Sustainability & Environment Projects

Sustainability & Environment

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SUST 489 Capstone: Library of Things Project

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"**Bad libraries build collections,
good libraries build services,
great libraries build communities.**"

R. David Lankes

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Executive Summary

Each year, the Sustainability 489 Capstone class works with a community partner whose needs align with the initiatives of the Department of Sustainability. This year, the SUST 489 class received a recommendation from Dr. Joe Kantenbacher to work with the Vermilion Public Library. Our class worked with Daniel Burniston, Vermillion Public Library Director, to best identify the needs of the Vermillion community. The class, our library partners, and our professor Dr. Meghann Jarchow worked together to decide upon a Library of Things project, where we will assist the library in providing items for library patrons to check out.

A Library of Things can encompass tools, recreational items, kitchen supplies, games, and many other items. In order to best identify the Vermillion community's needs, we developed a survey and circulated it throughout the community. Later in this report, survey methods and results will be analyzed, along with suggestions of next steps.
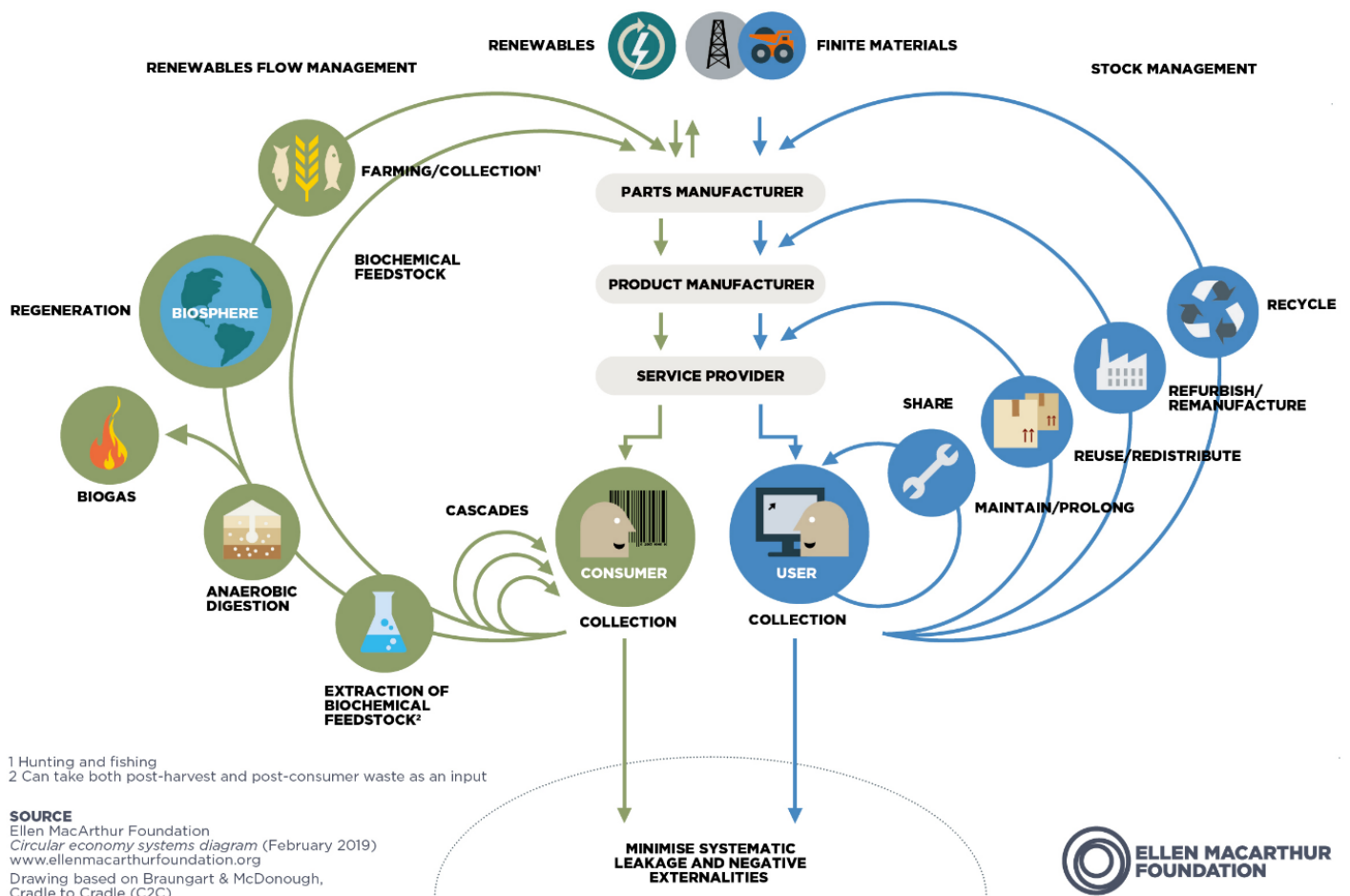
While developing the Library of Things project, our class also studied the circular economy, in addition to each student creating a personal research paper with topics including history, economics, and a variety of other fields. At the University of South Dakota's IdeaFest, SUST 489 gave a panel presentation outlining these individual reports, along with survey analysis.

Introduction
About circular/sharing economy

A foundational value of this project and the desired Library of Things for the Vermillion Public Library is the **circular economy**. The circular economy model challenges the traditional assumption of infinite resources and regeneration of Earth by encouraging recirculation and resiliency of production and consumption practices. The circular economy model first emphasizes a rethinking of how we design and manufacture products to maximize resource efficiency and minimize waste. Next, the model encourages a social recirculation of existing materials, helpfully referred to as the **sharing economy**.

