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Beyond participation to co-creation of meaning: mobile social media in generative learning communities

Abstract. *Digital social media is dramatically changing the social landscape and the ways in which we understand 'participation'. As youth embraces these dynamic yet highly scripted forms of mediated social interaction, educators have struggled to find ways to harness these new participatory forms to support learning. This article considers the interactive structures and frameworks that underlie much of 'Web 2.0' participatory media, and proposes that theories of social learning and action could greatly inform the design of participatory media applications to support learning. We propose engaging the potential of mediated social interaction to foster 'generative learning communities' and describe an informal learning social media application under development known as 'Mobltz' – embracing concepts of 'mobile media blitz' with the intentional emphasis on the syllable 'mob'. The application is an attempt to bring guidance from what social science knows about learning and human development to craft interactional affordances based on sharing of meaning and experiences.*

Key words. *Computer supported collaborative learning (CSCL) – Digital storytelling – Informal learning – Media sharing – Mobile media – Social learning – Social media – Video*

Résumé. *Les médias sociaux ont radicalement changé le paysage social et la manière dont nous comprenons la 'participation'. Alors que la jeunesse adopte ces formes d'interaction sociale médiatisée dynamiques mais très structurées, les éducateurs peinent à les exploiter à des fins pédagogiques. Cet article examine les structures d'interaction et les cadres qui sous-tendent la plupart des médias participatifs du 'Web 2.0'. On suggère que les théories de l'apprentissage social et de l'action peuvent grandement éclairer la conception de systèmes*

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pédagogiques à base de médias participatifs. Nous proposons de mobiliser leur potentiel d'interaction sociale pour favoriser l'émergence de 'communautés d'apprentissage génératives'. Nous décrivons 'Mobltz', un média social en cours de développement, fondé sur le concept de 'blitz médiatique mobile', où l'accent est délibérément sur la syllabe 'mob'. Mobltz est une tentative d'apporter l'éclairage de ce que la science sociale sait sur l'apprentissage et le développement humain pour construire des affordances interactionnelles basées sur le partage du sens et des expériences.

Mots-clés. *Apprentissage collaboratif – Apprentissage informel – Apprentissage social – Média social – Mobile – Partage de médias – Récit numérique – TICE (Technologies de l'Information et de la Communication pour Enseignement) – Vidéo*

Introduction

The consensus is that social media are dramatically changing the relationships of individuals to society. Credited with phenomena that range in scope and scale from toppling governments (Moldova), to unleashing mass mobilizations (protest in Iran, humanitarian aid in Haiti), to uplifting individual artists from constraints of social class (the UK's singer Susan Boyle), the media that flows over digital social networks offers individuals and communities opportunities to communicate with broad global reach as well as with personal intimacy. For the first time, people can 'see' each other's worlds across previously socially defined boundaries, one to one across time and space, or one to millions. These outcomes are not due to the technology alone. The 'Web 2.0' features that have enabled this are not just the technical implementations themselves, but the frameworks of 'participation' and 'sharing' they enable, structure, and call upon us to enact (Jenkins, 2009). Web 2.0 has produced new ideas of what it means to participate in social, political and institutional life.

That tools have influenced social consciousness should be surprising neither to social scientists nor to those who design, build or fund the technological worlds in which humans find themselves. Researchers in psychology, anthropology and sociology have long endeavored to understand the relationship between the tools humans invent and the social, representational and relational systems that emerge and co-constitute historical development. Materialist historians point to a dialectical process: the artifacts we manifest in the world elicit new forms of social and material interaction that in turn give birth to new artifacts, conditions and consciousnesses. Around these we in turn organize social and productive life and find new aspects of who we are as humans – the makers and users of worlds of mediating symbols and systems of communication that employ them (today including such diverse

spheres as Second Life, World of Warcraft, Club Penguin and the Twittersphere). As the Soviet psychologist L. S. Vygotsky (1978) disclosed for us, the mediating signs people use to understand and represent the experiential world, from language to other signifiers, form a generative basis for human psychology and culture. Intra-psychological encounters with the uses and thereby meanings of such signs give rise to inter-psychological mental structures and processes (Toulmin, 1978). In this way, Vygotsky argued, the tools we build to mediate these symbolic activities change the ways humans think. By building tools, people build the material basis for consciousness, transforming the environments and restructuring the functional systems in which they act and learn (Vygotsky, 1978; Wartofsky, 1983). In so doing, they launch developmental trajectories of thought and action that resonate broadly, spanning dimensions of the individual and the collective, the microgenetic and the ontogenetic, the material and the semiotic.

