Cairn: Using Digital Markers to Bridge Learning Communities

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Abstract

Cairn is a proposed geo-social networking mobile application that could help people search for, find, participate in, and tag learning communities, events, and artifacts. The goal of Cairn would be to enable users to find others with whom they can study, attend learning events, and share learning related artifacts, such as museum exhibits or historical markers. The primary target audience would consist of post-secondary students; the secondary target audience would be recent graduates and young professionals. Cairn is proposed to be a native mobile app integrated with existing web-based interest and/or social networks. This paper presents a design exploration, including an overview of the relevant sections of the Information and Communications Technology (ICT) geo-social and learning markets, eight key features identified by focus groups and interviewees, a case informed by user research, and possible directions for prototype development and integration with So.cl.

Keywords: mobile app, interest network, geo-social network, informal learning, post-secondary education

Introduction

Cairn is a proposed geo-social networking mobile app that would help people search for, find, participate in, and tag learning communities, events, and artifacts. Cairn would enable users to find others with whom they can study, attend learning events, and share learning related artifacts, such as museum exhibits or historical markers. Cairn is proposed to be a native mobile app, not a web-based app; however, it could be integrated with an existing web-based application like Microsoft Research's So.cl.

The primary audience for Cairn would be the post-secondary student. Students attending large community colleges and universities often have difficulties finding appropriate resources to improve their learning experiences outside the classroom. Undergraduates can feel lost in a sea of students (especially in large introductory courses), overwhelmed by available opportunities, and unsure about how to make connections that will facilitate their academic success.

Cairn's secondary audience would be the recent graduate or young professional. Recent graduates entering the work world may find their social networks significantly limited compared to the contacts they enjoyed during their student days. They may also be transferring knowledge from an academic to a practitioner ecosystem and need support in doing this (Candy & Crebert, 1991).

ICT Geo-Social and Learning Market: Brief Overview

Geo-Social Networking Apps

The Information and Communications Technology (ICT) geo-social market currently consists of popular check-in enabled apps such as Foursquare and Yelp, lesser-known apps such as Loopt Mix, WhosHere, Friendthem, and Groupie, and dating apps provided by online sites like OkCupid, Blendr, and Grindr.

Additionally, Meetup offers both a website and an app designed to enable users to connect with one another based on shared interests. Facebook offers Places and integrates with several existing mobile geo-social networking apps such as Instagram.

None of the services listed above provides a user the capability to find another person on the basis of shared academic goals or specific learning interests, nor do any of these services enable a user to find a specific learning event or artifact. Meetup comes closest, but it is not designed to interface directly with a user's registration in a formal learning institution, such as a college, university, or professional program.

Educational Apps

Currently available educational apps may be divided into games (e.g., electronic flash cards and puzzles), mnemonic aids, and subject-specific guides. That is, most educational apps focus on content rather than learning experiences or opportunities. Moreover, the majority of these apps are geared toward younger users; one study found that over 80% of educational apps available in the iTunes App Store are created for users between the ages of toddlers and high school students with all educational apps for young children exceeding apps for adults by almost 20% (Schuler, 2012). Educational apps geared towards older teens and young adults remain elusive.

An Empty Space: Geo-social Networking and (Informal) Education

Cairn would fill a gap in the geo-social networking and educational apps markets. Although many apps using geo-location services enable people to meet one another and even to create communities around shared interests, very few explicitly tie formal learning objectives to informal learning opportunities. The exceptions include:

- In 2011, Arizona State University deployed an app similar to Cairn specifically for their online students. Spark enables online students to arrange face-to-face meetings with other ASU Online students and staff to discuss homework and assessment in a digital space accessible only by members of their immediate learning community (Kawam, 2011).
- In February 2011, OpenStudy was released from beta to production, quickly registering tens of thousands of (mostly secondary) students. Using principles of gamification, OpenStudy enables students all over the world to create profiles, ask questions, study subjects, and earn badges (Tsotsis, 2011). OpenStudy has recently begun to offer enrollment in massive online open courses (MOOCs) and grant related certifications for a fee.
- Also in 2011, Ryerson University Computer Science students developed Longitude, a web-based and mobile app that enables students to find each other based on proximity, communicate with one another via chat, phone, and video, and create shared, tagged maps ("Student-developed geo-social," 2011).
- In 2012, students at the University of Washington working with the university's IT department developed SpaceScout, which helps UW students find study spaces based on selected criteria.

These apps, however, are either limited to specific institutions' online learning communities (Spark), focus exclusively on online relationships (OpenStudy), have not yet been released (Longitude), or meet more finite requirements (SpaceScout) than Cairn would. What would set Cairn apart is its emphasis on tying post-secondary academic goals and informal learning opportunities to a user's interest networks in real life.

