AI for Personalized Reading Recommendations

PROBLEM OF PRACTICE

This project aims to leverage AI to provide personalized reading recommendations, with a specific emphasis on diversifying students' reading experiences beyond popular genres such as graphic novels. This initiative addresses the challenges students can face when finding a book to align with their reading level and interest. An AI chatbot will assess students' reading habits and preferences, enabling the suggestion of appropriate and engaging books across various grade levels. This initiative aims to enhance reading engagement and literacy skills, while also ensuring recommendations are culturally diverse and inclusive.

peel District School Board

Organization: **Peel District School Board**

Province: Ontario

Date: Spring 2025

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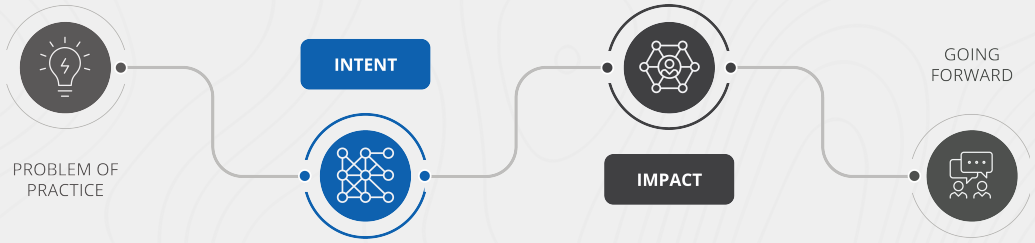
LLC EdTech Innovation
Resource Teacher



Intent

The project was implemented across three Middle School Library Learning Commons in Peel District School Board (PDSB) in Ontario. This project aims to leverage AI to provide personalized reading recommendations, specifically focusing on diversifying students' reading experiences beyond popular genres such as graphic novels. This initiative addresses the challenges students can face in finding books that align with their reading level and interest. An AI chatbot will assess students' reading habits and preferences, enabling the suggestion of appropriate and engaging books across various grade levels.

The goal of this case study is to build a web-based application that leverages a school's existing database to recommend texts that foster a love for reading. A student-facing AI chat-bot, preloaded with library resource lists, allowed students to engage directly with the AI for personalized book recommendation and expand reading options.

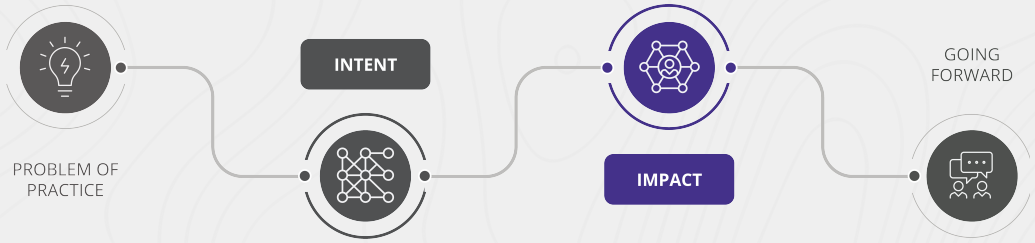
Digital Tools

Several AI tools and models were investigated to assess and ensure a useful, safe and appropriate student experience. The following items were reviewed: Schoolai.com, Magic Student by MagicSchool.ai, CoPilot, Napkin.ai, PlayLab.ai, NotebookLM and GPTs by ChatGPT. After reviewing the above, Schoolai.com was selected and used under a pilot basis for the following:

- **Accessibility Features:** speech-to-text, translation options and dyslexia-friendly fonts for users.
- **User Friendly Backend:** modification/extensions options for prompts, and the curation of school specific source data.
- **Secured Student Link:** student authentication was not required for students to access the chat-bot.
- **Teacher Access for Supports:** teachers can review the activity of chat-bots and download reports to support book purchases and/or the development of reading clubs/activities based on interest.

It should be noted that, to support a user-friendly experience, both students and staff were provided with a bit.ly to scan the QR code and/or use the short link.

