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Ok, library

Implications and opportunities for Google Glass

Creepy or cool. These are the two most common words we hear when sharing Google Glass with the Claremont Colleges Library (CCL) user community, more often than not in the same sentence. What's behind these polarized reactions, and why would a library want Glass to begin with?

First, a bit of background: Google Glass is a wearable computer that is structured like a pair of glasses. It features a small digital "screen" projected onto a prism positioned slightly above the right



Author Dani Brecher wearing Google Glass.

eye, and a touchpad built into the frame. Through a combination of touch, kinetic, and voice commands and a timeline-like visual interface, Glass allows users to explore the Internet, capture media, check and send e-mail, and make video calls.² It relies heavily on a data connection, and can access the cloud via Wi-Fi or through a smartphone's data plan (Bluetooth or mobile hotspot). More complex functionality is obtainable by installing "Glassware," additional applications that serve specific functions much like apps on a smartphone.³

Like virtually any emerging technology, Glass provides interesting potential use cases

for libraries and higher education. However, its pervasiveness in the current cultural conversation intensifies the usual challenges of justifying device acquisition and avoiding fad-based decision-making.

Since its release in early 2013, Glass has come to represent far more than a technical innovation:

it has sparked controversies related to privacy, awkward social interactions with "Glassholes," the legality of wearable technology, and technoelitism along gender, racial, and class

privilege lines.⁴ Over the past year, early library adopters have begun to grapple with Glass within this context, confronting everything from the usual program design challenges to the unusual implications of appearing to "endorse" a socially fraught Google product.

In late 2013, one of the authors was invited to become one of these early adopters,

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joining an estimated 40,000 “Explorers” as part of the second wave of Google’s pre-public release program. After considerable deliberation, CCL purchased Glass with the goal of circulating it widely among students, faculty, and staff in an effort to provide access to an expensive and relatively rare technology. To mitigate the potential for uncritical endorsement, a conscious element of this program has been to invite users to engage in productive dialogue about the technological and social implications of wearable technology as they explore Glass’ pedagogical, academic, and research applications. This article examines the structure, implementation, and early outcomes of Claremont’s Glass program, and considers its broader implications for emerging technology programming in academic libraries.

A (very) brief history of wearable technology

Whether in fiction or reality, wearable technology is by no means novel. Calculator watches debuted in the mid-1970s, spies and superheroes have been sporting shoe phones, x-ray specs, and communicator watches in Hollywood films since the ‘60s, and embodied (or embedded) devices have been a frequent presence in science fiction.

The first wearable computer was created by Edward Thorpe and Claude Shannon in 1961. The pair developed a foot-operated device for predicting roulette outcomes, increasing the odds of winning by 44%.⁵ From the

beginning, wearable devices have introduced serious ethical considerations—a trend that certainly continues with Glass.

Direct predecessors of Glass were created by Thad Starner and Steve Mann at MIT as early as 1993.⁶ Today, a wide variety of wear-

able devices are on the market, with the industry predicted to be worth \$19 billion by 2018.⁷

Glass in libraries

Among the many wearables now available to consumers, Glass seems to be gaining the most traction in libraries. In our opinion, this is due to Glass’s unique research and information discovery potential, its ability to be constantly reset and linked to new users’ accounts, and innovative design affordances that seem to capture the popular imagination. However, Google’s exclusive “Explorer” program,⁸ combined with the unit’s steep cost (about \$1,600), has kept dissemination relatively slow.

Because the device is still technically in beta testing, Explorers are “invited” to purchase Glass by referral—by way of

example, one of the authors received their invitation from a librarian at another university, bought Glass, then passed the three resulting invites along to other librarians. This brilliantly engineered (some might say “diabolical”) marketing strategy all but assures a user community based on exclusivity and shared desire, a dynamic now being replicated in the library world and academia.⁹ To date, most uses of Glass in academic libraries are repre-

Honnold/Mudd Library
February 7

Check out Nick using Glass from today's Hands-On Learning Workshop at Pomona College. We had terabytes of fun sharing Glass with everyone.



