HOW CAN LIBRARIES EMPATHIZE WITH THEIR USERS AND TRANSFORM THEIR DIGITAL EXPERIENCES?*

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Թվային աշխարհը և արհեստական բանականությունը շատ արագ զարգանում և փոխակերպում են ծառայությունները: Ինչպե՞ս կարող են գրադարանները ապրումակցել իրենց օգտատերերին և փոխակերպել իրենց թվային փորձառությունները: ՀԲՀՄ Փափազյան գրադարանի Ակադեմիական աջակցության և Համակարգերի և էլեկտրոնային ծառայությունների բաժնի աշխատակիցները կատարել են հետազոտություններ և կիրառել են նոր մոտեցումներն ու գործիքները՝ գրադարանի վեբկայքի և օգտատերերի փորձառության վերաձևավորման համար: Օգտագործվել է դիզայն մտածողության մեթոդաբանությունը՝ օգտատերերին հասկանալու, նրանց կարիքներն ու խնդիրները պարզելու համար: Հարցումներն ու Google Analytics-ը կիրառվել են տվյալներ հավաքելու, արդյունքները վերլուծելու և դրանք կիրառելի ծառայությունների վերաձևելու նպատակով: Figma-ն օգտագործվել է կայքի օգտատերերի հոսքերի և բովանդակության դասավորության նախատիպեր մշակելու համար:

The rapid evolution of the digital world and artificial intelligence (AI) is reshaping services across industries, offering unprecedented opportunities for efficiency, personalization, and innovation. How can libraries empathize with

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their users and transform their digital experiences? AGBU Papazian Library Academic Support and Systems and Electronic Services staff conducted research and applied new approaches and tools to redesign the library's website and user experience. Design Thinking methodology was used to understand users, identify their needs and problems. Surveys and Google Analytics were used to collect data, analyze the results, and turn them into usable services. Figma was used to prototype the website's user flows and content layout.

Բանալի բառեր՝ Հայաստանի Ամերիկյան համալսարանի գրադարան, էլեկտրոնային ծառայություններ, Դիզայն մտածողություն, հետազոտության արդյունքներ, տվյալների վերլուծություն, վերկայք, օգտատերեր:

Ինչպես հղել՝ Զարգարյան, S. (2024), Ինչպե՞ս կարող են գրադարանները ապրումակցել իրենց օգտատերերին և փոխակերպել իրենց թվային փորձառությունները, *Լրատու Հայկական գրադարանային ասոցիացիայի*, *2*(4), 21-46. https://doi.org/10.54503/2953-8092.2024.2(4)-21

How to cite (APA style): Zargaryan, T. (2024). How can libraries empathize with users and transform their dijital experiences, *Herald of the Armenian Library Association*, *2*(4), 21-46.
https://doi.org/10.54503/2953-8092.2024.2(4)-21

Creating Empathy-Driven Digital Experiences for Libraries Using Design Thinking and UX Research

Whenever I enter my workplace/office in the academic library, I feel I am in a beehive. You will ask why?

Well, 2000 students still need a study space, a computer, or a place to read quietly and relax. But you will say It's already 2024; there are many online resources, primarily Google and now AI (Chat-GPT). Even students think that Google and Chat-GPT are the best first choices for searching for the information they need. Why should they come to the library, open their PCs, and search for books, sometimes e-resources? Who needs this old-style, boring thing called research?

Is this the future we imagine and foresee as academic librarians trying to provide online services and support to students born in 2010? And now in their mid-20s? Are we trying to decrease the age gap, the technology gap, and the knowledge and mindset difference? Are we, as librarians, running after technology and constantly trying to be modern and relevant to the student's current needs by torturing ourselves?

Indeed, we still have issues and knowledge to pass on to our students, and there is a bias from both sides that needs to be addressed. But that's another topic for research, which we will not cover here.

You will ask, but why? Why should academic librarians/libraries worry about student support and services when we already have Google search, AI tools, library website, academic e-resources, and books? There is a physical space for studying; it's a modern open space with internet access. Why are user experience and design thinking, business goals, success metrics, and data relevant to libraries? Why should we care about the chair's ergonomics, website accessibility, sunlight, and coffee? What are these modern terminologies that are so alien to the ear? Indeed, life is dynamic, and technology is changing how people learn, behave, and access information. Nonetheless, libraries are at the heart of creating a community of practice and networking place for academic life, systematizing and providing essential resources and support for students and researchers in a digital age; enhancing the library website's user experience (UX) is crucial to ensure not only academic peer-reviewed resources are available, but all digital experiences are accessible and enjoyable to use.

