Moving through time and space - Learning history on the move

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Abstract

Mobile devices enable students and other non-professional historians to decode edificial remains, symbols etc. through giving access to additional information. In other words, mobile devices enrich reality: They reveal the historical value of topographic places and surfaces. The article “Mobile history Learning” delivers ideas for inquiry- and design-based learning with mobile devices. The authors try to develop a concept for mobile learning in history lessons focussing the aspect of mobility to pass the borders of the school classroom for learning history outdoors.

Mobile history learning is product oriented. Students create different and innovative forms of collaboratively generated products like geocaches or digital stories. These products help to initiate the discussion about history between peers but can also be seen as important elements of social participation and commitment when using social networks for historical learning. Furthermore mobile history learning lets students understand public debates on history, politics, culture, memory and identity.

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Keyword proposals:

history learning, didactics of history, history teaching, educational technology, mobile learning
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Introduction

While the debate about the character of history learning and the turn to skill based approaches in teaching accelerated after the results of PISA 2000 in Germany, recent surveys and inquiries about the digital equipment of young adults between 12 and 19 show that nearly every adolescent owns a mobile phone (JIM, 2012, p. 8). As a matter of fact these devices are an integral part of youth culture that emerged and formed through the transformation of the static internet to the more dynamic and flexible mobility complex in the first decade of the 21 century (Bachmair et al., 2011). Instead of talking about the educational assimilation of this technology driven development many schools and teachers respond to this reality by banning digital devices from the classroom without taking notice of the additional values. Nevertheless there are some teachers and institutions as early adopters of mobile technology in education followed by some empirical research (Ifenthaler & Schweinbenz, 2013). Henderson and Yeow (2012) focussed the usage of iPads in a New Zealand primary school. They found out that contrary to the potentials of mobility one of the main benefits seen by teachers was the adoption for web research and classroom presentation. Likewise Hutchison et al. (2013) pointed out, that tablet computer could foster reading skills and literacy. All in all frequently mobile devices are used in the classroom, not outside of it. So far concepts for mobile learning in history teaching and learning do not exist at all.

The aim of this article is to identify first conceptual perspectives on how mobile learning can help fostering interest and creativity in history lessons. Traditionally history lessons take place in the classroom and are based mainly on written sources. In this article, we develop ideas in a conceptual perspective for inquiry- and design-based learning with mobile devices like smartphones or tablets in order to show these multifunctional learning tools facilitate history learning, especially outside the classroom. These devices combine different gadgets and tools that were separated in the past and converge in the present. Nowadays a mobile device offers many functions like taking notes and photos, recording audio-comments and videos or editing documents. So called applications (apps) widen the range of possibilities to discover, examine and appropriate the (historical) environment that surrounds us. Most devices are able to get information from services like GPS (Global Positioning Services), Wifi and cell-towers to
pinpoint the exact location of a user. Additionally, mobile devices offer ubiquitous access to the web. How these functions can be used in history teaching and historical learning will be shown in this article.

**Mobile learning in history lessons and historical culture**

**a) A constructivist approach**

The authors of this article see learning as an active process of interaction and construction in a situated context (Driscoll 1994; Duffy & Cunningham 1996). Brown, Collins and Duguid (1989) argued that meaningful learning will only take place if it is embedded in the social and physical context within which it will be used. Formal learning is often quite distinct from authentic activity, or ‘the ordinary practices of the culture’ (p. 34). Many of the activities undertaken by students are unrelated to the kind performed by practitioners in their everyday work. To achieve authenticity, they proposed the model of cognitive apprenticeships, a method designed to ‘enculturate students into authentic practices through activity and social interaction’” (Herrington & Oliver 1995). The concept of situated learning (Lave & Wenger, 1991; Anderson, Reder, & Simon, 1996) was quickly adopted to learning in computer based environments and the use of social media in education (Hung, 2002; Halverson, 2009).

This theoretical frameworks applies to mobile learning as learner-centered, social and constructivist learning (Pachler, Bachmair & Cook 2010, p. 23). To describe the idea of “interaction” within this framework, one has to consider several points, that are extensively discussed in the fields of Human Computer Interaction (cf. Yorka & Pendharkar, 2004), Technology Enhanced Learning (cf. Goodyear & Retalis, 2010) and Computer Supported Collaborative Learning (cf. Dillenbourg, Järvelä & Fischer, 2009):

- First of all, interaction in mobile history learning means a serious examination of one's surrounding. Learners interact with different real objects, e.g. places, paintings, ruins, buildings monuments.

