Collaboration with Mobile Media – Shifting from 'Participation' to 'Co-creation'

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Abstract

While mobile social networking applications such as Twitter and Facebook have opened new possibilities for human interaction, the wellspring of potential for learning and collaboration with social media networks has barely begun to be tapped. Although these applications encourage people to be persistently aware of what friends and acquaintances do or care about, rarely do they foster a persistent sense of "doing" or "caring" together. We propose that social mobile applications to support distributed learning communities would benefit from a shift in framing, away from the popular "participation" model of mobile media to a "co-creation" model. We describe a mobile media application under development that supports collaboration via mobile media co-creation called "Mobltz."

1. Introduction

Perhaps the most notable difference between mobile media and prior digital media formats is the ability of today's smart phones to capture, send, view and submit audio, video and images to other mobile users or web applications *from anywhere*. For the first time, one's social media networks are persistent across time and place. It is not surprising, therefore, that most applications harnessing mobile media have focused on the ability to show others what one is doing or seeing and to comment on each others posts (e.g. Twitter, Twitpix, Facebook Mobile, etc.). The result is an expanded sense of observation of one another's lives, and a greater sense of "knowing" each other across distances. As one high school media design student explained: "You don't really get to know people from the big events in their lives. You really get to know them from the everyday little things. The little things add up…" By observing and commenting, people have gained a greater sense of participation in each others' social networks.

Yet while there is an increasing sense of "knowing" each other's worlds, the participatory features of most web 2.0 applications offer sparse, flat possibilities for interaction among these worlds, and little possibility for the melding of or co-creation of worlds. For the most part, participants can see and hear each other online, yet remain individuated and atomized in production. This presents an odd atmosphere for learning. Imagine a physical classroom in which students could share and show, comment, vote and poll the room, but could not creatively brainstorm together, offer alternate interpretations of visions expressed, develop a shared sense of context and future possibilities through discovering and building things together. The image presented is very "old school" – more analogous to a room of students seated at individual desks taking turns raising hands than it is to the hectic, dynamic collaborative spaces we strive for in today's classrooms. Posting, commenting on posts, uploading media, voting, or repeated opinion or experience polls, while 'participatory' in a confined sense, do not sufficiently support the development of shared goals and experiences to make a community truly come alive in its learning.

Breaking through this atomized framework of participation will be key to harnessing the potential of social mobile media to support learning and knowledge creation. The power of mobile media for learning lies not in its ability to offer individual expression anytime anywhere so much as in its yet to be realized potential to foster collaboration on a scale and at a time cycle never seen before. How can we harness this for learning?

Decades of educational research indicates that collaboration offers powerful interactions for learning, and that the development of collaborative knowledge building communities supports learning at individual as well as group and institutional levels [1,19]. By collaboratively questioning situations, conceptualizing problems, designing solutions, building artifacts,

redesigning and re-conceptualizing, people together generate public knowledge that in turn provides a conceptual and relational support for further interaction and learning [19]. Shifting the frame of interactivity from 'participation' in pre-established frameworks to collaboration and co-creation of new forms of interaction offers up new possibilities for launching dynamic, generative learning communities that foster public knowledge production. Examples of generative communities include those organized around such diverse activities as political mobilizations, scientific inquiry, or public health. Below we describe the design approach and resulting features of a mobile media application to support such interactions.

2. Designing for generative learning communities

We approached the design of a collaborative social mobile media application with several learning features in mind. Firstly, our application would support people in creating media together despite that they may be in very different contexts. Prior research on multimedia production for learning demonstrated the power of images, text and sound for conveying context and therefore enhancing collaboration [10,12,15]. A collaborative mobile application should enable people to build media pieces or tell stories collaboratively no matter where they are, without leaving their immediate context.

Secondly, the application should support not only the co-creation of media, but also the co-creation of meaning. Anthropological research had shown that face-to-face communication is rife with references to objects, symbols, texts and images among which attention is constantly shifting and within which joint understanding is constructed and reality is both conveyed and created [8,9]. Features that foster joint focus on symbols in activity, opportunities for conversational repair and appropriation of meanings can support conceptual learning in a collaborative context, encouraging the aligning of perspectives and conceptual change [11,13,14]. Early work on desktop multimedia and learning has demonstrated the value of such highly interactive multimedia conversational learning environments [4,15,17].