This case study explores how the AGBU Papazian Library used Design Thinking and UX research to redesign its digital experiences, ultimately making the website more empathetic and user-centered.

Introduction: The Challenge of Modernizing Library Digital Experiences

With the development of AI tools and pirate websites with free access to ebooks/e-resources, it can get more challenging to reach out to every student and keep them engaged with the library e-resources and books as their first choice for a reliable source to search for information. With all that accessible information, the needs and expectations of users change as well. The ChatGPT has impacted the student's academic needs and searching behaviors even more. After years of conducting information literacy sessions and supporting students in their academic research, The AGBU Papazian Library's academic support team accumulated crucial insights that eventually should be used for enhancement of the digital experiences. We felt we were missing on targeting and delivering the support that would be hands on, easily accessible and be used by the users needs. In our case library's main target users are our students and we all noticed that students prefer to look up information on Google and other resources rather than ask a librarian or look in the library for academic e-resources. However, we needed more data to understand the reasons behind students' actions and behaviors. It was decided to take a data range for 1 year and follow with the patterns that would be interesting for our academic support team. The data collected from Google Analytics and the library catalog showed fewer and fewer downloads from our academic e-resources and checked-out books. The surveys, A/B testing, and student interviews showed a radical change in

their search behavior and research needs. When we accumulated all the data and analyzed the patterns it was clear that the challenge of modernizing the library's digital experience lay in the website's design and the habits students developed throughout the study period at AUA. The collected data showed that the website's design logic and structure were complex for students and not user-friendly. Students need help locating and quickly accessing e-resources and other essential features on the library website.

After identifying the problem, it was decided to conduct user experience (UX) research and develop solutions.

UX research focuses on understanding user needs and behaviors through interviews, usability studies, and surveys. This feedback helps understand how users interact with the digital product and whether the design solutions meet users' needs.

The problem

The problem was identified when data was collected and analyzed. Students should be able to quickly locate the library catalog and e-resources on the website, perform a search, and access them using mobile and PC. The challenge here lies in the design solutions and how the identified problem will be solved using User Experience Research and empathy-driven methodology to understand users' behaviors and academic needs.

Empathy in Design Thinking: Understanding Users

The Design Thinking methodology was used to collect and analyze the data. Design thinking is a 5-stage iterative process of empathizing and understanding user pain points and expectations.
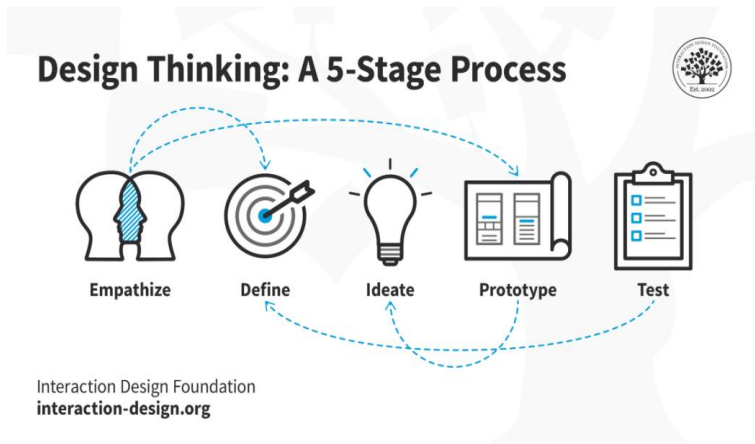
To build a clear picture of user needs, the following 5 step process was set up:

a) Empathize - research users' needs.

This is the first step in collecting data and understanding your targeted users.

To do that, the library team collected and used data from the following tools:

● Surveys and Google Analytics to analyze user behavior,

● Libguides statistics, number of checked out books from the local library catalog for understanding resource popularity,

● Online chat logs to capture real-time user challenges.

b) Define the problem - state users' needs and problems.

The library's primary users are undergraduate and graduate students across four colleges: Business and Economics, Humanities and Social Sciences, Science and Engineering, and Health Sciences. The

team synthesizes and analyses the observations at this stage to define the core problem and creates User Personas and User Journeys.