RENEWABLES   FINITE MATERIALS

RENEWABLES FLOW MANAGEMENT

STOCK MANAGEMENT

FARMING/COLLECTION¹

PARTS MANUFACTURER

BIOCHEMICAL FEEDSTOCK

PRODUCT MANUFACTURER

RECYCLE

REGENERATION   BIOSPHERE

SERVICE PROVIDER

REFURBISH/ REMANUFACTURE

SHARE

REUSE/REDISTRIBUTE

BIOGAS

CASCADES

MAINTAIN/PROLONG

ANAEROBIC DIGESTION

CONSUMER   USER

COLLECTION   COLLECTION

EXTRACTION OF BIOCHEMICAL FEEDSTOCK²

1 Hunting and fishing
2 Can take both post-harvest and post-consumer waste as an input

MINIMISE SYSTEMATIC LEAKAGE AND NEGATIVE EXTERNALITIES

SOURCE
Ellen MacArthur Foundation
Circular economy systems diagram (February 2019)
www.ellenmacarthurfoundation.org
Drawing based on Braungart & McDonough,
Cradle to Cradle (C2C)

ELLEN MACARTHUR FOUNDATION

The sharing economy is defined as a system in which goods and services are shared between private individuals, either for free or for a fee. This highlights the ability, or even the preference, of individuals to rent out or borrow physical goods rather than buying, owning, and storing it themselves. While the modern concept of the sharing economy was made popular through internet marketplaces, the archetypal example takes place in the Public Library.

The sharing economy is defined as a system in which goods and services are shared

Photo source: CKGSB Knowledge

About Libraries of Things

How does this relate to Libraries?

Libraries serve an important role in any community, giving access to numerous resources such as books, internet, and even a gathering place for the community. They are also perfect examples of how society can reuse or share items for everyone's enjoyment. Overall libraries can provide a variety of different benefits to its community.

What is a Library of Things?

The Library of Things (LoTs) program is a collection of items held by a library that are loaned out to people. This is beneficial to people who need an item temporarily to help themselves, entertain themselves, or try something out without having to pay for something they might only use once. These items can vary from tools to aid DIY home repairs, sports equipment, kitchen supplies, musical instruments, and many recreational items. These items could be acquired through purchases by the library or in many other cases by donation.

Photo source: Trowbridge Gardens, photo Seb Rojas

Edith B. Siegrist Vermillion Public Library

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Overview

Originally founded in 1902 by about 100 people and $10,000 dollars, the library is far more advanced than previous generations. With exceeding numbers of materials and patrons, the library had to expand to another building which was recently renovated within the last ten years.

About

With a range of materials and items, there are several devoted employees and volunteers that contribute to their home deliveries, 73 hours of being open, as well as online and in person services.

Outreach

There are also several programs the library is a part of in order to insert themselves in the community and make the library services more accessible. This includes the summer reading program, 100 books before kindergarten, local news and radio stations, story walks, an interlibrary loan system, and ranging clubs.
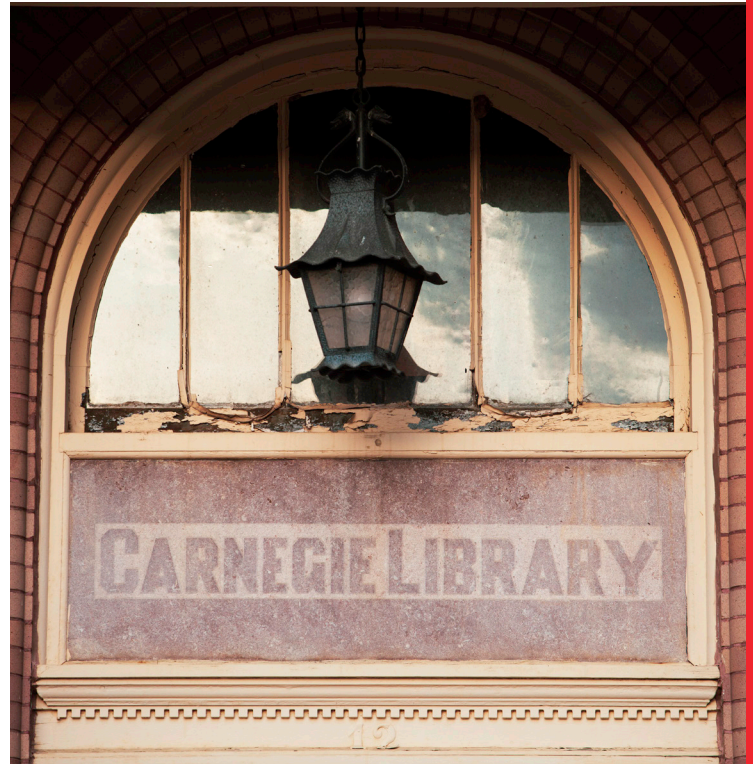
Current services offered

Physical items:

Books

Meeting rooms

Test proctoring

Printing services

Legos

Movies, CDS, Magazines, and Newspapers

Electronic items:

Tech help, checkout, and mobile hotspots

Digital talk books

Microfilm collection

Online databases

Audiobooks, E-books, Movies, Music

Courses and Classes

Possible Initiatives and Services

The library system is changing to become more accessible and sustainable and with growing access to technology and such services, the library is attempting to keep up with new resources and the latest technology. Such initiatives include a book mobile, toy exchange, research spaces, music instrument checkout, and a library of things. The Vermillion Public Library is participating in a Library of Things initiative starting with board games and tools.

