



Small TLEF Project – Final Report

Report Completion Date: (2020/04/17)

1. PROJECT OVERVIEW

1.1. General Information

Project Title:	Augmented Reality for Library Literacy		
Principal Investigator:	Wendy Traas		
Report Submitted By:	Wendy Traas		
Project Initiation Date:	April 2017	Project Completion Date:	January 2018

1.2. Project Summary

Augmented reality (AR) refers to “any technology that blends real and virtual information in a meaningful way”¹. This project focused on how AR apps can promote what we term “library literacy” by providing immersive experiences in library collections through the layering of digital resources over physical resources. The AR for Library Literacy project focused on promoting information literacy other skills necessary to be successful library users at two locations on campus: the Education Library and the Chapman Learning Commons. This project provided authentic learning opportunities for graduate and undergraduate students, and made learning and library instruction more sustainable.

We worked with iSchool students in LIBR 535: Instructional Role of the Librarian to develop learning activities in the form of videos and AR targets to engage students within the library’s space and resources at the Chapman Learning Commons and the Education Library. AR technology within site-specific, self-directed library tours enhanced student learning about the library while modeling AR use in an educational context. While the project was in progress, we had the opportunity to continue developing an open source AR app called UBC AR Explore, which we piloted and tested with users. The app has the potential to be further developed and become widely used at UBC, replacing the need to use costly, commercially available AR applications.

¹ Wu, H. K., Lee, S. W. Y., Chang, H. Y., & Liang, J. C. (2013). Current status, opportunities and challenges of augmented reality in education. *Computers & education*, 62, 41-49.



1.3. Team Members – (Please fill in the following table and include students, undergraduate or graduate, who participated in your project).

Name	Title/Affiliation	Responsibilities/Roles
Alex Kuskowski	Learning Services Librarian, Irving K. Barber Learning Centre,	Project coordinator (with Wendy Traas)
Jo-Anne Naslund	Librarian, Education Library (retired)	Advisory
Dr. Eric Meyers	Assistant Professor, School of Library, Archival and Information Studies	Instructional design support, oversee graduate students, assignment design.
Chris Ball	Head, Education Library (retired)	Advisory
Yvonne Dawydiak	Technology Integration Mentor & Manager, Faculty of Education	Promotional and educational support
Dr. Natasha Boskic	Senior Manager, Educational Technology Support, Faculty of Education	Advisory
Dr. Marianne McTavish	Senior Instructor and Literacy Coordinator, Faculty of Education	Advisory
Allan Cho	Community Engagement Librarian, Irving K. Barber Learning Centre	Advisory
LIBR 535 students		Design instructional content in AR format
Emily Fornwald and Lise Neilsen	SLAIS students	GAAs, Project Coordinators
Dr. Joseph Anthony, Dr. Bernie Garrett		Consultants for application development
Eric Lee		Application developer

1.4. Courses Reached – Please fill in the following table with past, current, and future courses and sections (e.g. HIST 101, 002, 2017/2018, Sep) that have been/will be reached by your project, including courses not included in your original proposal (you may adapt this section to the context of your project as necessary).

Course	Section	Academic Year	Term (Summer/Fall/Winter)
LLED 350	All	2017-2018	Sept 2017, Sept 2018
LLED 360	All	2017-2018	Sept 2017, Sept 2018
LIBR 535	All	2017-2018	Jan 2017 and Sept 2018
First year students using the Chapman Learning Commons	N/A	2017-2018	N/A



2. OUTPUTS AND/OR PRODUCTS

2.1. Please list project outputs and/or products (e.g. resources, infrastructure, new courses/programs). Indicate the current location of such products and provide a URL if applicable.

Product(s)/Achievement(s):	Location:
UBC AR Explore [application]	Code available: https://github.com/ericlee49/ubc-ar-library-project
UBC AR Explore App Instructional Guide [video]	UBC Learn YouTube Channel https://www.youtube.com/watch?v=pPD0cLdvjyQ#action=share AR Resources Guide http://guides.library.ubc.ca/arresources
Aboriginal Curriculum Materials at Xwi7xwa Library [video]	https://guides.library.ubc.ca/arresources
Finding Indigenous Children’s Books [video]	https://guides.library.ubc.ca/arresources
Get to know the Education Library website [video]	https://guides.library.ubc.ca/arresources
Picture books: Welcome to the PZ4.9 section! [video]	https://guides.library.ubc.ca/arresources
Fiction: Welcome to the PZ7 section! [video]	https://guides.library.ubc.ca/arresources
Welcome to the French Collection [video]	https://guides.library.ubc.ca/arresources
Canadian Children’s Book Centre Collection [video]	https://guides.library.ubc.ca/arresources
Puppet Collection [video]	https://guides.library.ubc.ca/arresources
Finding Resources in your Subject Area [video]	https://guides.library.ubc.ca/arresources
AR Tour Map (Education Library) [thinglink: interactive digital map]	http://guides.library.ubc.ca/c.php?g=696670&p=4954608
Teaching with AR: Resource list for educators	http://guides.library.ubc.ca/c.php?g=696670&p=4955068
Aurasma for Augmented Reality [handout]	Education Library (see appendix)
History of the Chapman Learning Commons [video]	UBC Learn YouTube Channel https://www.youtube.com/watch?v=WJ2Xg-2Dksk
Borrowing Equipment (Chapman Learning Commons) [video]	UBC Learn YouTube Channel https://www.youtube.com/watch?v=aXyqJz5L_OY