User personas: capture the diversity of user backgrounds and needs, focusing on:

- Context of Use: how and where the website would be used.
- Cognitive Load: addressing multitasking, stress, and time constraints.
- User Roles and Mental Models: understanding student motivations and approaches to online research.

User Journeys: mapping user journeys also revealed the stages students go through to find resources, from initial search to locating and downloading relevant materials.

After identifying the time spent and counting the steps to achieve the goal, it was understandable that a few unnecessary steps were created in the users' paths. This was also an essential insight for redesigning the website and library services on the webpage.

Below are the main features students used to perform the tasks.

- Find a book
- Reserve a Study Room
- E-Resources
- ILL Services and
- Off-Campus Access

User Personas (details of typical users)

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Persona 1

"I work and study full time, I don't have time to read that much, and library is too noisy for studying"

Goals
- Finish her studies and successfully submit her research projects.

Frustrations
- She needs to concentrate more on her studies and she can do that only at home.

Liza

Age: 33
Education: MA in IRD
Hometown: Yerevan
Family: Single
Occupation: Program Coordinator

Liza is a part-time Masters student, she also works for the university, she tries to manage to be the best student, and she tries to perform well at her job. She doesn't have time and she wants to find the e-resources for her studies as efficiently as possible. She can not study in the library, as its noisy and she needs to concentrate on her research projects.

Persona 2

"I don't do research and I don't use library webpage. I come to the library only for the space."

Goals
- Find a job and also submit his homeworks.

Frustrations
- I want to have a space where I can concentrate and do my homework.

Yuri

Age: 20
Education: CS Freshman
Hometown: Yerevan
Family: Single
Occupation: BA Student

Yuri is a full time first year Computer Science student, he is not working and he only studies, he is not using the library, as his homework is not research based, he only does use Google and one math application for his studies. He thinks the library should be a space where he can come and work with his peers and get back to his daily tasks.

User Journey (how currently users try to solve the problem)
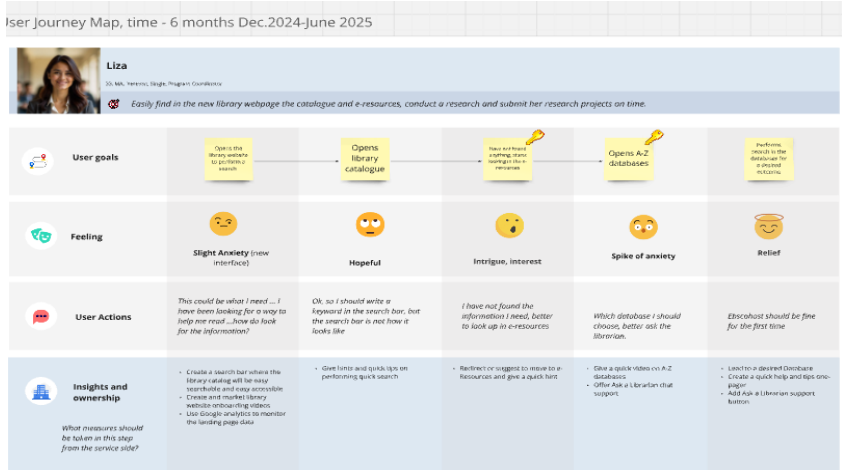
c) Ideate - challenge assumptions and create ideas.

The team brainstorms to identify innovative solutions to the core problem.

Here, it was decided to redesign the library landing page and bring the most used features to the front.

d) Prototype - start to create solutions.

The team started with a wireframe/prototype of the landing page to investigate the solutions.

e) Test - try the solutions out.

The team tested the prototype through A/B testing and usability studies to understand how the redesigned prototype and design solutions work for the users.

Defining the Problem

After user testing, we identified that the core problem is that students should be able to quickly and effortlessly search for resources,

access them, and navigate between features on mobile and desktop devices.

By focusing on empathy, the aim is to make each step of the user journey smoother and more intuitive.

Key UX Metrics for Evaluating Digital Library Experiences

To follow the website content and design alignment with the users' needs, it is essential to select the measures that will help us to keep track of our progress and success.

1. Quantitative metrics
2. Qualitative metrics
3. Accessibility metrics

These metrics were strategically chosen to address the library's specific user needs and goals, emphasizing iterative testing and feed-back.

We collected data and reports from the Google Analytics plat-form:

1. Quantitative Metrics:

such as engagement rates and click-throughs.