- Interaction implies secondly the use of a mobile device and its functions for learning purposes. Learners interact with the help of a gadget and the range of functions provided. Mobile devices have to be understood as tools for learning and not only for entertainment.
Thirdly, interactivity can be understood also in the way of creating and sharing content, like it is often summarised in the buzzword of Web 2.0. Being fairly a synonym talking about social media puts the emphasis on a different aspect of using digital, web-based tools which are also provided by mobile devices.

Thus, fourthly, the notion of social media stands for the interaction between learners. In fact mobile devices support on the one hand synchronous and asynchronous computer-mediated communication. They provide clients for short messages service (SMS), for electronic mail (e-mail), for instant messaging (IM) integrated in social communities, e.g. facebook, or for microblogging services like twitter. Furthermore, there exist clients for bulletin boards or the use of learning management systems.

On the other hand the use of mobile devices can also foster and deepen face-to-face-communication. Recently, Bachmair shows in his research that these devices used in formal learning settings could work as communicational bridges and conversational connectors between learners just as between teachers and pupils. For young learners mobile devices are an integral part of their everyday life and culture; in general pupils have advanced skills in using different functions of these accessories appropriately. (Bachmair, 2011 and 2013)

The context of our learning scenarios respectively didactic settings is situated in formal learning environments of history lessons in lower and upper secondary schools. However, within this framework of school learning one has to consider informal learning happening in everyday life, in spare time and in school as well. Informal learning is understood as non-intentional and implicit learning which is not structured and without certification (Livingstone, 2006; Marsick & Volpe, 1999). This is especially true with the opening of the setting and the use of mobile devices by the learners giving a growing importance to informal learning processes within formal education. Using mobile devices in history learning gives students the opportunity to think, research, document, share and discuss their ideas and results transcending the borders of their peer and learning group. Social interaction becomes an important part of the learning process.
Above all, mobile gadgets are more than only technical devices. Marshall McLuhan claims in his Berlin media theory that media should also be seen as “extensions of man”. From this point of view mobile devices and their functionalities augment, widen and enrich our senses. With mobile devices we see “more than our eyes”; we hear "more than our ears" and maybe - who knows - we will smell in the near future "more than our olfactory sense". McLuhan argued already in the middle of the 60s:

During the mechanical ages we had extended our bodies in space. Today, after more than a century of electric technology, we have extended our central nervous system itself in a global embrace, abolishing both space and time as far as our planet concerned. (McLuhan, 2011, p. 5).

In this quote McLuhan argues that the medial development has lead to the loss of space and time - an indicator of a beginning loss of history itself. But when we look at mobile devices and the provided technological possibilities of these gadgets for history learning the contrary is true. As learning tools these instruments can help students to explore their environments as historically distinct landscapes in an active way and perceive everyday phenomena like buildings, monuments etc. as relicts of the past and interpretations of history. While doing so the surroundings are perceived as a cultural area, where with every step historical heritage can be discovered.

From this point of view mobile history learning addresses different dimensions of historical consciousness. From the different dimensions of historical consciousness mobile history learning fosters mainly the spatial but also the temporal dimension and their connection creating of an awareness of the historicity of places (Schiersner, 2011, p. 6). In mobile historical learning students “go beyond the acquisition of knowledge relevant to issues encountered in the world but also to shape their knowledge out of their own sense of their world” (Pachler et. al, 2010, p. 5). Students need to build up an awareness for history (Bernhardt, 2011), that could also be seen as an essential skill for the perception of historical developments (Gautschi, 2009, pp. 52-54).

Perceiving historical dimensions of an object or a place as well as precise observations are often very difficult for pupils. Even though they can be developed especially by activity-orientated methods (Bernhardt, 2011b, p. 46). Connecting passed events, structures and biographies to real
places can help to raise the awareness of historicity and the perception of historical changes (Schiersner, 2011, p. 6; Wineburg 2000).