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Honnold/Mudd Library Want to get your hands on Glass? This is how: <http://libraries.claremont.edu/glass.asp>

Google Glass @ the Claremont Colleges Library - libraries.claremont.edu

Starting in Spring of 2014, the Library will be exploring the teaching, learning, and research potential of Google Glass.

February 7 at 7:19pm · Like

Wesley Will be testing Glass for academic/research purposes in late March/early April. Can't wait! [View photo](#)

February 7 at 8:02pm · Like · 1

Marketing Glass via social media. View this article online for more detailed images.

sented by one or more of the following three categories: pedagogy and research,¹⁰ community lending,¹¹ and application development.¹²

Glass project development and promotion

In developing a Glass project at CCL, the authors had two main goals: to get Glass on as many faces as possible, and to create a forum for critical conversations about the issues surrounding it and other wearable technologies.

To determine whether loaning the device was feasible on our campuses, a week of initial testing was necessary.

One important caveat: Glass would not currently connect to Wi-Fi networks that require a username or a browser authentication step, but instead relies on password-only networks.¹³ Glass also requires Google ID credentials in order to identify users with Glass, making anonymity all but impossible: at Claremont, an institutional “mothership” account provided a workaround for local demonstrations. Glass can easily be reset and wiped of stored data, thus facilitating circulation to patrons who sign in with their own Google IDs.

For marketing purposes, we created a simple webpage with information on the program linked from the library homepage¹⁴ and promoted the project through the library’s monthly publication,¹⁵ social media, and local blogs.¹⁶ Word-of-mouth is one of the

principal ways that the Colleges have learned about the library’s Glass project, however, as there is a high current desirability factor. The Claremont student newspaper wrote a positive unsolicited piece on the program soon after its inception,¹⁷ and a faculty member who tested Glass reported that not only are “all” of her media students aware that the library owns the device, they also know the current waiting period to obtain it.

Following testing and marketing, we began to raise interest in Glass by holding demonstrations of the technology, both open work-



Google Glass workshop at Pitzer College captured #throughglass.

shops in the library¹⁸ and to targeted groups of instructional technologists and faculty. Sessions include an overview of Glass, basic hands-on use (e.g., find and

play a cat video), and a discussion of first impressions, controversies, and possible applications. Most have been filled to capacity, and post-session surveys tend to indicate enthusiastic appreciation for the opportunity to use the device.

Glass defaults to obligatory photo and video sharing on Google+ with a hashtag of #throughglass. Much Glass activity from demonstrations and meetings, therefore, posts to a CCL Google+ account. While settings can be adjusted to (mostly) prevent this phenomenon, it does provide a useful documentation tool that leads to modest hilarity, including inadvertent office floor photos and awkward nostril shots.

After a month of Glass demonstrations, an online application was made available for any student, faculty, or staff member of the Claremont Colleges to request to use Glass for up to five days.¹⁹ The form asks for basic demographic data and a brief summary of how the applicant intends to use Glass. At the time of publication, we have received more than 30 Glass applications (or more than seven continuous months of five-day loans), 85% from students.²⁰ Applicants have proposed diverse Glass pursuits, including mathematics app development, environmental fieldwork, tutoring, promotional videos, language learning, and academic productivity, but above all curiosity-based exploration.

Applications are weighed on a basis of practical

academic utility (more specific proposals are given priority) and desired user timeline. Each user submits a loan agreement that accepts full financial liability and consents to network use guidelines.²¹ After Glass is returned, participants are asked to fill out a feedback form.²² Between each loan we reset the unit to factory settings, thus removing individual data and credentials.

Critical discussion being a major goal of the program, in fall of 2014 CCL will begin a third implementation phase focused on fostering formal academic dialogue about Glass and wearable technology. The central event will be part of Claremont Discourse, a series of library-sponsored faculty lectures that features an annual Constitution Day panel; this

year's Constitution Day event is tentatively titled "Privacy in the Age of Google Glass." In addition, we plan to host a symposium inviting users who borrowed Glass to reflect on their experiences and report on projects that used the technology.

