

*The Literacy Lab
Prototype Summary*



AI Chatbot

The Challenge & Context

Newcomer students face unique challenges beyond just language barriers. While they themselves may experience stigma and isolation within the school system, their families encounter additional financial and social stressors that accompany moving to a new place. Many cannot solely focus on their child's academic progress while also potentially working multiple jobs, securing housing, and building community connections (Price, 2018). Researching available resources and determining what is right for their child is a time-intensive process that poses a major challenge for many newcomer families.

Many newcomer caregivers may not know the extent of resources available to them in a new city and may thus miss out on opportunities to support their child. The disconnect between newcomer-serving organizations and the education system further widens this knowledge gap. At the same time, new literacy organizations form, new programs are added, and existing programs may evolve or end. Online database resources for newcomers often lack extensive literacy resources, become outdated quickly if not regularly monitored and updated, and are a lower priority than other supports required.

Over the course of the Literacy Lab, it was noticed that there were significant benefits for building awareness and relationships across the wide variety of literacy organizations that participated. Given this sensing and the newcomer challenge articulated above, a new solution was proposed to create greater ongoing coherence across the literacy system in Calgary.

The Hypothesis

By having up-to-date information on local literacy support, newcomers and newcomer-serving organizations will be able to access literacy resources more effectively when they need them (and would minimize costs to maintain).

The Idea

Creating a Generative AI chatbot that passively researches programs, events, and resources on literacy organizations' websites will be a tool that newcomers can use to access current information tailored to their needs. The chatbot would be less costly to maintain than traditional approaches (e.g., managing a database or creating an ecosystem map) and would help users navigate the complexity of the existing organizations that do literacy work in Calgary. Because the tool directly pulls information from the websites of many trusted organizations, assuming that organizations keep their websites up to date, it provides the most up-to-date information, thereby creating minimal need for ongoing database maintenance.

WHAT IS A PROTOTYPE?

A prototype is a tool that gives you a chance to investigate your ideas and explore what could, should, or would come next, whether you are designing a new product, working out a new routine, or rearranging your furniture. It's a modest tool for the lofty goal of testing the future, or for at least testing a question you have about your future.

Stanford d.school: This is a Prototype?

Prototyping is about making ideas visual and tangible. It's a low cost version of an idea that can be tested, tweaked and made better with feedback... In social labs, prototyping is a key approach to developing, testing and improving on an idea at an early stage before many resources are committed to implementation.

MaRS: Living Guide to Social Innovation Labs

Solution Team

The team for this prototype included Matt Mayer, Lab Steward, who managed the project and worked with Andrew Thomson, our software developer, to develop a working prototype.



Matt Mayer
Arete Initiative



Andrew Thomson
Software Developer

WHAT IS A SOLUTION TEAM?

A Solution Team is a small, focused group—typically up to six members—who work collaboratively to experiment, test and refine a solution idea. These teams form a core part of an innovation process, playing a hands-on role in developing and experimenting with real-world prototypes or “tests” of proposed solutions. Our aim was to work closely and iteratively, learning from small experiments and adapting the approach for a more refined test in the future. Each team was supported by a dedicated coach from the Literacy Lab team, but the core responsibility for planning and executing activities rested with the team members themselves. Team members committed to 40 hours of work over six months, which encompassed weekly meetings, individual action between meetings, and participation in prototypes.

The Process

This prototype team...

- Discussed the feasibility of the challenge with a software developer and conceptualized a GenAI solution.
- Gathered an initial list of local literacy organizations in the city that provide literacy services to newcomers.
- Selected the technology stack, prepared initial code utilizing open-source resources and inputted the local organizations into a first version (V1) prototype.
- Tested tool with Literacy Lab team, individuals working directly with newcomers, newcomers themselves, and seasoned literacy practitioners (~15 individuals)
- Integrated the first round of feedback, triaging additional features where needed.
- Presenting the tool to potential organizations that might utilize it after the Literacy Lab and attendees of the Literacy Lab Showcase for feedback.
- Integrated the second round of feedback, triaging additional features where needed.
- (Ongoing) Discussing the hand-off with relevant and interested organizations.

The Learnings

- Centering the users and being confident about the problem the technology aims to solve is critical in the discovery process.
- Early feedback from a variety of perspectives is helpful, especially with prospective users. For example, it was realized that the translated Hindi text was too formal and at a very advanced level, unlike when speaking English.
- Costs still exist to maintain the tool, as the software must be updated to move from prototype to pilot to 'ready for launch'. Additionally, the "tokens" that generative AI uses will require ongoing hard costs to maintain the tool.

The Potential

- Newcomers may experience greater empowerment when using a tool like this, as it can work in multiple languages, provide highly contextualized information to each user, and automatically update.
- Newcomers may require literacy resources that the organization serving them does not offer or specialize in. This tool could help the user navigate the literacy system based on what they need at any given moment.
- The tool is currently designed to help newcomers, however, it could easily be adapted to other specific users or user needs (e.g. neurodiverse children or neurodiverse-serving organizations) or broadened to all literacy users (e.g. all literacy needs for children that are in Grade 3 or younger).

For those interested in utilizing the prototype, we would recommend considering the following:

- Ensure sufficient budget is available to upgrade the code for additional testing and, eventually, public launch, as well as costing the ongoing maintenance costs (i.e. AI tokens)
- Clarify the desired scope of the tool, which can be easily adjusted (e.g. literacy for neurodiverse children, literacy for anyone & everyone, etc.)

The Pathways

SUPPORT OTHERS IN USING THIS TOOL

The existing tech infrastructure could be used by interested, relevant organizations to support their clients. The tool could be added onto existing, similar services in the city (i.e. Gateway Calgary and 2-1-1).

INDEPENDENT PATHWAY

A copy of the code could be created for organizations to build out independently. This could be done in broader (i.e. a chatbot with information on all literacy supports in the city) or more specific (i.e. a chatbot with information on ADHD supports in the city) contexts.

If you are interested in learning more about the technology or desire to see a more detailed set of recommended features to prioritize, information is available upon request. Please contact Matt at matt@areteinitiative.ca

References

Price, N. (2018). Literacy Now! Exploring challenges, capacities and opportunities for improved literacy in Kingston Galloway-Orton Park (KGO) FINAL REPORT (By KGO Literacy Improvement Collective (KLIC), The Reading Partnership - Tides Canada Initiatives, Office of MPP Mitzie Hunter, & Laidlaw Foundation). <https://readingpartnership.com/wp-content/uploads/2018/09/LiteracyNow-Report.pdf>