Referring to the historical thinking concept by Peter Seixas which puts a similar idea in different words, one can say that mobile history learning can help discovering the notions of continuity and change in the historical development of students’ everyday life:

One of the keys to continuity and change is looking for change where common sense suggests that there has been none and looking for continuities where we assumed that there was change. Judgments of continuity and change can be made on the basis of comparisons between some point in the past and the present, or between two points in the past. (Centre for the Study of Historical Consciousness, 11/29/12)

Until now like mobile learning is not very common in history lessons, though widespread in students leisure time activities in general, even referring to history: We can think of activities like geocaching or guided tours in towns, castles, museums and other special places of interests. In this respect mobile history learning focuses a real place or a number of historic sites. In his handbook for planning history lessons Horst Gies (2004, p. 219) stated that especially history as a subject in school challenges the fact that the past events or processes cannot be retrieved or repeated. Access to the past is never immediate but only possible via media. In summary using mobile gadgets and tools appropriately reminds us of this fact. They help combining digital media and tools with the discovery of historical vestiges and public history (Bernsen, König & Spahn, 2012). By this, mobile devices are instruments to learn with. While normally history lessons in school are based on written or visual documents, now every location can become a learning object itself, not only the ones already prepared as learning spots by for example museums or memorials. The development of the site in time can be studied including all kinds of structural, like for example constructional or architectural, changes that may allow deep insights in different uses by inhabitants and authorities (Demantowsky 2008). From this point of view mobile history learning aims at decoding or deciphering the symbolic purpose of a location through time. Students are asked to (re-)construct historical meaning. In doing so they are getting involved in a process of meaning making for themselves (Kress, 2010).
Whereas there is quite an elaborate range of didactics and methods on school field trips and out-of-school learning locations (Kuchler 2012), the didactics of using mobile devices for learning history have yet to be developed. There are different possibilities of using mobile devices for history learning on the move:

- First of all, mobile devices can enhance the visit of a real place with additional information via the web. To provide information a case in point is the practice of using Quick Response or QR-Codes attached to an object. These low-tech and user-friendly bar codes facilitate access to information. By scanning QR-Codes special applications open promptly long URLs in the browser that delivers additional materials like multimedia-based, embraced texts as well as sounds, pictures, videos or interactive quizzes, tasks or exercises. By acquiring these materials over the web students will attain information about the properties and the history of an object or a historically distinct landscape.

- To develop the use of mobile devices in history learning, it seems reasonable to look at their technological functions and the basic configurations of mobile devices in general. Smartphones or tablet computers provide different tools like a photo camera, a voice recorder, a digital memo pad for taking notes etc. that can be used in different ways. Indeed pupils handle these devices quite intuitively. From their point of view smartphones or tablets usually are not associated with learning. Nevertheless, using the functions of a mobile device intentionally they can be seen as instruments to foster historical learning and research. In more specific terms, this means that pupils could document a walk by analysing and exploring historical places with audio or video recording; it is conceivable that students are taking notes and pictures at the same time.

- Furthermore small applications, so called apps, widen the range of possible learning scenarios. They establish connections to social networks, provide instruments to annotate pictures and to tell stories combining the developments of Web 2.0 and mobile learning by creating user-generated content on mobile devices (FitzGerald, 2012).

- Especially important to the spatial dimension of history learning and teaching are GPS-signals and digital maps. Mobile devices facilitate the orientation in the field or on a excursion. The
tools mentioned above can help students for instance locate, identify and perceive places and buildings in their historical and actual surroundings. By using the GPS of a mobile device students are able to measure distances and to discover relations between different spots, buildings or institutions which are nowadays blocked to one’s view. In the classroom, finally, the records made outside form self-made learning materials to be analysed and exploited. In addition, of course, also in the school and at home, students use their mobile devices to get information via the internet.