> "Even though this is the first iteration, it [the AI book recommendation chat-bot] can be a benefiticial tool for students. As it evolves, one thing I reflect on is how can human interactions enhance and enrich search outcomes."
>
> *—Teacher-Librarian, PDSB*



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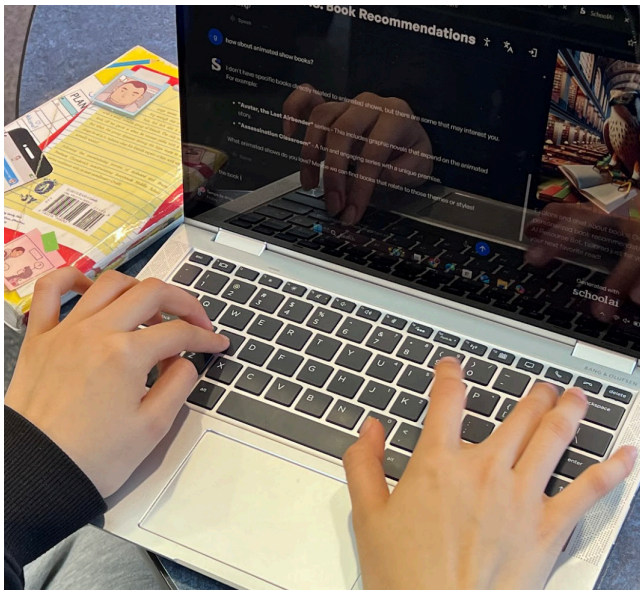
Implementation

The Project Lead and Coach initially built a student-facing chat-bot in Schoolai.com using a sample book set and simple prompts until school-specific book lists were generated.

After the initial test, the Project Lead provided each school with a chat-bot through Schoolai.com where the initial data source was an exported excel file of MARC records from PDSB's Insignia Library System (a library automation system). MARC records contain information about books such as the following but are not limited to titles, authors, publication date and/or call number. The prompts for each chat-bot were similar, but included variations specific to each school site. A sample of a prompt is below:

Become a "Custom Chatbot" and the "AI Resource Bot" for students in Grades 6-8. Engage in conversations to understand their interests and provide book suggestions from the attached list. Offer encouragement and ask questions about their preferences to help them select books. Ensure all book recommendations are from the provided source document. Use the internet to gather the following information about each book:

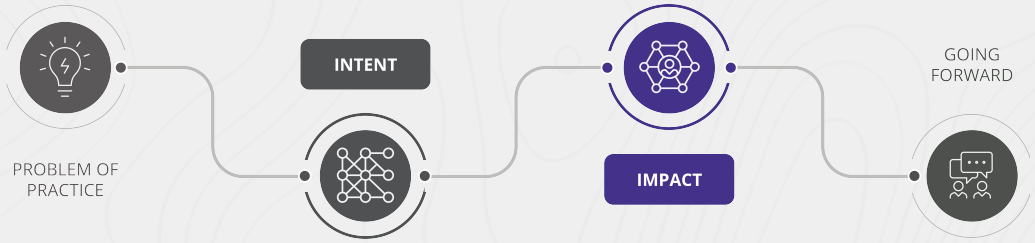
- *Genre*
- *ISBN*
- *Year of Publication Synopsis/Summary Author*
- *Publisher*
- *Number of Pages Awards and Recognitions*
- *Reading Level*
- *Main Themes*
- *Target Audience*
- *Series Information (if applicable) Reviews and Ratings*
- *Similar Books or Authors*



Students exploring the Book Recommendation Chatbot.

Over the course of the project, it was identified that the chat-bot was: (a) frequently recommending the same books regardless of user-input and, (b) providing recommendations without disclaimers of themes such as grief. As a result, the prompts were modified and additional reports were added as sources to support conversations between users and the chat-bot, and to provide more context around books that were available in school libraries. The reports such as: Most Circulated and Title Lists (with notes). It should be noted that results varied, as reports are based on cataloguing and there were variances between sites.

Initially envisioned as an independent tool to support the library catalogue, it evolved into a resource primarily utilized during small group book exchanges. During the tool's implementation, Teacher-Librarians at each school designed and conducted AI sessions that explored machine learning, the evaluation of datasets and the critical review of generated outcomes. For example, students would use the AI chat-bot and assess if: (a) the chat-bot was engaging, (b) if the recommendations provided were accurate and available in the library and, (c) met their interest level. With the opportunity to evaluate the tool, students were empowered to think critically about AI-generated information, deepen their understanding of how personalized recommendations were generated and their relevance to their reading selections.



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Student User Experience

- Approximately, 35% of students rated their experience as four stars or more
- Approximately 60% of students stated they would use this tool again
- The top three categories that were searched using the chat-bot were:
  - 22% of students search by theme/topics (including: Minecraft, LeBron James)
  - 20% of students searched for fiction books by genres (including: fantasy, adventure)
  - 17% of students searched by character/specific books (including: Airbender, Smile)

Middle School Book Recommndation Chatbot spaces.