Community reaction and user applications

Despite modest internal skepticism at the outset of the project, community reactions to Glass have been nothing short of amazing. We hypothesized interest from STEM, media studies, and psychology students/faculty, and IT

staff significant enough to justify the purchase, but were not prepared for the relative deluge of user applications and over-



Potential Glass applications brainstormed in hands-on demo sessions.

capacity demonstration attendance. Several months in, applications remain robust, class invitations by faculty continue to arrive, and the Keck Graduate Institute plans to test Glass's affordances relative to their developing online liberal arts degree program, Minerva.²³ Perhaps most tellingly, users invariably want photos of themselves *wearing* Glass (as opposed to taking photos *with* Glass).

It is clear that although distinct parts of our community react differently to mass-market wearables, the tenor of the conversation is one of almost universal interest (be it aversive or enthusiastic). We find that those concerned about privacy and social interaction implications are just as engaged as those who believe Glass (and related technologies) will revo-

lutionize lived experience. Moreover, these groups are eminently capable of carrying on a healthy dialogue with one another.

Workshop discussions of first impressions of Glass as well as its potential applications confirm this amicable tension. On the one hand, “creepy” reactions related to privacy, design factors,²⁴ and questioning Glass’ basic utility tend to be as (or more) dominant as the “cool” camp. Similarly, imagined applications run the gamut from surgery and ethnography to, ahem, academic dishonesty and porn.

Libraries and equitable access to emerging technology

At a recent Glass demonstration in a media studies seminar, a student challenged us with this question: “How do you, as a library, not implicitly endorse Glass by purchasing and lending it?” Subjectively speaking, there is no way to avoid implicit endorsement when you purchase a piece of technology and build a public program around it. At the same time, libraries have a long objective history of providing access to materials that their staff and user public may not necessarily agree with on principle.

In this sense, it is interesting to consider whether and how Ranganathan’s foundational doctrines that every reader her/his book and every book its reader²⁵ (or better yet, the Library Bill of Rights²⁶) extends to technology itself, especially at its scarcest and most expensive. As we make decisions about providing this or that tablet or developing apps for different operating systems, walking a fine line between access and endorsement is becoming more common in academic librarianship. At the same time, modern libraries are full of technology of all kinds, and purchase decisions are arguably more often fueled by practicality than preference.

In the post-2.0 era, meeting scarcity-based user demand for big ticket items like Glass and 3-D printers through labs or loans seems to be a prominent developing model. In this approach, scarcity and demand are operative concepts: it is essential to identify what is truly desired and its potential positive impact on a

community while acknowledging the risks of obsolescence and perceived partiality. Claremont’s early experience with Glass indicates that providing access to the interesting and inaccessible can be quite successful, and that endorsement effects can be moderated by encouraging broad (rather than elite) experimentation and dialogue about the complex and inherent ramifications technology itself.

Notes

1. Contributions to this article by the authors were equal (however, the same cannot be said about their mutual enthusiasm for Google Glass).

2. See www.brillen-sehhilfen.de/en/googleglass/ for a descriptive diagram of Google Glass.

3. Rachel Metz, “OK, Glass, Find a Killer App,” *MIT Technology Review*, January 2, 2014, www.technologyreview.com/news/522586/ok-glass-find-a-killer-app/.

4. For a critical review, see Simson Garfinkel, “Glass, Darkly,” *MIT Technology Review*, February 17, 2014, www.technologyreview.com/review/524576/glass-darkly/. For perspectives on Glass and gender, see Sascha Segan, “Google Glass’s White Male Problem,” *PC Magazine*, May 1, 2013, www.pcmag.com/article2/0,2817,2418415,00.asp and <http://whitemenwearinggoogleglass.tumblr.com/>.

5. Edward O. Thorp, “The Invention of the First Wearable Computer,” In *Digest of Papers, Second International Symposium on Wearable Computing*, 4–8, Pittsburgh, PA, 1998, <http://graphics.cs.columbia.edu/courses/mobwear/resources/thorp-iswc98.pdf>.

6. Steve Mann, “Through the Glass, Lightly,” *IEEE Technology and Society Magazine* 31, no. 3 (Fall 2012): 10–14. For more on the history of wearable technology, see Paul Miller, “Project Glass and the Epic History of Wearable Computers,” *The Verge*, June 26, 2012, www.theverge.com/2012/6/26/2986317/google-project-glass-wearable-computers-disappoint-me.