Stemming from this, we decided that media pieces should not be static; they should be able to be negotiated and retold as contending meanings come into play and as contexts change and as new ideas come to light. To promote flexibility, the co-creation process should not be bounded by time; people should be able to access a media produced earlier and be able to easily recall it into social life, as one does when one says, "remember when.."

Thirdly, while the construction of media artifacts was a key feature of application, the application must not only support the co-construction of a media artifact and its meaning, but must also support the co-construction of context itself; generative learning communities must generate both community and knowledge. The application should have broad reach beyond its online boundaries. We asked ourselves what kind of learning would be enabled if people, empowered with the one-to-one computing power in a basic mobile phone, could exchange ideas with the powerful support of rich media. What if people, all over the world, from wherever they are, could create digital media together? What if they could debate meaning, offer multiple interpretations, tell stories and retell stories? What if they could broadcast this media globally?

3. Mobltz – social mobile media for informal learning

Mobltz is a social mobile media environment designed to support informal learning through the co-construction of media. Designed as both a media-based conversation tool and a mobile digital story telling environment, Mobltz facilitates the collaborative stitching together of images, audio, video and text to form a narrative or express and idea. The core environment has four major features that differentiate it. It is lean and simple, so that all interactions can take place from a mobile device. It supports referential interaction in sharing of images, video and sound in the context of multimedia conversations. It does not privilege narrative "stories" over more casual, fractured or emergent interactions; shreds of stories and ideas live alongside long narratives, and anyone can remix and retell any story. Finally, it supports publication and broadcast of these conversations in an ongoing, media "snowball" that grows online over time in any web-based environment.

The lean design of Mobltz emerged in response to the plethora of heavy media sites that required desktop browsers to access much of their functionality. Many web sites allow the upload of media from a mobile phone, but none facilitated viewing media compilation, nor constructing multimedia pieces from a mobile. This prohibits true collaboration with those who primarily access the Internet from mobile networks, and blocks realization of true mobile media interaction "in the field." Mobltz is designed to be fully accessible from any phone-based browser or web browser. The experience scales with more

sophisticated equipment: if phones support the playing of browser-based video or downloaded video, the user views a full video experience. If the browser is simple and non-video enabled, a viewer sees a frame-by-frame animation representing any video components. This is of generational importance: while smart phones such as the Apple iPhone make up an increasing percentage of the adult market share, in the USA, small internet enabled but limited memory camera phones continue to make up the majority of youth-owned devices.

The interface is lean, intended to foster quick, lightweight, pervasive interaction rather than a heavy media production experience.

Figure 1. Mobltz community page displays recent media submisions

5. Learning with multimedia conversations

While mobile blogs have been a great way for individuals to tell a story over time, they are difficult places to have conversations. Most individual blogs permit commenting with text, but not with media. Collaborative blogs facilitate group submission of media, yet due to their linear format over time, they do not support in-depth conversations about media submitted. The linear format pushes older media to the bottom, frequently never to be seen or referenced again. Prior submissions are difficult to bring back to conversational life. Communication is atomized and linear, privileging a present over the past, sacrificing the common reference points that serve to reactivate collective memory and enduring community experience.

Mobltz was developed so that any media item can be visually referenced from the archive and brought back into conversational life at any time. Through search of keywords, users find media submitted from members of their self-identified "community," from themselves, or from everyone who is a member of Mobltz. They can select any media item to stitch together (making a moblt), and can edit the order and text of that media item (see Figure 2). Text is displayed beneath the visual media component, whether video or still imagery. Audio is laid down beneath the media that appears before it in the Mobltz editor. The editor has a default timer based on the number of text characters associated with a media element, but this auto-timing can be overridden in the editor by the user if longer /shorter durations are desired. The result is a multimedia piece made from collective media submissions, the URL for which can be "flicked" to any user or new contact via SMS or email.

Figure 2. Embeddable player and editor

These features combine to allow users to convey context, opinion, point of view, or a sense of place or situation in a given discussion. In pilot studies of people discussing environmental issues between the US and East Africa, users watched media pieces, then harvested media elements to make references to ask questions, make further points, or draw comparisons. When compared to the content of conversations with the same group over a mobile blog, the multimedia Mobltz platform facilitated turn-taking interaction frequently referencing media from prior compilations. The effect was that of *pointing*, with words like "this" appearing under recycled images and video, orienting the viewer to the visual referent as it appears. Such visual pointing coordinates resources to enable people

to work and learn together in disparate settings [5-9,11,13,14,16].