This paper considers the interactive structures and frameworks that underlie 'Web 2.0' participatory media, and proposes that theories of social learning and action could greatly inform the design and development of 'participatory' media applications to harness as well as expand the potential of mediated social interaction for supporting learning. We suggest further that studying the properties of particular social media systems, learning outcomes, and the meanings and experiences that people generate from them could inform social science. We describe an informal learning social media application under development known as 'Mobltz' – embracing concepts of 'mobile media blitz', with the intentional emphasis on the syllable 'mob'. The application is an attempt to bring guidance from what social science knows about learning and human development to craft interactional affordances that are designed to support informal learning based on sharing of meaning and experiences.

'Participation' and its study

> *A philosopher produces ideas, a poet poems, a clergyman sermons, a professor compendia and so on… The criminal produces not only crimes but also criminal law, and with this also the professor who gives lectures on criminal law and in addition to this the inevitable compendium in which this same professor throws his lectures onto the general market as 'commodities'.*
>
> (Marx, *Theories of surplus value* [1861–3]1963–71: 375)

The production of new forms of media enables new forms of social life, but also new forms of social science, and, as the quote above indicates, its related commodities. In terms of new forms of media, the interactive worldwide

web is widely recognized as the greatest learning tool in human history, with impact broader than the printing press in knowledge dissemination and more rapid in its diffusions. Many of the informal resources of this network are circulated via social networking platforms or media sharing sites as 'friends' share images, experiences and learning resources with those with whom they are connected. While educators have harnessed the web to develop formal e-learning platforms, many are struggling to unleash the power of social media to support learning. In part this is due to perceived difficulties in integrating its emergent fluid forms and meanings into highly structured learning environments. However, underlying the unpredictable dynamics of social media are formal structures of code eliciting identifiable patterns of interaction, the study of which can inform learning design. In designing a social media learning application, we examined both the underlying structures of how media circulates over social network platforms, as well as the meanings people make together exchanging media online.

Structuring and experiencing sociality online

Consider the arrangements of possible action structured into many social media applications (e.g. Facebook, Twitter, Flickr). A relational database and a front-end series of web forms offer the user the ability to transfer photos, videos and other digital data from one's own computer or cell phone to a server. Users, marketers and programmers can then act upon these 'digital projections' (Lahlou, 2008). For users this means publishing to a page, inserting textual statements about what one is doing, tracking and subscribing to other users' statements and allowing others to do the same, viewing and commenting on one's own or others' submissions, and symbolically indicating approval or appreciation of media by rating, reviews or other means, etc. Technically these actions register to fields in a database that may point to a media storage system; they may also trigger scripts that prompt or more substantively entice the user to further action, in the form of advertisements or 'suggestions' for further network connections. The immediate products of a user's actions are a 'profile,' 'blog,' 'album' or other viewable online media format. Yet additional and often unreflectively produced outcomes of these actions are categorical: 'friends', 'status update', 'post', 'profile picture', 'comment' or 'poll.' The formal structures inscribed in code become manifested in social actions that further inscribe patterned social categories. Cognitions and consciousness emerge from and create both universal and localized cultural forms; for example, although a 'profile picture' has come to indicate a specific genre of media communication across social

media sites, differences in cultural expression within enclaves have generated typologies of the profile picture, leading to popular categorizations such as the 'myspace shot', commonly known as a photo taken from a camera held above the head while 'being just so darn coy' (Christian, 2010).

Interviews with high school students have revealed some of the compelling dynamics of these systems. In response to questions about their use of two popular mobile and desktop social media sites, youth surfaced several themes that foreground a compelling reflective experience of self in community. Continuous feedback is the keystone. Cycles of reflection and production are rapid and intertwined, as youth engage in a form of identity management work (that Goffman [1963] and other microsociologists would appreciate) through collecting feedback on their selves and their communities. Consciously self-mediating, these youth construct a deliberate image and reputation online that they attend to through cycles of feedback found in comments, posts and counter-posts (also see Boyd, 2007; Coiro et al., 2008; Stern, 2007). This feedback, they report, helps them 'understand [themselves]' better in social context, particularly their relative position or centrality in their networks. For example, youth place great value on comments appraising their media submissions; however, that they have something that gets circulated indicates to them not so much that they posted something worthy of attention as much as their own social status and their centrality to the community. A quality post may or may not get feedback, but a popular person surely will.