Metric	Value	Notes
Total Clicks	29K	Click events recorded
Engagement Time (per active user)	1m 18s (78 seconds)	Average engagement time

Insights & Recommendations Based on Quantitative Metrics

1. **Low Click-Through Rate (CTR)**:
   ○ The **CTR of 0.26%** for organic search impressions is relatively low. This suggests that although users see the content, they may not engage with it as much as expected.

2. **Recommendation**:
   ○ Improve **page titles**, **meta descriptions**, and **call-to-action** elements to increase the CTR.
   ○ Consider optimizing **SEO** or enhancing the **user interface** on landing pages to encourage more clicks.

3. **Engagement Time**:
   ○ An **engagement time of 1 minute and 18 seconds** per active user indicates that users spend a reasonable amount of time on the platform.

4. **Recommendation**:
   ○ Focus on creating **interactive content** or **personalized experiences** to increase engagement time.
   ○ Look into **user retention strategies** such as content customization.
   ○ Explore ways to **decrease friction** in navigation, make content easier to find, or introduce interactive elements that keep users engaged longer.

2. Qualitative Metrics:

user feedback and satisfaction scores.

User Feedback

User feedback can be gathered through surveys, pop-up ratings, interviews, and reviews.

We still need to develop a straightforward process for User feedback, as we only have general surveys that cover digital experiences.

We have only started to use usability studies and user interviews and will include the results only from that feedback.

In the future, we will integrate **qualitative feedback** to collect feedback through:

1. **Surveys**: After interacting with the platform, users can be asked to rate their experience on a scale (e.g., from 1 to 5).

2. **User Interviews**: Interviewing users can provide insights into their overall experience, what they like, and areas that need improvement.

3. **Open-Ended Feedback**: Allow users to provide open-ended feedback via forms or comment sections, helping you understand their pain points.

Satisfaction Scores

We don't have explicit satisfaction scores, but we can infer satisfaction based on **retention**, **engagement time**, and **user behavior**.

For example, the **58% retention rate** of new users suggests that many are satisfied enough to return. The **increased engagement time** over the months also indicates users find value in their interactions with the platform.

Potential User Satisfaction Metrics:

● **Net Promoter Score (NPS)**: This is a standard customer loyalty and satisfaction metric. It involves asking users how likely they are to recommend the platform to others (rated 0-10). The score is calculated as the difference between promoters (9-10) and detractors (0-6).

● **Customer Satisfaction (CSAT)**: A simple way to measure user satisfaction, typically asking users to rate their overall experience on a scale from 1-5.

Qualitative Insights

1. **User Sentiment**: Positive sentiment can be inferred from **high retention rates** and increasing **engagement** over time. Users who return and spend more time on the platform suggest satisfaction.

2. **Areas for Improvement**: If users are dropping off early (e.g., in the first 6 days), this may indicate usability issues or lack of immediate value, which should be explored through feedback mechanisms.

Recommendation

● **Survey Implementation**: Introduce post-interaction surveys or periodic check-ins to measure **CSAT** or **NPS**.

● **User Interviews**: Conduct user interviews to capture more **in-depth feedback** on platform usability, content value, and areas for improvement.

● **Review Analytics**: Continuously monitor engagement trends and retention rates to detect dissatisfaction early and make iterative improvements.

3. **Accessibility Metrics**:
ease of use for students with diverse needs.

Ensuring a platform is **accessible** for students with diverse needs (e.g., visual, auditory, cognitive, or motor disabilities) is crucial. **Accessibility metrics** focus on how easy it is for all students, including those with disabilities, to navigate and use the platform effectively.

Key Accessibility Considerations:
1. **Compliance with Accessibility Standards**:
   ○ Ensure that the platform meets **WCAG (Web Content Accessibility Guidelines)** to provide a consistent experience for users with disabilities.
   ○ **ADA (Americans with Disabilities Act)** compliance is essential to ensure that the platform is usable by all students, including those with visual or auditory impairments.
2. **Usability for Students with Disabilities**:
   ○ **Screen Reader Compatibility**: Ensure that content is readable by screen readers for visually impaired users.
   ○ **Keyboard Navigation**: Students who cannot use a mouse should be able to navigate using just a keyboard (important for motor-impaired users).
   ○ **Text-to-Speech or Speech-to-Text Features**: Useful for students with learning disabilities or those with visual impairments.
   ○ **Contrast and Font Size**: Text should have high contrast for better visibility, and font sizes should be adjustable for students with low vision.