Photo source: thealternative.org.uk

Survey Description

As the Library of Things is first and foremost for the community, we decided the best way to gauge interest was to send out a survey. In partnership with the Vermillion Public Library, an in-depth survey was conducted that covered a wide range of aspects relevant to a Library of Things. To encourage participation, respondents had the option to register for a $25 Vermillion Bucks gift certificate.

The survey was created on Google forms from February 16, 2023 through March 23, 2023 and received 137 responses. To gather a wide range of participants the survey was distributed across Vermillion through the use of a QR Code on slips of paper, social media, and paper copies at the library. This QR code could be found all over Vermillion in areas such as; community groups, businesses, churches, USD Campus, City Hall, etc

Methods

As previously mentioned, the survey covered multiple sections that are relevant to the implementation of a Library of Things. An important aspect that had to be taken into consideration was the demographics of those who took part in the survey. The survey asked the participants what their age and gender were. The Library of Things is open to everybody, yet it can be important to see who is the most interested in this project and how the results correlate with the respondents. Another demographic question was based around their financial situation. This is an important question as many people who will utilize a Library of Things are those who may struggle financially, therefore, it is important to see how many people may benefit from it. As this survey was designed for the vermillion community, we deemed it necessary to look into the respondents' residency. The choices for location of residency were Vermillion, Clay County, USD Student, and Other. This question was listed as a choose all that apply, therefore, many respondents fit into multiple categories; yet the majority were located within Clay County. This question was added to assess how many respondents were eligible for a Vermillion Public Library card as those who are located within Clay County or are a University of South Dakota Student are able to get one for free. Based upon this we also asked how many respondents have a library card. A question also asked how often they use the public library which was between multiple times a week to never. This question was asked to see how many people would possibly use a new Library of Things as they already utilize the library.

Methods Continued

The majority of the questions were based around why people would use the Library of Things and also what items they would like to see available. The concept of a Library of Things is new to most people and the respondents may not necessarily understand how it can be beneficial to them; therefore, the first question asked how they would benefit which listed multiple options and they were able to choose all that apply. They were able to choose from the following answers; normally could not afford or do not want to buy, increase social time, learn a new hobby or technology, reduce waste or clutter, or they are unsure. This demonstrates to the respondent that there are reasons this could be beneficial that they may not have previously been aware of.

Another question had the respondent rank which categories of items they are most likely to borrow. This question was designed to see which items should be included in the initial startup with the $500 budget.
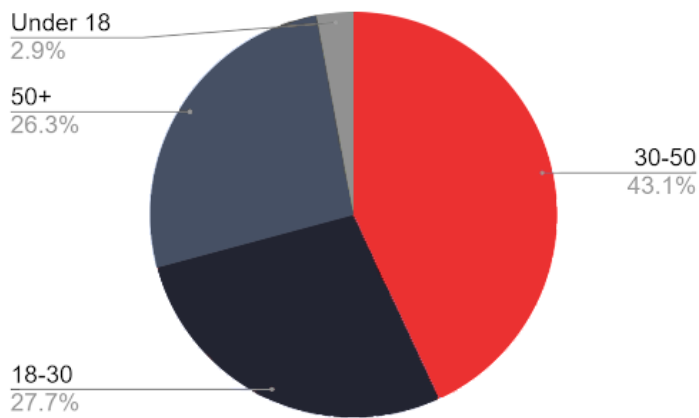
The respondent was able to rank the following categories; Home/tools/maintenance, Kitchen, Arts and Crafts, Electronics, and Recreational. Each one of these categories were broken down into subcategories where the respondent could choose which items they would most like to see.

The final three questions were free responses to see what the respondents would like to see added that may have not previously been mentioned. The first free response question asked what board games they would like to borrow. The second free response question asked which tools they would like to borrow. The third free response question asked if there are any specific items they would like to be able to borrow. These three questions were designed to get input towards what should be some of the first items introduced to the Library of Things.
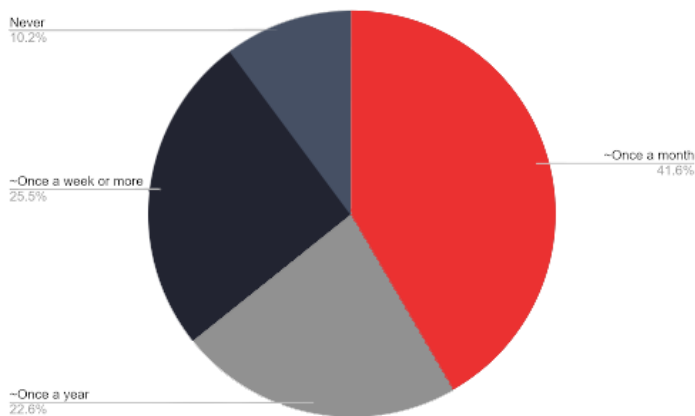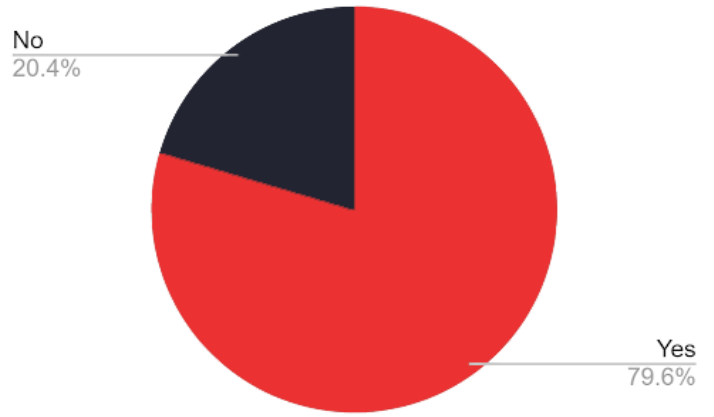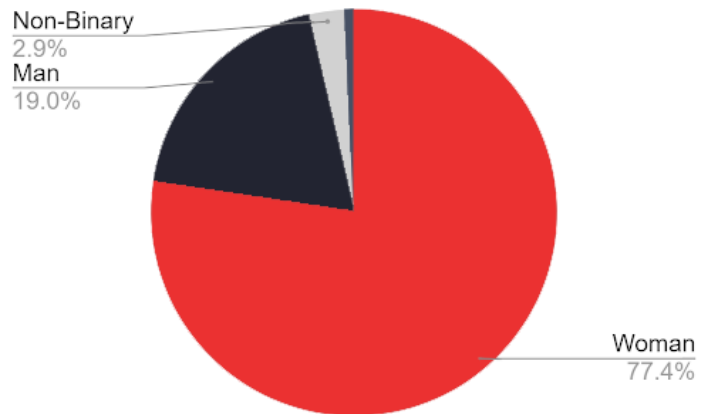
Survey Results
Demographics