In addition to exploring a sense of self in their online images, youth describe an expanded sense of community and a more persistent awareness of their relationships. They attend to this sense of belonging by monitoring friends' activities frequently, even obsessively. The felt presence of ever-available connections, particularly strong since the proliferation of media-enabled mobile smartphones, gives them the sense of cumulative knowledge of the lives of people that they may not have seen in years – or in fact may never have met. 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.'

As Aristotle noted, 'everyone says something true about the nature of things, and while individually we contribute little or nothing to the truth, by the union of all a considerable amount is amassed' (Metaphysics II.993b1–6). The fragmented forms of micro-communication serve a sampling function of the social ecosystem – allowing people to collect lots of small bits of information about people or communities to give them insights into patterns and truths that inform future choices and interactions. The time cycle is necessarily rapid. For example, one student described how for her generation

'email is too slow'. Obviously she is not talking about the technology, but her own attentional economy, within which there is no surplus to be spent on checking communications that are disconnected from her favorite social networking site, where 'important things may be happening'. The meanings people make from this conglomeration of data structures and media – so tied to self-conceptions and reflections on others' perceptions of you – leave emotional traces that resonate in the overall user experience and keep people coming back, either to understand what they mean, or to influence what they may be perceived to mean by others – like a dopamine-driven slot machine of intermittent social reinforcement.

Learning in the media mix

Harnessing such dynamic network interactions for learning is challenging in part because they are so flexible and emergent, and in part because the 'upload' mode of media production is so primitive from a creative meaning-making perspective. Although these sites are certainly dynamic, those who study human interaction cannot help but notice that the forms of communication available are for the most part one-dimensional, based in collective circulation of artifacts and individual meaning-making, rather than the co-construction of meaning. For example, at the time of writing, YouTube facilitates linear commenting and video responses; opinion is expressed in 'rating' others' submissions. Facebook supports media uploads upon which others can comment, 'like' or recirculate, but little more. Participation is tightly constrained, and its limited forms give rise to further [limited] expectations among users for what kind of contributions even count as 'participation'. Thus the online social media 'habitus' generated by and within these categories of perception and action generates a 'doxa', a system of thought within which the social world appears natural and common sense (Bourdieu, 1977: 164). These assumptions about the nature of participation, embodied in material, symbolic and ritualistic aspects of features of media sites, enable some forms of social interaction, but also limit the visibility of many other possibilities that may lie hidden in the gaps inherent within such systems of meanings. Herein lies opportunity – for the hidden possibilities that form through these disjunctures enable changes in the system, even as they are hidden by its own logic (Lemke, 1995: 177).

It is through this doxa that the sparse, flat possibilities for actual interaction with media have large impact beyond specific social media sites themselves. People become accustomed to seeing but glimpses of one another's social worlds, with only fleeting connections between symbolic representations

of these worlds in photos, video or composite media, and little possibility for the melding of meanings and the co-creation of worlds. While individuals may reflect on their own individually defined social network, and using social networking sites may be supportive in sharing and experiencing one another's self-representations of experience in media, people remain individuated, atomized, with the pervasive sense conveyed being one of collective monologue. Participation is linearly routinized in a timescale of immediacy. While anyone can 'see' the productions of their own social network, in seeing they gain more of a sense of commodity circulation than shared experience, vision and understanding. Although ostensibly a medium for creative individual expression, users produce and consume media more as if in a hall of mirrors than in a jointly created carnival of collective expression of selves (Bakhtin, 1984).

These dynamics establish a difficult atmosphere and a framework of 'participation structures' (Au, 1980) for developing persistent learning communities. Imagine a physical classroom in which students could show their work, comment, vote and poll the room, but could not creatively brainstorm and think together, offer alternative interpretations of work, or develop a shared sense of context and future possibilities through discovering and building enduring things and ideas together. It is an 'old school' image – more analogous to a room of students seated at individual desks in rows taking turns raising hands than it is to the dynamic sense-making collaborative spaces we increasingly strive for in classrooms today. Posting, voting and opinion polling, while 'participatory' in a confined sense, does not sufficiently support the development of shared goals and experiences that make a community truly come alive in its learning.