- Michael Sauer (2010) focussed in an empirical and explorative study the ability of students reading maps. Although this skill should be elaborated because maps are learning materials in different subjects (e.g. geography and history) Sauer found out that it is hard for students to read maps accurately. This should be kept in mind when planning a lesson. An activity-oriented approach integrating mobile devices and their functionalities in history learning could foster the development of map reading and orientation skills at the same time. Additionally, the creation of digital maps by learners, for example, in or/and out of the classroom is also a good way to strengthen mapping skills by an active and constructivist approach. Some services (like e.g. Google Maps, OpenStreetMap or Stepmap) provide such features. In these learning scenarios students learn while using mobile devices about different types of maps, their respective concept, information value and how (digital) maps with their legends are created and annotated.

b) The spatial turn and location-based learning

One of the central categories of historical thinking seems particularly important when talking about mobile history learning: the orientation in space, or being more precise spatial concepts (Mares & Moschek, 2013; Schiersner, 2011, p. 5). “No matter how space may be experienced in current time, the experience of of historical space is always a matter of the individual imagination.” (Mares & Moschek, 2013, p. 59). It is undeniable that the discovery and examination of space in time demand a multidisciplinary approach, where different methods and of different subjects, especially history and geography, are addressed. Looking at historiography it has to be said that the academics went ahead combining different sciences. The cultural and linguistic turn followed a so called “spatial or topographical turn” first as a shift in paradigm of the cultural studies starting in the 1980ies that renewed methods used by the well know Annales
School. In fact already Fernand Braudel looked at the influences of climate and landscape on society and people when investing the Mediterranean area.

Space was not longer conceived as a sort of place for people and cultures but in a different conception understood as a result of social interactions. From this it follows that space cannot be reduced to a given environment but is always established in different ways of perception and construction. So, with the spatial turn space is not only an object of research but a different way of think how to approach and analyse any subject-matter.

Recently, the didactical transfer of these aspects to history learning has been made. Nowadays there exist several quite different approaches in the German didactics of history that try to combine various subjects and methods to contour the spatial dimension of history and of history learning (ZfGD, 2011). All these approaches have in common that they focus out of class learning, activities at special locations and on field trips.

One aspect that yet has not been discussed is how mobile devices can be used in this context and how mobile learning can help to promote orientation in historic spaces to discover the “historicity” of places which normally are not necessarily perceived as historical ones. This is where we come to the concept of “location based learning” as a variation of situated learning. The boom of location based services started in the advertising industry combining apps on mobile devices with GPS-locations to provide adverts and commercial offers on the spot. First concepts to use these tools also for learning scenarios were developed since about 2005 (Neuhaus 2010). One of the first location based activities which spread quickly worldwide was geocaching. The first caches were hidden already in the year 2000. Nevertheless, it took some years before the educational value of geocaching in learning scenarios was discovered. In Germany, in particular for history learning, this happened only recently (Bernsen 2012).

As “games seem to be excellent tools for facilitating and supporting situated learning [...] appear to be excellent tools for facilitating and supporting meaningful learning of pupils, merging out-of-school and in-school learning” (Huizenga, 2007, p. 127). The idea of location based learning was very quickly connected with gaming. Students prefer games demanding a high degree of creativity and imagination (Bernhardt, 2010, p. 17). Given that playing and creativity are often seen as two faces of the same coin, one has to take a closer look at their role in history science and learning. To come closer the following paragraph discusses creativity as a central aspect of history learning.
Creativity in history writing and learning

The didactics of history teaching focus on the reflection of theoretical, empirical and pragmatic aspects of historical teaching, learning and thinking. In this debate historical consciousness (Geschichtsbewusstsein) introduced by Karl-Ernst Jeismann in the beginning 80s is the main construct for analysing historical learning processes. Jeismann emphasised that historical consciousness is embedded in the processes of cognition: Historical thinking examines objects in the present or/and objects in the past. It establishes historical significance, tries to comprehend the actual political, social and economic situation, identify continuity and change, analyse cause and consequence, take historical perspectives and make factual as well as ethical judgments. Historical consciousness gets intersubjectively comprehensible through communicational acts, the narration of history (Seixas & Peck, 2004; Jeismann, 1985).

Imagination has a multiple role in the science and learning of history: it is needed for research to find primary sources, to solve problems and establish connections between the vestiges of the past and representations of history. It is also needed for the creation of narrations in form of historical representations like books, scientific or journalistic articles, films or any other form of media as well as base for historical thinking. (Fines, 2002) In fact, imagination and creativity play an essential part in historical thinking skills and are crucial for problem solving. (Fielding, 2005; Pandel, 2007, p. 24)

Interestingly, the scientific work of historians often still is seen as lonesome, studious business, while the creation of history films and books for a broad public is accepted as a being cooperative or collaborative, social and project-oriented activity. Learning history in school was - and sometimes still is - calculated on the scientific idea of history and not on public history. Putting the focus more on these phenomena, creativity will appear as an act of (collaborative) inventing. In the near future imaging and creating will play a far more important role than before in the history classroom. Students are asked not only to read sources and answer questions from their textbook, but to write stories, to make films etc.