Current Library Card

No
20.4%

Yes
79.6%

Age

Under 18
2.9%

50+
26.3%

30-50
43.1%

18-30
27.7%

Gender

Non-Binary
2.9%

Man
19.0%

Woman
77.4%

Visit Frequency

Never
10.2%

~Once a week or more
25.5%

~Once a month
41.6%

~Once a year
22.6%

Finacial Situation

Poor
5.1%

Prefer not to say
8.8%

Financially insecure
20.4%

Financially secure
65.7%

Residency
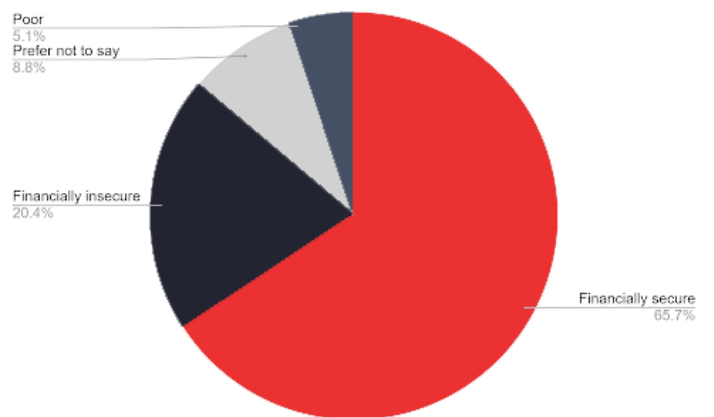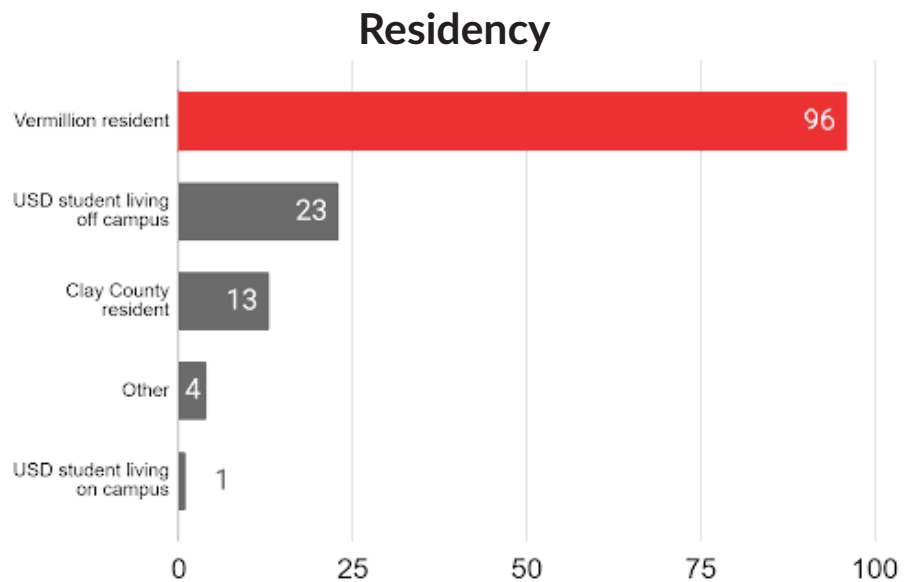

Demographics
Continued

Survey Results
Items and Categories Ranking

To determine the categories of items people would like to see in a Library of Things, respondents were asked to rank their preference towards five different item categories: arts and crafts, electronics, kitchen items, recreational, and tools and maintenance. Following the completion of the survey, the results on category ranking were broken down by sex to determine if men and women showed a preference towards different categories of items.

The following violin plots visually display the ranking data for both genders. The shape of the violin plot for each category is determined based on the distribution of responses for each rank. Take for example, the tools and maintenance category for the male respondents. The shape for this category is substantially wider towards a rank of 1 and remains thin throughout the rest of the ranks, as a large proportion of men had ranked this category as their most their number one.

To determine the actual rankings for each of the categories, the mean rank was determined. This is displayed on the two graphs with the larger black dot representing the mean rank and the bars extending out from them representing the standard error for each value. A category with the lowest mean rank value would indicate the most desirable category, while the highest mean rank value would determine the least desirable category.