Decades of educational research indicate that people learn within social contexts and that collaboration and development of joint narrative presents powerful dynamics for learning (Barron, 2003). By together questioning texts and situations, conceptualizing problems, designing solutions, building artifacts, redesigning, re-conceptualizing and reinterpreting, people generate forms of public knowledge that in turn provide conceptual and relational support for further interaction and learning (Scardamalia & Bereiter, 2006). This is a dynamic emergent process that cannot be pre-constructed, as the interaction itself is an element of the knowledge embodied in the community. Yet socio-technical supports have to be available to enable such processes. As Bruner observes, cultures can wither or actually break down due to a 'sheer impoverishment of narrative resources' (Bruner, 1990: 96). While circulation of media enables the exchange of ideas, it does not fully enable the generation of ideas among its viewers in interaction. Circulating a commodity does not make meaning; people need to be able to create together, to

generate narrative, to share contesting ideas. The power of social 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 collaborations, on a scale and in tighter time cycles than ever seen before.

Design heuristics for generative learning communities

> *To be in a viable culture is to be bound by a set of connecting stories, connecting even though the stories may not represent a consensus.* (Bruner, 1990: 96)

In designing a social media application, we sought to broaden what it means to 'participate' by building in features that would foster the development of what we are calling 'generative learning communities.' Generative learning communities are expansive in three senses: they grow in range of participants, in degree of engagement by those contributing to the dynamic learning interactions of that community, and in expanding the knowledge created and harvested for use by that growing community. Such communities are generally informal with the goal of expanding upon public knowledge; are not rigidly confined by formal participation structures of interaction, but rather create their own informal communication patterns; they are interpretive, with an emphasis on dialog and multiple viewpoints; and they are expansive in terms of inclusion of people, ideas and topics. They are generative not only in expanding the knowledge of participating individuals, but in the expanding accessible collective knowledge. Functioning generative learning communities already exist and work together online; however, despite the participatory 'Web 2.0' infrastructure, they frequently have only sparse communicative resources to work with to support ongoing informal learning. Examples of such generative communities include networks organized around diverse activities as political mobilizations, hobbies, scientific inquiry and public health. Below we describe the design approach and resulting features of a mobile media application intended to support community interactions through narrative co-construction.

Several heuristics guided our design. First, we wanted our application to support people in creating media together despite the fact that they may be in very different contexts and around the world. Although the field of education has revealed powerful methods of creating communities of learners in collocated situations, today's challenge is to build applications that are global in reach, but local in accessibility. Social media applications for learning should enable people to share their experiences in situ, without having to find a computer to participate. They should be accessible from basic internet-enabled

devices such as mobile phones. Additionally, given the empowering nature of images, text and sound for conveying context and enhancing collaboration (Hooper & Ambron, 1989; Pea, 1991, 1994), an application should facilitate the sharing of all types of media so that people may build media pieces or tell stories together in multiple formats no matter where they are.

Second, the application should support not only the co-creation of media, but also the co-creation of meaning. Face-to-face communication is rife with deictic 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 (Goodwin, 2003a, 2003b). Features should foster joint attention and interactions should provide opportunities for conversational repair and appropriation of meanings. Such design should support conceptual learning by encouraging the aligning of perspectives and conceptual change (Koschmann, 1999; Pea, 1992; 1993), an aim that has been supported by work on desktop multimedia, which demonstrated the value of highly interactive multimedia conversational environments for learning (Cruz, Gomez & Wilner, 1991; Pea & Gomez, 1992; Pea, 1994). To accomplish these aims, media items should not be static; they should be open to negotiation and retellings as contending meanings come into play, as different experiences are shared, and as contexts change and as new ideas come to light. To promote flexibility, the co-creation process should not be bounded by time; unlike in linear 'blogs' or threaded discussion forums, people should be able to access media produced earlier and be able to easily integrate media components into the ongoing flow of social life. Such integration would hopefully serve as a means of re-establishing context and props for joint attention, visually reinforcing acts of remembering such as when people say 'remember when…'. While corporate research groups have earlier developed desktop or room-based systems for capturing multimedia meeting minutes for later re-establishment of context (Chiu, Boreczky et al., 2001; Chiu, Kapuskar et al., 1999; Minneman & Harrison, 1993; Minneman et al., 1995; Moran et al. 1997), our needs required a lightweight, inter-contextual tool for pervasive interaction across contexts.