7. Kim Nursall, “The World of Wearable Technology,” *The Spectator*, January 31, 2014:

M30. For more on the current state of wearable tech, see Bill Wasik, "Why Wearable Tech Will Be as Big as the Smartphone," *Wired*, January 2014, www.wired.com/gadgetlab/2013/12/wearable-computers/. A competitor to Glass known as Icis was recently debuted, claiming to present a more elegant "nose-perched wearable device" experience; see Chris Matyszczyk, "Icis: It's like Google Glass, but Classy," CNET, February 18, 2014, http://news.cnet.com/8301-17852_3-57619039-71/icis-its-like-google-glass-but-classy/.

8. See <https://plus.google.com/u/0/+GoogleGlass>

9. To date, the most visible library interest group is the "Libraries and Glass" Google+ community: <https://plus.google.com/u/0/communities/100085743146592155743>

10. Libraries collaborate with faculty/students/IT staff to apply Glass in small-scale teaching and research scenarios. Miami University, NCSU, and Virginia Tech are good examples of variations on this model, while Yale University Library recently announced a similar program.

11. Similar to Claremont, several academic libraries are circulating Glass more broadly, including the University of Colorado-Boulder (<http://ucblibraries.colorado.edu/glass/>) and Nevada State College (<http://nsc.nevada.edu/8534.asp/>). Glass's terms of sale don't explicitly forbid it (<https://www.google.com/glass/terms/>), and these institutions seem to be comfortably extending the first sale doctrine to the wearable technology arena.

12. Libraries purchase Glass in order to test and develop applications via Google's Glass API. Programs such as the geo-discovery of library collections initiative at the University of Virginia illustrate groundbreaking activity in this area (see: <http://eduiconf.org/sessions/geo-discovery-of-library-collections-with-google-glass/>).

13. Because Glass is highly dependent on a data connection for the majority of its functionality, this limitation creates a significant barrier to use on many campuses (duly reported to Google). Fixes include using a password-only campus network, Bluetooth

pairing to a mobile device, or creating a mobile hotspot on a smartphone.

14. See <http://libraries.claremont.edu/glass.asp>, and gratitude to the University of Colorado-Boulder University Libraries for inspiration on structure and content.

15. *Claremont Colleges Library Graffiti* 11, no. 4, February 2014, <http://ccdl.libraries.claremont.edu/cdm/ref/collection/lea/id/262>.

16. Char Booth, "Google Glass @ the CCL," *Claremont Colleges Library News*, January 24, 2014, <http://news.libraries.claremont.edu/2014/01/google-glass-the-ccl.html>.

17. Julia Thomas, "Library to Lend Google Glass," *The Student Life*, February 14, 2014, <http://tsl.pomona.edu/articles/2014/2/14/news/4709-library-to-lend-google-glass>.

18. For example, see <http://claremont.libcal.com/event.php?id=572892&hs=a>.

19. See <http://bit.ly/CCLglass>

20. Demand at Claremont has been sufficient to justify the purchase of two additional pairs of Glass, as well as an Android tablet to increase device functionality; the authors wish to acknowledge that a library budget robust/flexible enough to sustain this outlay is in and of itself a relative and privileged rarity.

21. See <http://bit.ly/CCLGlassLoan>.

22. See <http://bit.ly/ccl-glassfeedback>.

23. For more on Minerva, see Anya Kamenetz, "Harvard-Size Ambitions" *Education Life*, November 1, 2013, www.nytimes.com/2013/11/03/education/edlife/minerva-strives-for-affordable-elitism.html and <https://minerva.kgi.edu/>.

24. In fact, many find the experience of wearing Glass physically unpleasant, particularly those with corrective lenses or visual disabilities. Google has recently released corrective lens versions of Glass to address the former (if not the latter).

25. "Five Laws of Library Science—Wikipedia, the Free Encyclopedia," http://en.wikipedia.org/wiki/Five_laws_of_library_science.

26. ALA, "Library Bill of Rights," June 18, 1948, <http://acrl.ala.org/techconnect/wp-content/uploads/2012/11/libraryvalues.png>. 