Teacher/Teacher-Librarians User Experience

- Over 50 Teacher/Teacher-Librarians used the chat-bot to explore the Board's Professional Library
- Approximately, 65% of Teacher/Teacher-Librarians rated their experience as four stars or more
- Approximately 57% of Teacher/Teacher-Librarians stated they would use this tool again

Qualitative Data from Teacher/Teacher-Librarians states:

- "When I explained an inferring activity I wanted to do and was trying to find a book that would fit, it just ignored the context of what I was looking for/what I wanted to do with it"
- "It had difficulty answering questions about reading level and maturity of book content."
- I think the tool is a great idea in its very beginning stages. If it could be toggled between the professional library and school libraries, that could be helpful staff using the tool.

Professional Learning insights

The book recommendation chat-bot sparked strong interest amongst Teacher/Teacher-Librarians, and increased curiosity around how AI can be modelled to support student agency and engagement. Additionally, staff were enthusiastic about learning more and expressed interest in being included in the next iteration of the project.

Going Forward

Based on the feedback from both students and staff, the Project Lead would like to continue and expand the project next year to include more schools and provide opportunities for students to expand their reading options. The following feedback has been synthesized for future planning.

Future Data Collection:

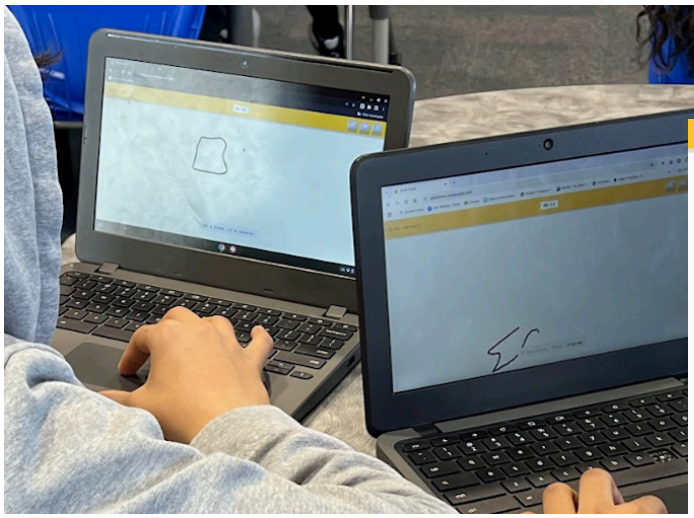
- To support students to reflect on their reading experiences, preferences and interests through the use of placemats and other activities that allow students to track and reflect on their progress over time.
- Questionnaires: Gathering quantitative data on reading habits, preferred genres, current challenges with finding books, what influences their choices, and how they are presently discovering books
- Continuous Recommendation 5-Star Ratings: Implementing "Like/Dislike" or "Helpful/Not Helpful" on a likert scale to determine the effectiveness of book recommendation during the user experience and after the book was completed
- Diversity of Recommendations: Are students being exposed to new genres and authors?
- Reading Completion Rates: Are students finishing the books recommended or are books being returned prior to being completed?

Broaden Recommendation Sources and Diversify the Sample:

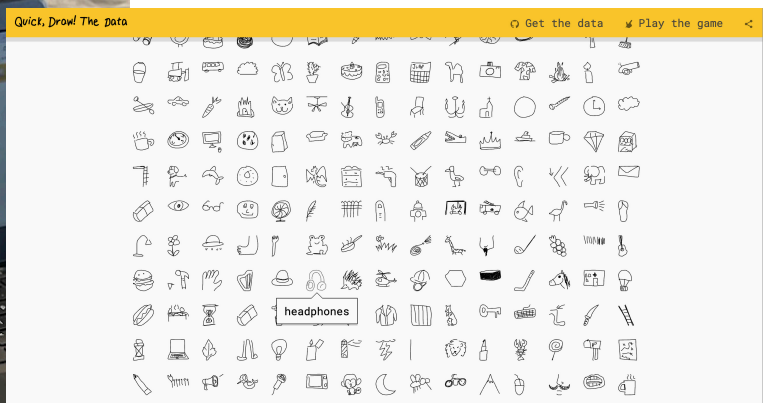
- Integrate more reports and/or databases that will provide additional context for extensive searches.
- Updated searches based on newly cataloged items
- Options to determine if books/materials are presently available in the Library Learning Commons

User Experiences & Prompt Adjustments

- Provide book covers to appear with results
- Provide a synopsis of the book to include themes to provide additional information for students to make an informed decision about selecting books.
- Provide prompts and/or frameworks to support searches for middle school students
- Revise prompts to search the web for additional information when books are catalogued incorrectly.



Students reviewing data sets with Google Quick Draw to reflect critically on variances and relevance of data.



Students exploring machine learning with Google Quick Draw.