Third, we wanted the application to support not only the co-construction of media and meanings, but also of community context itself. Generative learning communities expand both community and knowledge. The application should have broad reach beyond its own web site boundaries. We asked ourselves what kind of learning would be enabled if people, empowered with a basic mobile phone, could exchange experiences supported by rich media. What if people, all over the world, from wherever they are, could create and broadcast media together? What if they could offer multiple interpretations, tell stories and retell stories? What if they could do this globally?

1. Mobltz – supporting generative learning communities with social media

As a media-based conversation tool and a mobile digital storytelling environment, the Mobltz application facilitates the embroidering of images, audio, video and text to convey experience, form a narrative or express an idea. Four qualities differentiate the application. First, a lean user experience means that all interactions can take place from a mobile device (see Figure 1).

FIGURE 1
Mobltz community page displays recent submissions

Second, we sought to support referential interaction in sharing of images, video and sound to enable multimedia conversations that are anchored in specific media and their inter-relationships. Third, we aimed to avoid privileging narrative 'stories' over more casual, fractured or emergent communications; shreds of narratives do live alongside coherent stories, and anyone can remix media and retell any story from their own perspective. Finally, our intent was to support global contribution, publication and broadcast of narratives in an ongoing, media 'snowball' that grows online over time and can be embedded in a web-based environment (see Figure 2).

This design emerged in reaction to the many media sites that required desktop browsers to access the bulk of their interactivity involving media. While at the time of Mobltz design many web sites facilitated mobile upload of media, none supported the collaborative constructing, sharing and viewing

FIGURE 2
Embeddable player and editor

of multimedia pieces from a basic mobile. Such constraints prohibited those who primarily access the Internet from mobile networks from collaborating fluidly, and blocked realization of contextualized interactions. The experience is designed to scale with more sophisticated equipment, so that phones supporting video playback offer users a full video experience, while other viewers see a frame-by-frame animation serially presenting images from video. Access from basic equipment is of generational and regional importance: while smartphones make up an increasing percentage of the adult market share in the US and Europe, simple internet-enabled camera phones continue to make up the majority of youth-owned devices. In most parts of the world smartphones are not yet accessible for the vast majority of the population. With these digital access issues in mind, the interface is minimalist to foster quick, lightweight, pervasive interaction rather than a heavy production experience.

Mobltz was designed with non-linear interaction in mind, in contrast to many environments that host multimedia contributions, such as mobile blogs. Linear blog formats permit the telling of a narrative over time and allow others to comment in reaction, but they are difficult environments in which to have conversations or offer reinterpretations. The linear format pushes older media to the bottom of the web page, eventually to the back of a series of pages, frequently never to be seen or referenced again. The evolving submissions and comments thus do not easily re-emerge into social life, and unlike words uttered in conversations, their meanings do not get renegotiated over time. Such communication is atomized and linear, privileging a present over the past, thus sacrificing the common reference points that can serve to reactivate collective memory and generate enduring community experience.

In contrast, in the Mobltz application any media item can be selected from the archive and brought back into conversational life at any time, alone or in combination with other media elements. Through searches of keywords, users find their own media or those submitted from others. They can select any number of media items to stitch together into a 'moblt', and can then continually edit the order of elements, the timing of elements, or any corresponding text displayed along with the media element. Audio is laid down beneath the media that appears before it in the Mobltz editor, and those submitting can indicate the position in which they would like the element and audio to appear. 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 URL of the resulting collaborative multimedia can be sent quickly ('flicked') to any user or new contact via SMS or email.

These features combine to allow users to convey context, opinion, point of view, or a sense of place or situation in a given discussion. For example,

in a pilot project involving conversations between people in the US and East Africa regarding local impact of global environmental issues, users submitted images, video and audio to convey context and experiences that would have been hard to imagine across experiential, cultural and geographic divides without such visual supports. People reposted media elements alongside others to make references for clarifying questions, to make further points, or to draw comparisons (see Figure 3). When compared to the content of