Therefore, imagination is getting more important in the process of history learning. Imagination already was described as the premise for historical thinking next to cognition (Dilek & Soğucaklı Yapıci, 2005, p. 65; Pflüger, 2006, p. 92). It allows historical reconstructions based on sources as traces of the past. This bond is fundamental as we are not talking about free fantasy based
associations. Imagination is also crucial in the process of absorbing and understanding representations of history. This applies to texts as well as to photos and videos. The individual imaginativeness enables the envisioning the past. On a collective basis, imagination also plays an important role in the development of identity: it allows the individuum to relate itself to the given narration. Finally, only imagination enables the appropriation of the historical matter, in the sense of putting oneself in the position of historical persons: So imagination is the basic requirement to create awareness for the other and to adopt other persons’ point of views. Historical empathy is a necessary skill to help students to make historical sense. (Foster & Yeager, 1993; Schörken, 1997, pp. 64-66)

**Using mobile devices in history lessons**

Mobile devices can help promoting activities in the process of historical learning and thinking in and outside the classroom. In general mobile devices are personal tools with - as shown - multifunctional features. They have a convergent character and give ubiquitous access to the internet. In this article they are introduced to support historical thinking in four different modes (cf. Bernsen, König, & Spahn, 2012):

1. At an historical spot students have the possibility to get information from the web. Documents like historical maps, old photos and sounds of places and historical sites can appear on location. Thus mobile devices provide learning materials e.g. primary and secondary sources like texts or photos over the net to work with on an historical site like a castle or a church. They support the inquiry of the learners.

2. Mobile devices are multifunctional gadgets. They serve as writing tools, they help to record, film or localise something. These technologies enable students in a new and creative way to foster their historical research, analysis, understanding and validation of historical sources. Last but not least mobile technologies offer powerful tools to narrate history and tell stories.

3. Using mobile devices in formal learning settings makes students learn about the technology they are using, e.g. GPS, photography or audio recording. Learning about how to use the functioning
of these technologies empower students to employ them purposefully in order to express themselves.

4. Mobile devices enhance perception and deliver new, accessible and shareable forms of archiving, documentation and publication. They can be understood as extensions of our senses. This way, mobile devices enlarge the repertoire of accessible and linked tools creating by this a new environment for thinking and learning, completely different from the restrictions students are used to by working with pen and paper.

Each of the four modes as well as their combination in the process of learning foster students’ creativity in history learning by widening their potentials to access, understand, explain and interpret vestiges of the past and to present their findings in an individual and collaborative way. Creativity is promoted by facilitating sharing ideas, intermediate and final results, by opening new ways and tools of research and by enlarging the range of potential products. Using mobile devices enables students and other non-professional historians to decode edificial remains, symbols, commemorative culture etc. through giving access to additional information, documents or interactive activities. In other words, mobile devices enrich and augment reality: They reveal the historical value of topographic places and surfaces.

From this point, out-of-class learning is naturally location-based. It focusses historicity and changes over time. Furthermore mobile history learning offers possibilities to spot links between different locations, that can arise from interest and research or that are given respectively produced by students as a sort of learning trail e.g. in form of mobile storytelling.
Practical ideas for creativity in history outdoor lessons using mobile devices

All ideas are appropriate to be used in lower and upper secondary school classes. The time spent for each activity depends on the way it is integrated in the lessons and can differ from a few minutes to a suite of lessons.