○ **Video Accessibility**: Provide **captions** for videos and allow for customizable playback speeds.

Current State Based on Provided Data:
● **High Engagement**: Users staying engaged for more extended periods (e.g., average engagement time of **78 seconds**) and interacting with multiple sessions suggest that the platform is generally usable, but we don't have direct insight into accessibility from the current data.
● The next step will be to incorporate possible features for diverse needs.

Insights & Recommendations for Accessibility
Insights:
● **Retention & Engagement**: The solid retention and engagement metrics suggest that students generally are satisfied with the platform. However, without explicit accessibility data, it's difficult to assess how well the platform performs for students with disabilities.

Recommendations:
● **Audit for Accessibility**:
○ Use tools like **Google Lighthouse** or **WAVE** to perform an accessibility audit of your platform. This will provide a detailed score and suggest areas that need improvement (e.g., alt text for images, color contrast issues, etc.).
● **Improve Keyboard Navigation**:
○ Ensure that all interactive elements are accessible via the keyboard alone. This includes menus, forms, and buttons.
● **Enhance Screen Reader Compatibility**:

○ Implement **ARIA (Accessible Rich Internet Applications)** landmarks and roles, ensuring that screen readers correctly announce content.

● **Provide Text-to-Speech or Audio Features**:
○ Offer features that allow students to listen to content rather than just read it, particularly for students with learning disabilities or visual impairments.

● **Mobile-Friendly Design**:
○ Ensure the platform is responsive and fully functional on mobile devices. Consider students who may rely on smartphones or tablets with accessibility features enabled.

Understanding Our Users: Personas and Journey Mapping

After gathering the data and analyzing the results, we created the User Journey map and User Personas. The central insight was that the academic research component is integrated only on a course level, and some students only perform academic research once they are in their 4th year of studies if it's a Bachelor's degree. And if it's an MA or MS, it depends on their course requirement.

However, we still see that students do search or research, and we want them to get used to using academic sources rather than Chat-GPT and learn to use the tools the university provides.

Part of the website redesign strategy is to bring the search feature front and center to make it easily accessible and user-friendly. More content is needed to catch users' interest in the research and its benefits. Incorporate the Research into students' learning paths as intensely as possible.

Change the search habits associated with the library web page through small design solutions. Test them and learn from the data. Make the design better for users.

Data-driven insights from Google Analytics (Acquisition and Engagement), Libguides and Ask a Librarian chat, Local Library catalog

We also looked at 3 other Google Analytics measures:

1. Acquisition,
2. Engagement and
3. Technology).

Through these measures, we will understand how students access the library website, where they prefer to go from it, what features they use, and what they search for.

A comprehensive analysis of Google Analytics data highlighted key insights:

1. Acquisition

With this measure, we look at where users come from and their paths. Here, we look at where our users visit our information or how they access it.

● **Organic Search** has the highest engagement rate, meaning users arrive at our website by googling or using other search engines which is good, but to increase that number and engage more users, we need to work on more ways to bring users to our website. Engagement Rate: 57.18%. Average Engagement Time per Session: 28.34 seconds.

Examples for the libraries can be the number of downloads for e-resources, catalog searches, videos played, contact form submissions,

- **Direct Traffic** is the second, with an

Engagement Rate: 51.28%,

Engagement Time per Session 17.12 seconds

Users arrive at our website by typing the URL. We need to work on website navigation and content offerings to retain interest.

- **Referral Traffic** is the third one, with an

Average Engagement Time per Session of 102.75 seconds.

This means users are redirected to our website from external websites. This number is good, but we need to find strategies to keep these users interested and guide them to specific actions.

- **Organic Social** is the fifth one, and with the highest Engagement Rate 60.32%,

Average Engagement Time per Session: 28.10 seconds.

This means that while traffic from organic social media is minimal, the engagement rate is relatively high. Enhancing the library's presence on social platforms could increase visibility and attract more users.

2. Engagement

With this measure, we look at pages and features with the highest engagement rates.