The effect in the Mobltz environment is analogous to gifts and photo albums that people maintain on display in homes and other built environments. The artifacts we surround ourselves with maintain a sense of past and connection to each other, serving as focal objects for eliciting joint experience. In this sense they're a part of the context that "weaves us together" [3] rather than a context that merely "surrounds" us. Media artifacts in Mobltz get recycled as ongoing jokes referencing past experiences, as references to topics of shared interest, as clarifications, redefinitions, and lenses for refocusing. Shared images become referential tools for achieving "common ground," a shared perspective that helps us make sense of novel experiences and cultural categories [2,15]. It's our hope that through shared referencing, users from disparate contexts will not only be able to communicate to solve clearly defined problems together, but will also be able to elicit shared frameworks that can help them uncover joint problems and collective solutions that have yet to be revealed.

Figure 3. Moblt player broadcasting media within a course web site.

6. Ownership, collaboration, and remix

While Mobltz supports the development of stories as coherent collaborative narratives, it also supports the continual negotiation of meaning as such stories evolve. When participants upload media, that media is associated with their user name, in effect providing them limited "ownership" rights. Only the person who uploaded can delete or edit original text for a media element. However, when participants stitch together media elements (forming narratives—or moblts) to make a story, they're owners of that story, and can delete or add elements, and edit all associated text. Participants during ongoing media-enabled conversations can thus remix, mashup and add to one another's works. If the originator of a media element decides to delete that element from Mobltz, every instance of that element disappears from any moblt containing that element. Mobltz thus change and evolve over time; they are participatory, but anyone has the right to deny participation at any time. Mobltz are representations of community conversation and interaction. Like artifacts emerging from co-located interaction, the elements and meanings of these artifacts are continually brokered and negotiated.

Mobltz can be recombined with other moblts or media elements to tell a new story or make a new point or elicit a new experience for the collaborator. The fragmented, emergent nature of the Mobltz experience contrasts with the stable media production environments of most tools. This may seem to challenge previously published recommendations of multimedia learning environments, that include goal driven collaboration, media sharing, and meaning negotiation [17]. As a distributed environment, Mobltz is designed to facilitate meaning-making across and within shifting cultures and contexts. This meaning making is an achievement that can be represented by the accumulation of evolving media artifacts constructed in interaction. While goal oriented interaction offers fuel for participation, sometimes communities need to interact fluidly in order to find the commonalities that underlie the establishment of a goal. In the case of the environmental collaborative course taught across four universities, one here in the US and three in East and South Africa, uncovering commonalities of experiences, frameworks and imaginations was a necessary precursor to evolving a goal.

7. Global media snowball

Finally, Mobltz provides functionalities to broadcast conversations or ideas globally, calling on anyone anywhere to contribute and participate via media submissions. While any moblt can be embedded in any web site (see Figure 3), when a user "opens" a moblt to public participation, that moblt will continue to accept submissions and grow over time. This launches a massive media snowball—a set of media relationships to grow via social networks. Media sent via MMS or

email appears automatically in the embedded moblt. For example, environmentalists could publish a "soil erosion" moblt to which anyone could submit images, video or audio related to soil erosion. The result would be an evolving multimedia collection that endured and grew, fueling a rich online conversation on erosion. A community organization doing AIDS prevention research is planning to publish a moblt comprised of testimonies about what people were going to do to stop AIDS on international AIDS awareness day. This moblt will to grow—offering evidence of reach for their stop AIDS campaign.

8. Future work

We are currently organizing three levels of studies using Mobltz. In all studies we are interested in the types of interactions that media-based conversations enable. In pursuit of this we will conduct a discourse analysis of media artifacts. We are also interested in the patterns of social media-networks that evolve. We will use social network analysis methods to map the growth and patterns of interaction of both media and social networks over time. Three cases of use are proposed: A pilot study in which 6 friendship parings of youth participate in mobile media conversations about "teen life" over a two week period; a study of transnational collaboration as people from four countries prepare to participate in a multimedia workshop investigating environmental conflict in two communities in East Africa; the use of the "media snowball" tool in a large high school news web site.

We are hopeful that this research, inspired by visions of collaborative multimedia learning communities developed over the past several decades, will encourage designers to move towards increasingly dynamic collaborative creative social mobile learning applications.

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