2.2. Item(s) Not Met – Please list intended project outputs and/or products that were not attained and the reason(s) for this.

Item(s) Not Met:	Reason:
Web analytics support from CTLT	We aimed to build this function into the development of a new app.



3. PROJECT IMPACT

3.1. What were you hoping to change or where were you hoping to see an impact with this project? – Please list the intended benefits of the project for students, TAs, instructors and/or community members.

The Augmented Reality for Library Literacy project identified the following four goals:

- Engaging, self-directed approach to learning about library spaces and resources.
- Sustainable library instruction
- Authentic learning experiences for SLAIS students
- Modeling of emerging educational technology for teacher candidates

The first two goals were accomplished through the creation of high quality video resources that students have used to learn about library resources. These resources allow students to access video information by connecting through their own smartphone or tablet. Library instruction is more sustainable through the use of these resources as they allow librarians to quickly and easily provide information about commonly used resources. At the Education Library, the bank of learning resources have been used to onboard student librarians, during orientation sessions for teacher candidates, and in flipped classrooms for library instruction. At the Chapman Learning Commons, students may connect to information via downloading an app and scanning an informational poster.

The project was also successful in providing authentic learning experiences for SLAIS students who were tasked with designing AR-based learning objects as part of their LIBR 535 course assignments. Working with Wendy Traas and Alex Kuskowski, Dr. Eric Meyers oversaw two classes of students in the creation of AR activities, many of which continue to be incorporated into instructional sessions and resource guides. In addition to designing learning experiences through AR, students were assessed on how well they collaborated with librarians. Students had the opportunity to learn about AR while working in the real context of a multi-branch academic library.

The primary users of the Education Library are teacher education students. In light of the current BC curriculum that includes Applied Design Skills and Technology, we set an additional goal to model the use of an emerging educational technology to support the development of their teaching practice. Instructional sessions sparked discussion about the benefits and drawbacks of incorporating this kind of technology into the classroom, and generated ideas about how it could be applied across subject areas.

3.2. Were these changes/impacts achieved? How do you know they occurred? – To what extent were intended benefits achieved or not achieved? What evaluation strategies were used? How was data collected and analyzed? You are encouraged to include copies of data collection tools (e.g. surveys and interview protocols) as well as graphical representations of data and/or scenarios or quotes to represent and illustrate key themes.

The video resources created as part of this project continue to be well used in library instruction at the Chapman Learning Commons and the Education Library. The chart below identifies the number of



views for each video on YouTube. Videos marked with an asterisk (*) are used in the Education Library orientation program, which required students to work in groups. Considering this, the number of individual viewers on these items is likely much higher.

Video Resource	Views as of April 1, 2020
UBC AR Explore App Instructional Guide [video]	168
Aboriginal Curriculum Materials at Xwi7xwa Library [video] *	61
Finding Indigenous Children’s Books [video] *	103
Get to know the Education Library website [video] *	103
Picture books: Welcome to the PZ4.9 section! [video] *	120
Fiction: Welcome to the PZ7 section! [video] *	167
Welcome to the French Collection [video] *	178
Canadian Children’s Book Centre Collection [video] *	96
Puppet Collection [video] *	131
Finding Resources in your Subject Area [video] *	116
History of the Chapman Learning Commons [video]	122
Borrowing Equipment (Chapman Learning Commons) [video]	118

The UBC AR Explore app was developed as part of this project, and was available on the App Store for iOS devices. As part of its development, user testing was done with students in the Education Library and the Chapman Learning Commons. Students engaged in brief activities using the app and then answer questions about its usefulness to connect with information about library resources and spaces. The images below show the results of user feedback. Overall, students enjoyed using the app and would do so again. Some of their concerns included privacy considerations, availability for Android devices, and uncertainty about repeat use.²

² For more information, complete slides are available here: https://docs.google.com/presentation/d/1tRg3_8O_aKgZ9n69L-U_GSWwp4nKRHPaKSUXCCf41c/edit#slide=id.g2865aa70c3_0_1

Survey & Data Collection

We conducted several surveys with students, staff and community members about the app.