- **The landing page** is the main point for users. It has the highest user engagement number per session.
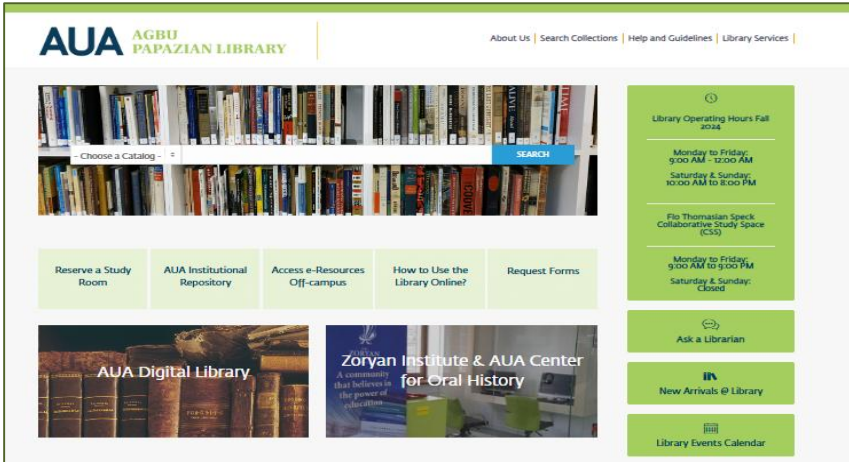
● **Library Operating Hours** is second. It has a short engagement time. It's a static page with no interaction. Users just look up the information.
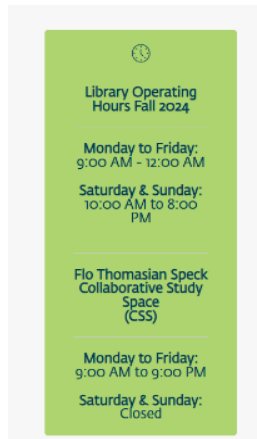
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● **Find a Book** is third in the number of searches and clicks. Probably, users search using Google search and redirect to the library page titled "How to find a book with call Number."

● **Off-Campus access** is fourth, and it has significant user interaction, to keep the engagement rates high, the information should always be kept current and easy to find.

3. **Technology**

With this measure, we look at the range of devices used to access content.

- **Mobile Traffic**:
  - ○ **Views:** 10,228 (38.34% of total)
  - ○ **Engagement Rate:** Lower compared to desktop traffic.
  - ○ **Average Engagement Time:** 25 seconds (67.13% lower than average).
  - ○ **Insights:** Mobile optimization is crucial. The shorter engagement time suggests that users on mobile may need help navigating or engaging with content effectively.
- **Web (Desktop) Traffic**:
  - ○ **Views:** 16,353 (61.29% of total)
  - ○ **Engagement Rate:** Strong, with an **average engagement time of 2 minutes 5 seconds**, **60.75% higher than average**.
  - ○ **Insights:** Desktop users are the most engaged. This indicates that larger screens make the content and interface more user-friendly.
- **Tablet Traffic**:
  - ○ **Views:** 99 (0.37% of total)
  - ○ **Engagement Time:** 47 seconds.
  - ○ **Insights:** Tablet traffic is negligible, but ensuring compatibility for tablet users is still essential for accessibility.

Recommendation

1. **Mobile Optimization**:
   ○ Improve navigation and page load times for mobile users to enhance engagement.

2. **Content Prioritization**:
   ○ Focus on enhancing high-impact pages like the **Home page**, **Find a Book**, and **Off-Campus Access**. Include clear calls-to-action (CTAs) and improved design.

3. **Define Key Events**:
   ○ Mark important events (e.g., catalog searches form submissions) as key in GA4 for focused analysis.

4. **Tablet Compatibility**:
   ○ While tablet usage is minimal, ensure responsiveness and usability across all devices.

5. **User Journey Mapping**:
   ○ Analyze navigation flows to identify drop-off points and optimize pathways to increase session duration and conversion actions.

LibGuides analysis

This data was collected over a year and informed the redesign strategy.

Date range Dec 1, 2023-Dec 1, 2024.

Libguides statistics showed popular resources with
   ● EBSCOHOST,
   ● JSTOR, and
   ● Taylor & Francis Online Journals are among the most accessed.

2,315 searches from AZ databases, and the topics are about:
- Ancient Armenian history
- Armenian Genocide
- Soviet Armenia
- Modern Armenia

Local catalog statistic

The number of checked-out books by students throughout one year, 01.12.203-01.12.2024, was approximately 980. We see here a dropdown of checked-out books, and we will need to promote more of our collections and take them to display and promote them on social media, particularly Instagram for more immersive explorations of our books.

