
Editorial and introduction

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Biographical notes: Jalal Kawash received his PhD from the University of Calgary, Canada in 2000. He is currently an Assistant Professor in the Department of Computer Science at the American University of Sharjah in the UAE and is an Adjunct Assistant Professor at the University of Calgary in Canada. His research interests are in distributed systems, mobile virtual communities and computing education.

Piet Kommers is an Associate Professor at the University of Twente. His specialties are new media, learning and societal effects. His work has been dedicated to exploring conceptual representations, hypermedia and virtual reality for learning purposes. Under the UNESCO auspices he explained the ICT and mobile devices as existential prostheses that open the mind for reorienting one's horizons and include conceptual awareness in both the students' and teachers' learning. Youth culture has been regarded as counter to school-based learning for a long time. As WWW-based communities have been identified as the ultimate social context for learning, mobile learning is seen as a vital dimension that links lifestyle, identity and opportunities for learning.

1 Introduction

Mobile communication devices such as the online PDA and the Bluetooth earphone are not only extrapolations of the wireless telephone; their culture is much more the consequence of the evolved trend towards sharing acute needs, ideas and brokerage between the one who owns and the one who desires. Exactly this last transactional model has proven to be an interesting area for research.

1.1 Summary of the articles

Mobile technologies have become widely used and embraced. How does this affect Web-Based Communities? Part of this issue of the IJWBC is dedicated to this question. Special Issue Editor Kawash brought together specialists in this domain. Eighteen authors, coming from eight different countries located in Europe, the Middle East, North America and Australia, are presenting an overview of the domain and also an analysis of specific applications in the domains of healthcare, multimedia, politics and education.

Chayko proposes a vocabulary for conceptualising mobile and online connections and communities. In her paper she examines how mobility and portability have influenced social interactions and groupings. El Morr and Kawash give a synthesis of research trends in Mobile Virtual Communities (MVCs). Based on their classification of MVC research in seven domains and their description of three general interests, they draw and suggest perspectives for the future. More than 80 references are enclosed.

Mobile technology can be a real support to vulnerable groups, and plays an important part in improving people's lives. Leimeister *et al.* report about a field experiment in which cancer patients are supported during and after their treatment. Sharing multimedia content is another domain in which mobile communities can play an important role. Loi and Roibás reflect on the fact that people are spending less time at home and in the office. There is an increasing need to perform daily tasks while travelling (nomadic behaviour). The authors discuss the impact on new forms of content and outline future studies in the areas of design, content modelling and learning models. Kawash *et al.* propose a novel collaboration model for MVCs. One of the applications they describe is helping car drivers to anticipate the traffic jam in a city like London. Forming a community around a website is a logical next step in the process of linking people together. Soro *et al.* introduce WebRogue, an internet tool that enables "the birth of an online community around websites". The authors see the combination with mobile devices as a next step to ubiquitous applications. The ties that are developed between people when using social software are called 'tech ties'. The article of Green *et al.* focuses on the effectiveness and value of these unique social network ties. They describe their usage in a US political campaign.

2 Mobile devices for extending 'presence'

The mobile phone and online PDA are some of the many recent media innovations in societal infrastructure. Though there are large precursors to mobile communication, such as the telephone and electronic agenda, their unification in the online PDA brings a totally new impact on the rhythm of planning, searching and consolidating prior results. The real implications, however, cannot be observed yet; it is a fact that simultaneous

membership to various groups is a notion around the corner. Its ergonomic benefits and complexities cannot be overlooked yet. Its social impact is more complicated as it addresses the issues of 'presence' and 'attention'. So far, 'real commitment' to a real-time conversation is 'uncontrived' dedication, and thus so is 'abstinence' from participating in other conversations at the same time. The gaze is a prime expression of exclusive attention via eye contact with a partner. An acoustic background and touching a handheld pointing device in a ring or watch indicates less focus. We may expect the new generation to access relevant background information while conversing with another person. Already the idea is applied by TV presenters, sportsmen and floor managers who need a large span of attention. The idea of 'the WWW in the ear' goes much further and was coined by Microsoft gurus like Hinrichs and Gates. The idea was that once Bluetooth earphones with microphones are omnipresent, it is quite likely that people will use voice input for querying the WWW and will hear back the spoken pages.