In addition to mean ranks, the median (middle) ranks are also represented on the graphs with the smaller colored dot. Median ranks were not used to determine any of the ranks, however, they can be useful in further visualizing the distribution of ranks as they indicate the middle of the dataset for each category. Median ranks that fall on the extreme ends of the ranks (1 or 5) can therefore suggest a strong preference for that particular category.
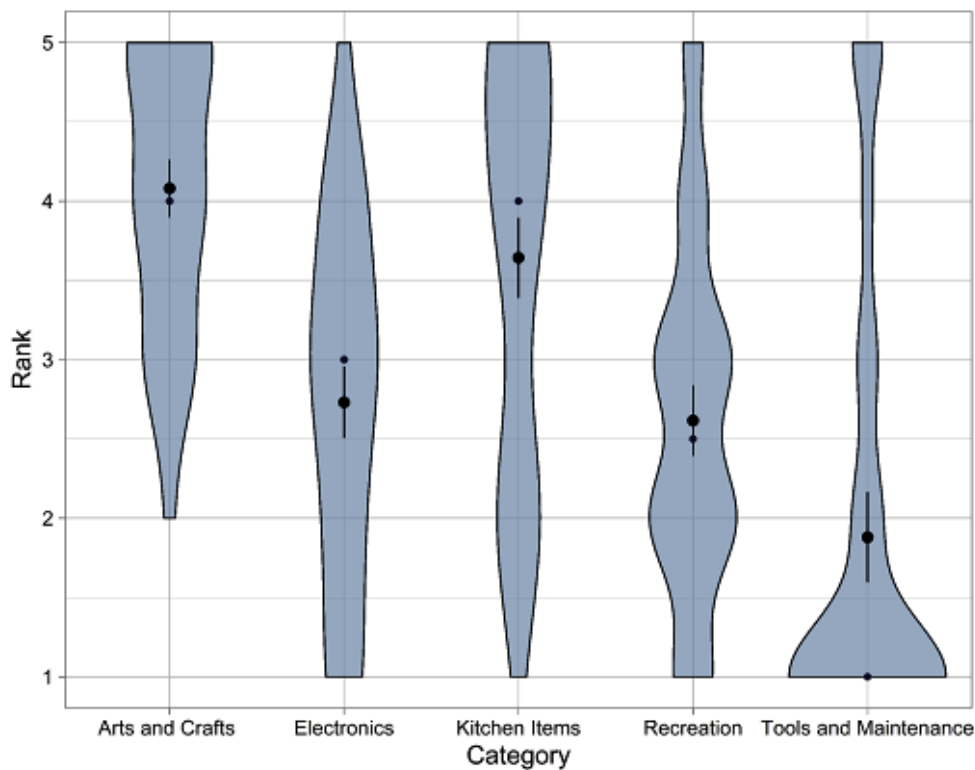
Women's LoT Category Rankings
Based on 105 female respondents
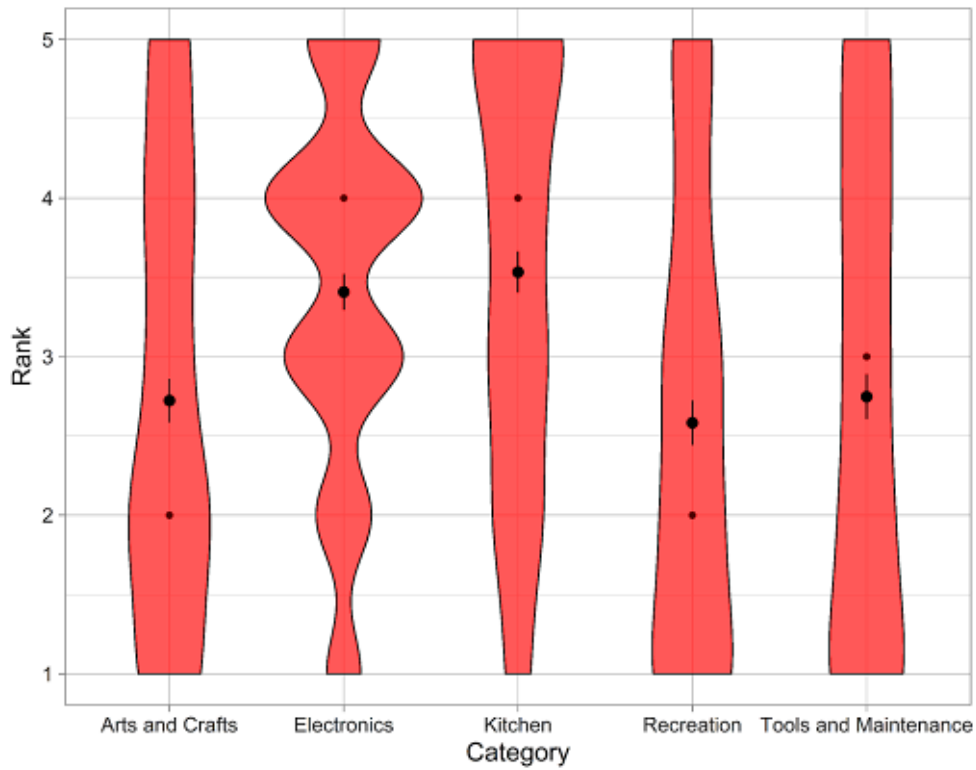
Men's LoT Category Rankings
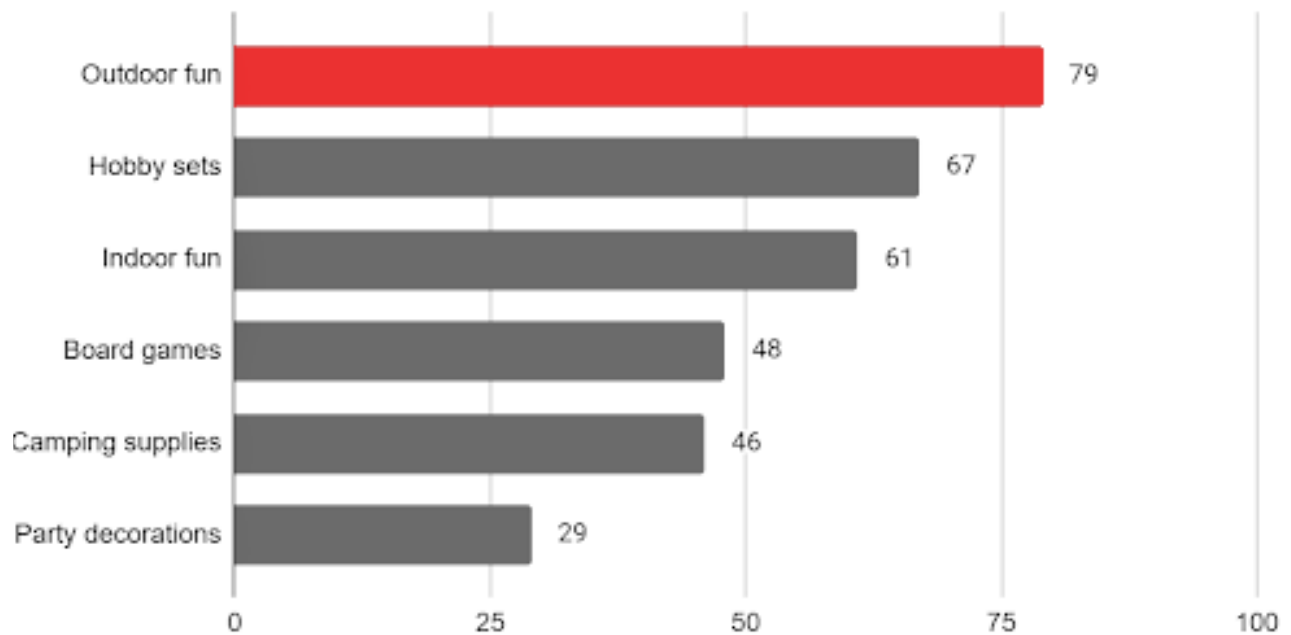Based on 26 male respondents
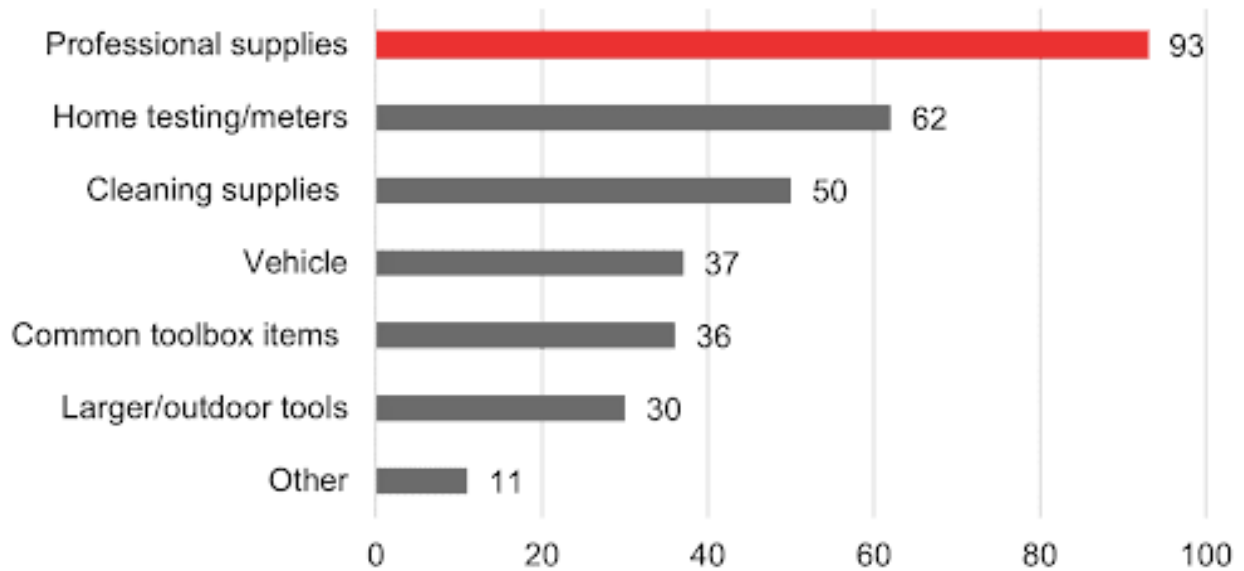
Survey Results
Items and Categories
Continued