Ask a Librarian Chat

We also collected the data from the live chat that we have on the library webpage, and here we are presenting the most frequent requests over the chat:
- Accessing library databases
- Ordering full-text articles, books, and book chapters
- Library membership rules
- Renewing their checkouts
- Library operating hours

Prototyping and Testing with Figma

Considering all the data and research results, the user-testing approach was used to test the new website's prototype. The new website layout was constructed with Figma, enabling students to test revised user

flows. The prototype highlighted areas for improvement, helping refine the design to support user needs better and encourage engagement.

Goals and Measurable Outcomes

The redesigned website aims to enhance search functionality, leading to behavior changes in user research methods. Key outcomes include:

● Improved Search Efficiency: aiming to increase the number of downloaded articles and checked-out books.

● Enhanced User Engagement: This is measured by interaction rates with search tools and resources.

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Recommendations for Future Improvements

Several strategic actions were identified for ongoing enhancements:

● Boosting Search Functionality: simplifying and enhancing search features.

● Content Refresh and Marketing: updating content to reflect current academic trends and improve relevance.

● Increasing Social Media Engagement: promoting library resources through targeted social media posts.

● User Feedback Monitoring: continuously gathering user input to inform further improvements.

By embracing an empathy-driven approach, the AGBU Papazian Library will transform its digital presence and create a more accessible and responsive website that meets the evolving needs of students. Through continued testing, analysis, and updates, the library is committed to providing a seamless digital experience that empowers students in their academic pursuits.

Appendix

UX research plan

1. Research Questions
   ● What is the first thing you notice when entering the library page?
   ● Search a book
   ● Search an e-resource
   ● Reserve a Study Room
   ● Contact librarian

- Find the library's operating hours

2. Participants

- 5 participants, all Graduate and Undergraduate students from 4 colleges

3. Methodology

- Each user test lasts 30 minutes.
- The tests were conducted in the AUA Library and during the Freshman Seminar courses.
- Format (usability study)
- High-level procedure (users were asked to look at a live product or a prototype and perform tasks)

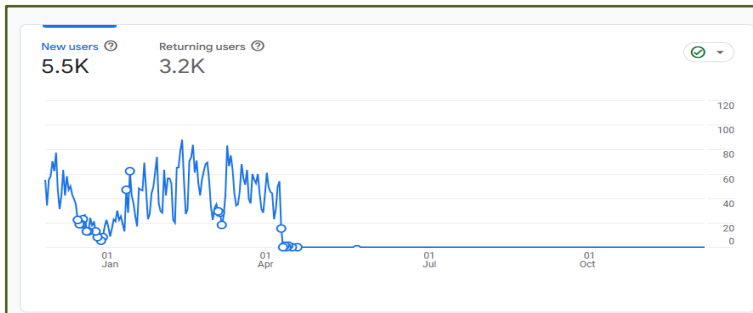**Google Analytics results**

- Acquisition overview
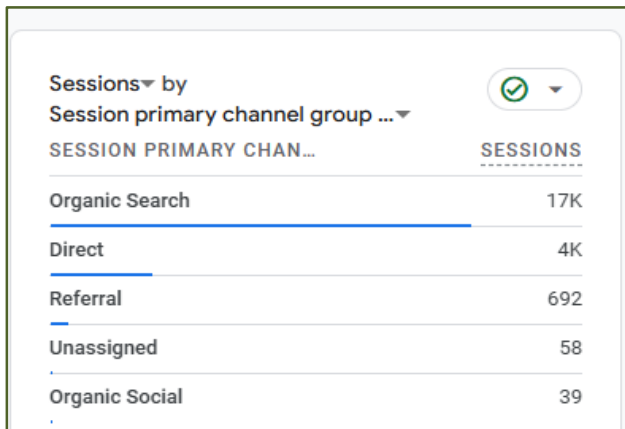
- Engagement overview

- Retention overview

After identifying how much time students spent on our website and what they clicked to achieve the goal, it was understandable that our users' paths were overly complicated.

This was also an essential insight for redesigning the website and library services on the webpage.

Based on the Google Analytics results, the main features students use are as follows:

- **Library Home Page**

- **Library Operating Hours**
- **Find a Book**
- **Off-Campus Access**