<table>
<thead>
<tr>
<th>Product</th>
<th>Description of activities</th>
<th>Digital tools</th>
<th>Examples for apps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geocache</td>
<td>Students hide a geocache next to a historical site and write a text or create riddle how to find it.</td>
<td>GPS</td>
<td>geocaching.com, opencaching.de</td>
</tr>
<tr>
<td>Guided walking tour</td>
<td>Students create short texts/photos/films about historical sites in a city, put them in an order for a tour on a digital map.</td>
<td>camera, audio-recording, digital map</td>
<td>maps.google.de, umapper.com, stepmap.de, myhistro.com (mapping combined with a timeline), geograffiti.com</td>
</tr>
<tr>
<td>(Online) Exhibition</td>
<td>Students take photos of architectural details to examine the architecture of local buildings. They search the internet for famous buildings of the same style or search for explanations and hints. They create an (online) exhibition on the history of architecture or about a historical site.</td>
<td>camera, search engine, blog/website</td>
<td>pinterest.com, tumblr.com, glogster.com, thinklink.com, Stitch Pics</td>
</tr>
<tr>
<td>Interviews</td>
<td>Students interview pedestrians on their perception of a nearby historical monument. They analyse the statements and make a short podcast or film about it. With some additional research they can compare the current perception and significance with the ones from the historical construction era, identifying different social groups and analysing changes and continuities.</td>
<td>audio-recording, camera</td>
<td>audioboo.fm, soundcloud.com, Audacity</td>
</tr>
<tr>
<td>Mobile location-based game</td>
<td>Students use an existing game/scenario to discover the history of a place by playing or they use an app to create a location-based game on the history of their school town made by themselves.</td>
<td>GPS, camera</td>
<td>trip-engine.net, treasuremapper.net, net</td>
</tr>
<tr>
<td>Photo manipulation</td>
<td>Students look for historical monuments in their city. They take photos and modify the images in order to change the meaning of the monumental representation. The manipulated photos should be presented and discussed. They can be published in the internet or printed and shown in the classroom and the schools.</td>
<td>camera</td>
<td>pixlr.com, PS Touch, Gimp, Photoscape</td>
</tr>
<tr>
<td>Photo scavenger hunt</td>
<td>Students get old photographs of the town / local area by their camera, search engine</td>
<td>commons.wikimedia.org, flickr.com</td>
<td></td>
</tr>
</tbody>
</table>
teacher (or search them on their own) and then they have to find the place in the present town to take a photo. They compare past and present, identify continuities and changes and do research on the reasons for the changes.

Discussion

Although there is still a lack of empirical research in the field of mobile history learning the authors consider that the conceptualisation presented here have delivered some ideas that could be useful for further studies. The ideas given above show that “mobile history learning” using mobile devices are especially suitable for creative approaches in inquiry- and design-based learning scenarios. Learning is in this context strongly situated, location based and by integrating mobile devices linked to the living and working environment of the students. Therefore it is reasonable to assume that the described scenarios will be effective.

A constructivist approach to mobile history learning understands learning as an active process of a subject that makes experiences and attaches importance respectively meaning to the development of an environmental object in time (cf. Bonwell & Eison, 1991; Völkel, 2005 and 2010, p. 226-227). In this context the use of mobile devices can play a significant role in project-based learning (PBL; Savery, 2006). Lisa Rosa (2012) speaks about “Learning 2.0” meaning project-based learning in times of and with the tools of the web 2.0 as base for 21st century skill development (see also Boss & Krauss, 2007). Rosa states four main features of this new learning cultures in the digital age: Learning is self-determined, personalised, collaborative, and (cross-) linked.

Mobile devices help supporting this shift in learning culture giving learners individual tools to access information and examining objects. Technology-assisted PBL can be made productive for history learning in schools as well (Hernández-Ramos & De la Paz, 2009). As a consequence of the digital change, the history curriculum also has to change from a national canon to individual and collective level of historical significance and skill based learning (Rosa, 2012b; Lautzas, 2012). Mobile devices are an important catalyser in this process as they allow to individualise the approach, the tools and the information used in the process of history thinking.
Using mobile devices in history classroom is a mindset not a prescriptive instructional technique. It requires a different approach to teaching and learning than is seen normally in schools. At the same time students create different, creative and innovative forms of - sometimes also collaboratively - generated narrations about history like geocaches or digital stories. These products help initiating peer discussions about history but can also be seen as important elements of social participation and commitment. Furthermore mobile history learning enables students to understand public debates on history, politics, culture, memory and identity. While moving through the places and streets of their home town, students start learning in the present for the future from the past.

References