Based on these two sets of ranks, we determined that recreational and tools and maintenance items were two of the most highly preferred categories among both genders and could therefore serve as a good starting point for a LoT. Arts and Crafts and electronics were the next two preferred categories for a LoT. These items may not be a part of the initial launch of this service, however, future expansion of this service should consider offering a selection of these kinds of items. Finally, kitchen items were the most undesirable across both demographics and would likely not need to be included within a LoT.

Count of Which types of items in the Recreational category would you be most likely to borrow?

Category	Count
Outdoor fun	79
Hobby sets	67
Indoor fun	61
Board games	48
Camping supplies	46
Party decorations	29

Desired Home/Tools/Maintenance Item Categories

Category	Value
Professional supplies	93
Home testing/meters	62
Cleaning supplies	50
Vehicle	37
Common toolbox items	36
Larger/outdoor tools	30
Other	11

Desired Arts & Crafts Item Categories

Category	Value
Craft-specific tools	91
"Leftover" crafting supplies from others	73
Art Supplies	66
Common supplies	27
Other	15
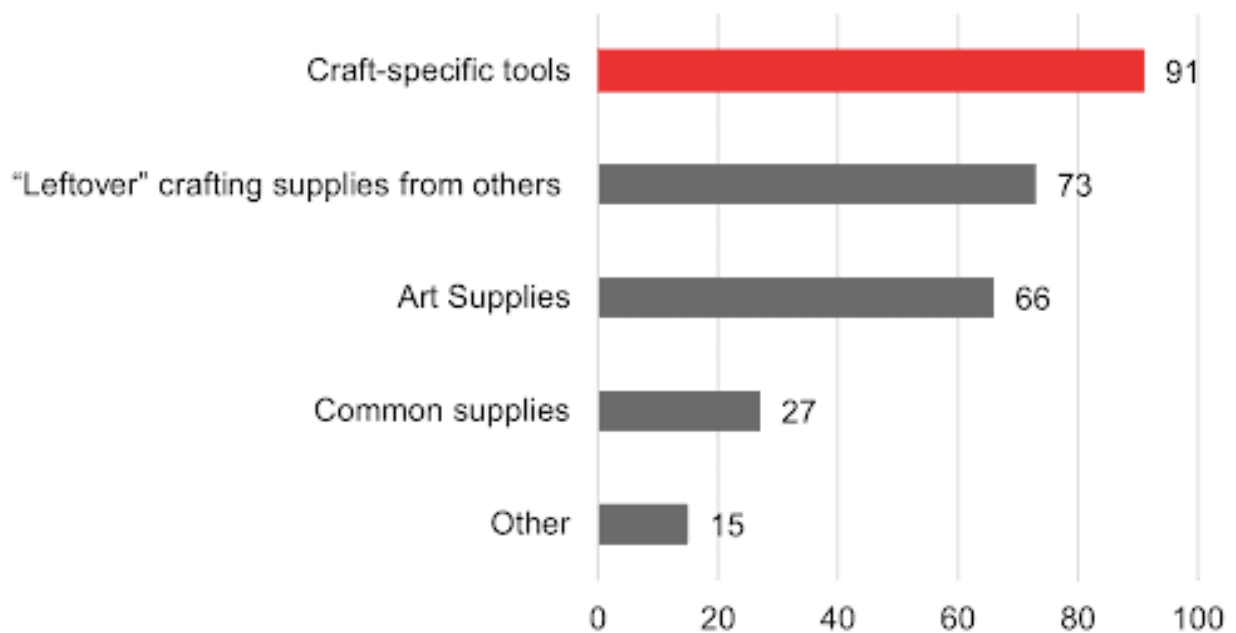
Which types of items in the Electronics category would you be most likely to borrow?

Category	Value
Photography	89
Movies	62
Gaming	60
Cords and adaptors	30
Music	22
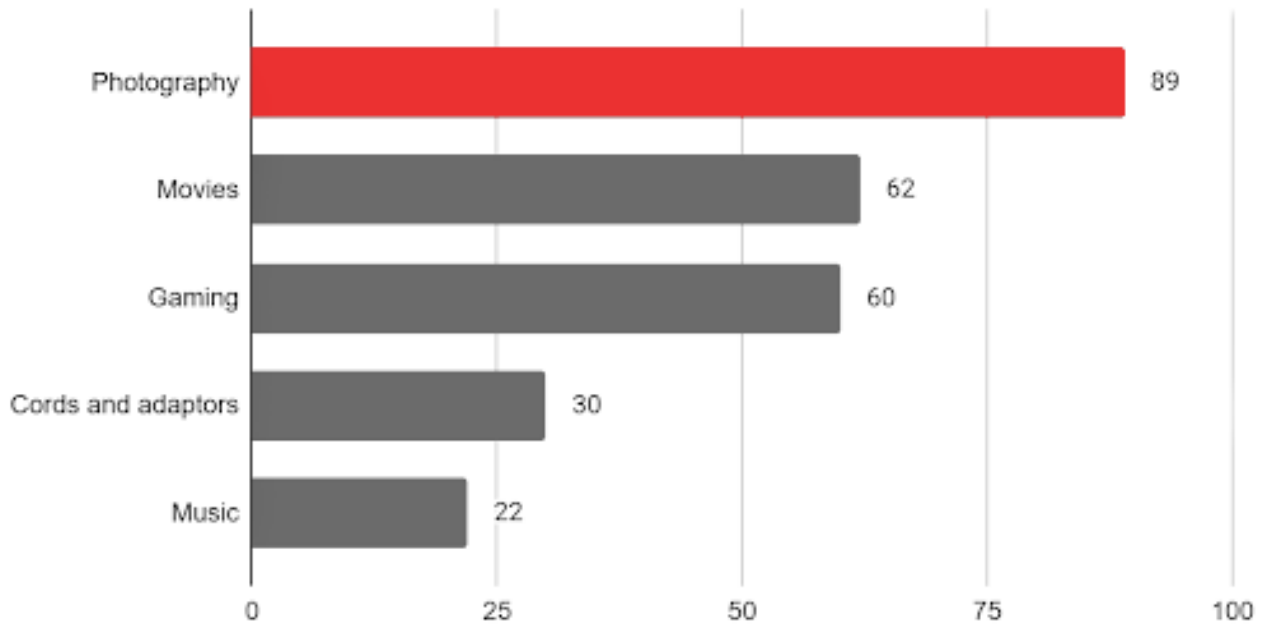
Desired Kitchen Item Categories