44 respondents

- 31 students
- 13 Teacher Candidates
- 2 other

Did you enjoy using the app?

Response	Count	Percentage
Yes	38	88.4%
No	2	4.7%
Undecided	3	7.0%
Total: 43		

Did you learn to use the app quickly?



Were you able to connect to the resource efficiently?



Room for Improvement

Comments

Unavailable for Android yet

Scanning is new to me

Hard to sense pay for print. Does it collect my location data? Privacy concerns

Once I download the app and use it I might not save the app on my phone (delete after use)

Was it easy to scan the targets/posters?



The Good News

Would you use the UBC AR Explore app to be connected to different resources in the future?

Response	Count	Percentage
Yes	32	80.0%
No	4	10.0%
Undecided	4	10.0%

Do you think using the UBC AR Explore app on campus is a good idea?

Response	Count	Percentage
Yes	34	85.0%
No	1	2.5%
Undecided	5	12.5%
Total: 40		



3.3. Dissemination – Please provide a list of **past** and **upcoming** scholarly activities (e.g. publications, presentations, invited talks, etc.) in which you or anyone from your team have shared information regarding this project.

- VR/AR User Group – Presentation, October 13, 2017. Presentation to showcase how UBC AR Explore is used in library learning environments.
- Augmented Reality Lunch and Learn, January 12, 2018. Presentation to showcase the AR for Library Literacy project for Library and other UBC staff, faculty, and employees.
- iSchool Research Day, March 9, 2018.
- TLEF Showcase, May 3, 2018. Poster presentation.
- ASIS&T Conference, November 12, 2018. Poster presentation. Peer reviewed.

4. TEACHING PRACTICES – Please indicate if **your** teaching practices or those of **others** have changed as a result of your project. If so, in what ways? Do you see these changes as sustainable over time? Why or why not?

The Augmented Reality for Library Literacy project was explored augmented reality as an instructional delivery methods. Our work became a starting point to employ other educational technologies that can support self-directed exploration. AR activities were employed in the Education Library’s orientation program in fall 2017 and 2018. In 2017, we used UBC AR, and in 2018 we use Aurasma, now called HP Reveal. While the Education Library no longer uses AR as part of orientation programs for teacher candidates, instructional librarians continue to employ a large portion of digital content that was created as part of the project. In fall 2019, Education librarians employed a Qualtrics survey to embed these instructional videos into orientation programming. AR scavenger hunts continue to be used as part of onboarding for student librarians at the Education Library.

As with the Education Library, the Chapman Learning Commons is no longer using the UBC AR app. This decision was made in light of the app’s limited functionality for Android users. However, as with the Education Library, all of the video resources that were developed as part of the project have either been embedded on the CLC website or repurposed so they are still available. The CLC transitioned to using QR codes to connect with the video resources, which has been popular with students.

5. PROJECT SUSTAINMENT – Please describe the sustainment strategy for the project components. How will this be sustained and potentially expanded (e.g. over the next five years). What challenges do you foresee for achieving the expected long-term impacts listed above?

The AR for Library Literacy project allowed us to experiment with emerging educational technologies in library learning contexts. The unexpected opportunity to develop an AR app for use at UBC led us to set a foundation for the wider use of AR at UBC. The code has been shared on GitHub. While the Library does not have resources to continue developing the app, we hope that this work is a helpful starting point for other developers to build upon for future AR teaching and learning projects.



The extensive video content created through the AR for Library Literacy development continues to be deployed in the Education Library and Chapman Learning Commons as part of orientation programming and self-directed wayfinding. The project has provided a model for working with student employees in the ongoing maintenance and creation of new video content. Since the completion of the project, for example, the CLC's YouTube channel³ has introduced a number of new and updated instructional videos on topics such as adding funds to your Pay For Print account and an introduction to the CLC DIY Media Studio.

In summary, the project allowed for a great deal of experimentation with augmented reality to help link students to information in library settings. It also allowed us to share the learning and provide authentic work experiences for iSchool students. While AR is no longer widely used as part of instructional programming in the two library locations, the learning resources developed as part of the project continue to be an important component of the instruction program at the Education Library and the information landscape at the Chapman Learning Commons.

³ <https://www.youtube.com/user/UBCLEAP/featured>