-12082328.html>
- Site of Palmyra. (n.d.). Retrieved April 17, 2018, from <https://whc.unesco.org/en/list/23>
- Sue. (2018). Exploring cultural identities through art. Retrieved April 13, 2018, from <http://www.tidegloballearning.net/further-reading-reflections/exploring-cultural-identities-through-art>
- Templin, S. (2014). Text & Textiles. Retrieved April 17, 2018, from [http://www.eiu.edu/ha/exhibits/2014/textile art history.html](http://www.eiu.edu/ha/exhibits/2014/textile%20art%20history.html)
- Textile in Bhutan - The Bhutanese art of weaving. (2018, March 27). Retrieved June 11, 2018, from <https://www.bhutanpelyabtours.com/textile-in-bhutan-the-bhutanese-art-of-weaving/>
- United Nations. (2016). Global Trends: Forced Displacement in 2016. Retrieved from <http://www.unhcr.org/5943e8a34>

United Nations. (n.d.). Refugee Resettlement: An International Handbook to Guide Reception and Integration - Chapter 1.3 Laying the Foundations for Integration. Retrieved April 30, 2018, from <http://www.unhcr.org/3d985c8d6.html#page=16>

Wilding, R. (2012, May 18). Mediating culture in transnational spaces: An example of young people from refugee backgrounds. Retrieved from <https://www.tandfonline.com/doi/abs/10.1080/10304312.2012.665843>

Worcester Refugee Assistance Project. (n.d.). Retrieved April 03, 2018, from <http://www.worcesterrefugees.org/>