Assessing and Meeting Market Needs

User Research

We held three focus groups and nine one-on-one interviews with undergraduates and graduates at the University of Washington and undergraduates at North Seattle Community College to discuss the

prospects for an app such as Cairn. Students expressed interest but raised issues about privacy, information overload, and integration with existing applications. Further probing about these concerns provided guidance for a next stage in exploring design considerations and developing a use case.

Design Explorations

From our interviews and focus groups, we identified eight design features that students believe would create utility for Cairn users. These are summarized below in order of importance.

Authentication
Using an existing authentication system would increase a user's sense of privacy and protection. For example, in the case of the University of Washington, only users with a UW Net ID would be permitted to connect with Cairn services related to UW courses and students. Ideally, Cairn would work with a variety of authentication systems including those used by tertiary learning institutions and professional networks.

People Finder
Essential to the success of Cairn would be the capability to find other users within one's proximity. By finding people who are interested in and studying the same subjects, a user can broaden his interest and social network, help to contribute to and invest in a learning community, and move one step closer to meeting his personal and professional learning goals.

Event Finder
The capability to find events, such as speaker series, museum talks, plays, and performances related to one's learning objectives would also be essential to the success of Cairn. However, as noted by several of our interviewees, this feature is most important when ample notice is given and a calendar integration feature is available.

Calendar Integration
Many of our interviewees were interested in calendar integration. Several said this would be one of the most valuable features as they currently have challenges managing all of the events they hear about via email, listserv, and word of mouth.

Opt-in and Opt-out
Being able to opt in and out of Cairn at different times would be an important feature because students want to control when their activities may be viewed by classmates, other students, or other professionals. Opting out not only protects one's privacy but also provides for the control of information flow. The opt-out feature would be universal in that all geo-location notifications would be turned off during opt-out times.

Artifact Finder
Introverted users, in particular, have indicated that they might like finding and tagging artifacts, such as museum exhibits, historical markers, botanical gardens, and artwork. The learning opportunities offered by artifacts can easily be overlooked; however, some students and instructors have indicated interest in connecting course content and discussions with related items beyond the classroom. Additionally, one interviewee, who currently works as a wine steward, said she would find this feature extremely helpful in her professional life and interest network.

Tagging and Commenting
A feature that enables users to comment upon and tag events and artifacts would enable personalization and increase engagement. Collaboration and contribution would be important to the robustness of an app like Cairn.

Push Notifications
When enabled, push notifications could serve two purposes: to alert users of people, events, and artifacts within proximity, and to remind users of the benefits of Cairn even when it is not open.

Use Case

Nico is a University of Washington freshman currently enrolled in Economics 101, a large lecture class with over 200 students. Nico's professor mentions an app called Cairn that enables her to connect with other UW students studying economics. Nico downloads the app and opts-in. The next time she is studying at Starbucks on the Ave, she receives a notification that three other students in the cafe are also studying economics, and they are willing to meet others to study together. Nico uses Cairn to message all three students. Two students reply, identifying themselves, and ask her to join them. They happen to be studying economics together and are happy for Nico to contribute.

After her study session at Starbucks, Nico walks back to campus. As she passes the Henry Art Gallery, she receives another notification from Cairn. The app tells her that a current exhibit includes a display discussing the economics of fine art print sales. Nico decides to look at the exhibit and tags it as being of interest to other students. Before she leaves the gallery, she receives a notification about an upcoming lecture, and she adds this to her calendar. She then opts out of the app for the next 12 hours so that she will not be disrupted during her afternoon classes.

Conclusion

Most young adults, especially females, feel more comfortable with mobile technology and social media than they do with traditional ICT solutions (Lenhart et al., 2010). Because mobile phones are ubiquitous, Cairn would afford the opportunity for the targeted audience to use the technology with which they are most comfortable to broaden their learning and interest networks. Cairn would also provide an opportunity for users to connect formal learning objectives with informal learning events and experiences. Cairn would not provide educational content but rather draw attention to and enable young adults to connect with learning opportunities that already exist in their communities, but which might otherwise go unnoticed.

So.cl provides users an opportunity to create connections and communities based on shared interests rather than existing relational networks. Cairn, too, would build on the idea of interest communities by extending learning beyond the classroom and a set of structured objectives to informal opportunities and personal interests. A possible integration with So.cl would allow Cairn users to leverage their existing interest network on So.cl, employ Bing to find additional learning opportunities, and share their findings with an extended interest network. This kind of integration may also increase user participation and engagement for both So.cl and Cairn.

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