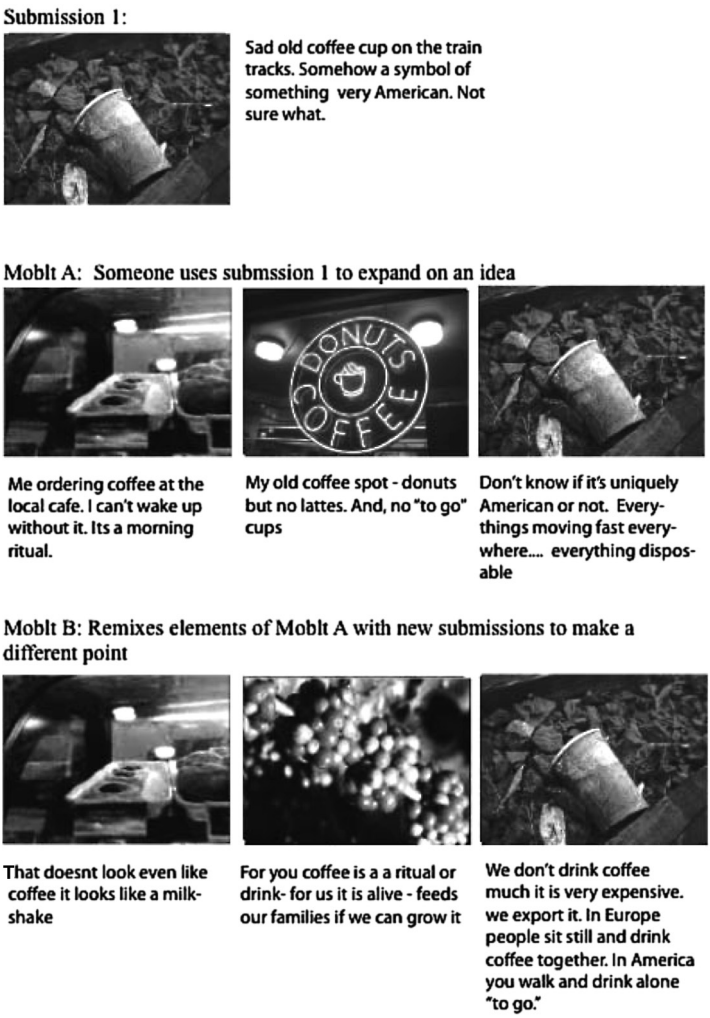

FIGURE 3
Establishing joint references to develop shared understanding

conversations with the same group over a mobile blog, the collaborative platform facilitated more turn-taking interaction and common referencing. The effect was similar to that from pointing, with deictic words like 'this' and 'there' annotating recycled images and video, orienting the viewer to the visual referent to clarify concepts and specify intentions. Such visual pointing coordinates resources to enable people to work and learn together, and is particularly helpful when people are collaborating across disparate settings (Goodwin, 1994a, 1994b, 2000, 2003a, 2003b; Koschmann, 1999; Pea, 1992, 1993, 2006).

This capability for establishing joint attention to the referents in a distributed multimedia conversation has a larger influence in the aggregate environment than is obvious from a single exchange. In total the effect of recurring media in the Mobltz environment is analogous to gifts and photo albums that people maintain on display in homes (Csikszentmihalyi & Rochberg-Halton, 1981). The artifacts people surround themselves with maintain a joint sense of past and connection to each other, serving as focal objects that elicit joint experience. In this sense the things in our lives can be seen as a part of the context that 'weaves us together' (Cole, 1996) rather than a context that merely 'surrounds' us. In Mobltz, media elements get recycled as ongoing jokes referencing past experiences, as references to topics of shared interest, as clarifications, redefinitions, and lenses for refocusing. The images people share become referential tools for achieving 'common ground', a shared perspective that helps make sense of novel experiences and cultural categories (Clark, 1996; Pea, 1994). It is our hope that through such 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 pull forth shared frameworks that can help uncover joint problems and collective solutions that otherwise would go unconsidered. It is in the gaps between shared experience and meaning that innovation and change lie waiting. As Lemke has noted about the disjunctions inherent within meaning systems, 'By preserving a reservoir of unrealized possibilities, some of which are compatible with a future, expanded or revised, successor to the meaning system, the system of disjunctions preserves the adaptability of the community, the space of incompleteness where change can work' (Lemke, 1995: 177).