2.1 E-learning, m-learning and u-learning

Mobile devices can be considered an intermediate step between electronic learning environments and ubiquitous learning. The step to e-learning was possible thanks to web applications and computers at home. M-learning is the next step: a facility to be connected from anywhere to the same sources as via the e-learning environment. U-learning uses orientation (for instance GPS) and localisation software, in order to provide the student with tailored information. With regard to handhelds, the user is not obliged to be in a specific room with computer systems and it is possible to provide the student with tailored information.

2.2 PDA, a matter of identity and senses

The PDA will become a personal tool. It responds to your voice, to your handwriting. The look and feel is adjusted to your preferences. These make the PDA a perfect tool to support your social life. Compared to the mobile phone, the usage of a PDA as a phone is less convenient; on the other hand, the PDA has more space to work with and store documents. There are not many research centres that focus on this topic. The market itself is the main source of information on how equipment is used. Practical issues are not the only, or most important, argument for using equipment or applications. Lifestyle factors are equally important for the manufacturer. According to Blom (2005) the coming years will be dominated by the 'transparent' user: one who will always be everywhere. It is your identity and the visibility of your priorities, tastes and ambitions that counts. In the end, the PDA will be a remote control for a variety of systems. And 'distance' means, in the end, worldwide, because the connection works via the internet protocol.

2.3 Mobiles restore the students' ownership of learning

Already in 2002, international reports stated the crucial role of handhelds in flexible, social and conceptual learning.

Some important trend watches are Soloway *et al.* (2001): They spotted the added value of PDAs in relation to the computer systems and networks: low costs, easy to transport and the most important value – the student is the 'owner'. It becomes a personal tool.

The education institute is responsible for the service. The institutes should encourage this development.

3 Current trends

Mobile devices and education have a complex relationship. The attraction: communication, gaming and learning go well together. Music in combination with learning, however, is a controversial issue. It is essential, though, for the feeling of 'flow' and entertainment. These applications have more appeal to the user than the primary functions:

- Image

Is it hot and does it match your lifestyle? Glitter and glamour can be an amulet against a too traditional, 'boring lifestyle'.

- Problem solving

Many problems will be solved: being unreachable, being uninformed, living in isolation. At the same time new risks appear: overload of information, loss of privacy. This is called problem reallocation effects.

- Problem reallocation

The responsibility to provide students with standard information changes into the responsibility to respond to student reactions (back office).

The mobile device has the potential to bridge attraction and the ongoing demand for concentration and memorisation in learning settings.

4 Fascination

Not so much physical attachment to the desktop, laptop or local network, but being online: using e-mail, surfing and synchronising calendar and contacts. This gives a sense of freedom and yet commitment. This is what the term 'nomadic computing' is about.

Being 'mobile' represents more than travelling: it is important not to be at a certain location, but to belong to a group. Thanks to the mobile services it is possible for a team to use each other's information and therefore work more efficiently. Many examples are known from the field of data collection.

5 Mobile learning and teaching

Outdoor learning: the students use the PDA to support learning outside the classroom – during excursions, travel and the border areas between private time and self-study. Using the PDA contributes to the reading and writing abilities of the students, to learning the syntax and grammar of a second language.

5.1 *Improves motivation and psychological effects in the learner*

Perhaps owing to the Hawthorn effect, people who participate in a pilot phase receive extra attention. Therefore they get extra motivation:

- advantages of flexibility
- time and place independence
- planning to use computer facilities is unnecessary
- PDA fits better in the actual situation of the student
- PDA facilitates the learning outside the classroom.

5.2 *Accommodates the diversity of students' thinking*

The student himself/herself makes the decision as to what topic he/she wants to spend time on. The student can spend more time on difficult topics. The teacher coaches the student in the classroom as well as outside the classroom.

5.3 *Stimulates cooperation in learning*

There is no physical barrier of computer screens. People can change from one room to another without any problems. Information sources (URLs) can be exchanged without problems. This improves the chances of participation in learning communities on the web.