Category	Value
Novel items	94
Local recipe share	55
Baking supplies	52
Plug-in appliances	46
Canning/preserving/fermenting supplies	44
Tools	25
Other	4
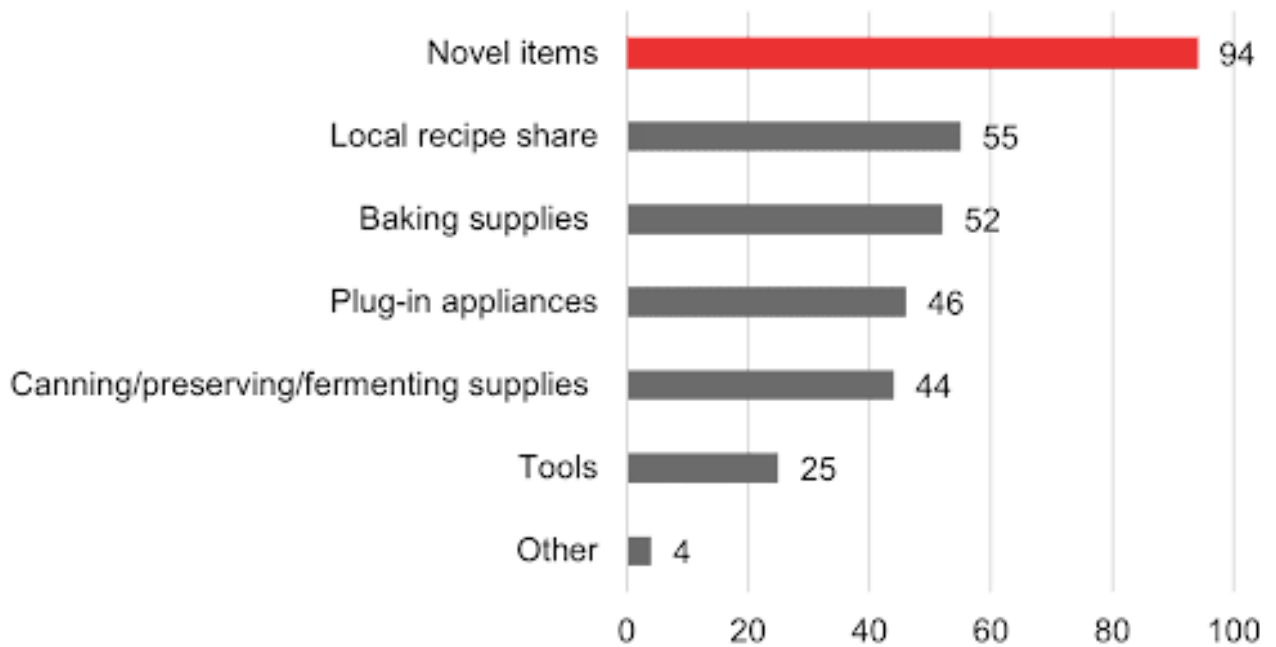
Our suggestions

The Vermillion Public Library has indicated that they would like to start the Library of Things program with a selection of board games and tool/maintenance items. Our group has been granted a budget of $500 to go towards these purchases. The following contains a list of recommended items for purchase within our budget and have been derived from survey responses and specific library requests.

Proposed Item List

Item	Price	Comments
Settlers of Catan	$45.82	#1 Requested Game
Monopoly	$14.98	#2 Requested Game
Wingspan	$47.33	#3 Requested Game
Chess + Checkers	$11.26	Popularly Requested
Sorry!	$8.99	Popularly Requested
Game Category Total	**$128.38**	
Common Tool Set	$34.99	Highly practical
Hammer	$13.98	Entire kit not required
100' Tape Measure	$13.29	Recommended by library
Stud Finder	$43.98	Popularly requested
Power Drill	$125.14	Popularly requested
Energy Meter	$14.35	Popularly requested
Carbon Monoxide Detector	$38.95	Requested by library
Tool Category Total	**$284.68**	
Storage Bins (8)	$72.00	Organize and protect items
Storage Category Total	**$72.00**	
Total Proposed Cost	**$485.06**	

Recommendations

We recommend follow-up surveys be conducted to gain an understanding of the patron reception of the program, perhaps at the one-year mark. These surveys may show satisfaction of the program, and show if the requested items that were not included in the initial purchases are still desired. If future purchases take place before additional surveys are conducted, we recommend buying additional recreational items, professional supplies, and crafting tools, all of which were very popular categories in the initial survey.

Acknowledgements

The 2023 Spring Sustainability Capstone Class would like to express the utmost gratitude to the following individuals who have contributed to the successful completion of the Ideafest presentation and this report.

Firstly, we extend our profound recognition to our Professor, Meghann Jarchow, the Chair of the Sustainability and Environmental Department, for her guidance and support throughout this project. Her constant encouragement, feedback, and expertise have been instrumental in helping us excel throughout this project.

We also extend our thanks to Joseph Kantenbacher, Professor of Sustainability and Environment, for his innovative idea to implement a Library of Things in the Vermillion Community. His idea is one that could have a major impact within the community and will lead to a better well-being for all those who utilize this future implementation.

We would also like to acknowledge Daniel Burniston, Vermillion Public Library Director, for being open to the idea of a Library of Things and giving valuable insight on the local libraries operations. His knowledge has provided us with a deeper understanding of the communities needs and has helped guide us by showing us viable solutions based around the libraries capabilities.

2023

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