2. Ownership, collaboration and remix

To support the waves of renegotiations of meaning, Mobltz is designed to encourage the development of stories as coherent collaborative narratives, but also to encourage reinterpretation and evolution of narratives over time

and place. Just as jokes and stories in face-to-face communication change with each telling and teller, each moblt can also change as it is retold. Media becomes associated with the user name of the media uploader, in effect providing them with limited 'ownership' rights of their images, videos and sounds. Only the person who uploaded a media element can delete or edit original text for that media element. However, anyone can make a narrative from a given element; when participants stitch together media elements, they become owners of the resulting story, and can delete or add elements, and edit all associated text. Those who would like to retell it differently can do so – each narrative can be duplicated and rearranged without overwriting those that came prior. Thus people can remix, mash-up and add to one another's works in ongoing media-enabled conversations. If the originator of a media element opts to delete that element, every instance of that element disappears from any moblt containing it. A moblt thus evolves over time; they are participatory, but a degree of privacy is protected and anyone has the right to withdraw participation at any time. As with the artifacts that support communication in collocated interaction, meanings are continually brokered and negotiated. In this way, a moblt can serve as a representation of community development and learning.

3. 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 4), when a user 'opens' a moblt to public participation, that moblt will continue to accept submissions and grow over time. The pass code to a given moblt can be restricted either to one's known community, or published to the global public. Media sent via MMS or email appear automatically in the embedded moblt. Such a process may launch a massive media snowball – a set of media relationships that grow over and across social networks, expanding both knowledge creation through incorporation of an ever-expanding set of experiences that users submit, as well as an expanding community, comprising people engaged in understanding each others' experiences. In adding this feature we are hoping to expand the framework of broadcast on the web. While currently people upload video and images, sharing media one-to-one or one-to-millions on a given topic, there are not platforms that encourage the sharing from millions to millions about topics people care about. The 'snowball' is intended to break the glass in the previously mentioned 'hall of mirrors,' encouraging collaborative meaning making at a global scale, a global 'carnival' of expression (Bakhtin, 1984) and a global sharing of experience.

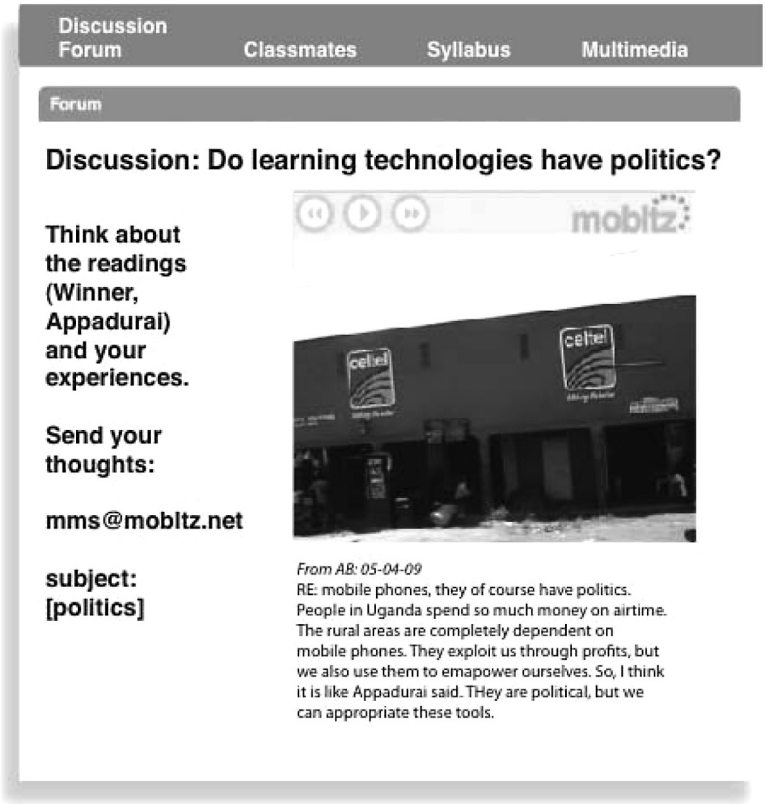

FIGURE 4
Moblt player broadcasting media within a course web site

Future work

While social science informed the design of the Mobltz application, we are hoping that the application will in turn inform social science. We are currently organizing three levels of studies using Mobltz to uncover types of interactions that media-based conversations enable, the influences that these processes have on learning communities, and the patterns of social media networks that emerge. These inquiries will involve methods of social network analysis as well as discourse analysis 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 friendship parings of youth participate in mobile media conversations about 'teen life' over a 2-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; and the use of the 'media snowball' tool in a large highschool news web site. We are hopeful that this research will encourage designers to move towards increasingly dynamic applications to launch generative learning communities, and encourage social scientists to inform and study social media applications for learning.

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