5.4 *Stimulates constructivist learning*

The 'change moment' between receptive and productive learning is determined by many factors, and should be recognised and expressed by the student himself/herself. The teacher is not involved in or responsible for determining this delicate moment.

The handheld is, more than a desktop, a personal tool and help. It is modified according to your personal settings. The tool stimulates a personal learning attitude. Making this knowledge explicit stimulates 'metacognition'; knowing your own knowledge and thinking. The PDA decreases the barrier between cursory, incidental and out-of-school learning. By using social software in combination with the PDA, a new dimension is opened: youth culture that will finally change school culture. Glasser (1986) gave an indication of the various magnitudes learning roles have on the actual retention of what comes to our senses:

| | |
|-----------------------------|------|
| What we read | 10% |
| What we hear | 20% |
| What we see | 30% |
| What we see/hear | 50% |
| What we discuss with others | 70% |
| What we experience | 80% |
| What we teach someone else | 95%. |

Its clear message is that perceptual modalities have impact. But much greater is the impact of students' roles, such as being responsible for what is learnt by your peer students.

5.5 *Learning amongst the young generation in the new university*

Communication and 'mutually supporting learning experiences' have become a large part of higher education nowadays. The existential element – "Who do I want to be, and why and how do I study this discipline" – is dominant in youngsters' mobile communication. It is recognised again that learning as shaping one's intellectual capacities cannot be isolated from one's personality, ideology and societal mission. The phenomenon of 'learning community' has gained momentum since the web evolved from an informational into a social and experiential context. 'Communities of Practice' refer to the notion that expertise is between – rather than exclusively inside – persons. Its consequence is that, both in study and work, institutional members participate in external communities through simulations, gaming and virtual realities. Second Life is a specimen of a larger trend towards ubiquity that allows citizens to identify with larger entities than regions and nations. The key question in this special issue is to what extent our universities will absorb/defy youth culture in its way of learning and teaching. My thesis is that universities need to articulate more sharply what exactly is a 'learning culture' and how it is supposed to proliferate in continuous professional learning in practice.

6 **Mobile learning and teacher education**

Mobile learning is a late media representative in the school. One can even say that teacher education has just accommodated WWW-based learning support systems. Mobile learning is a much richer intervention in traditional didactics. It is based on the notion that students bring in their own culture. 'Ownership' is one of the key elements for both learners and teacher-students.

7 **Mobile learning and prerequisite design stages**

Is it logical to expect traditionally designed didactic scenarios around mobile learning?

When the student is in the driver's seat and the education is not by default located in classrooms, the student is the central figure in this field. The role of the educational institutes must therefore be flexible, and responsive to the questions that the student has.



The sequence of existential up to navigational design reflects the preferred order of arguments before the learner can finally benefit from earlier planning and precautions. Too often we see a quick jump from educational goals to design solutions like instructional designs, without addressing the intermediate concerns. The rationale of the displayed sequence is that at any of the transitions the learner may detect a mismatch between the actual and the envisioned goals and go back in order to correct an earlier misstep.

7.1 Existential design

Existential design refers to the moment that students and teachers become aware of the meaning of learning for one's real life. Quite often the certificate is the 'final' legitimation for learning. As soon as the real value of learning for one's mission in life becomes apparent, it is much easier to benefit from the succeeding sessions.

7.2 Intentional design

Based upon the earlier expressed existential mission, it is the learner who needs to specialise the notion of context: "How can I make sense of this situation?" Only after re-identifying this creative decision, is it possible to guide the learner to the question of how to interconnect meaningful events from the past and derive their underlying 'concept'.

7.3 Conceptual design

The contribution of conceptual design is the focus on associations instead of logical arguments. Concepts are organised in a network instead of a linear organisation. For example: Starting with the concept 'mobile learning', this will bring a circle or spiral of aspects and their final effect on the quality of learning. When the concept space is filled with taxonomies, it is likely and even desirable that at a certain stage the learner attempts to make cross-links and even weaves earlier separate trees into a new structure.

7.4 Metaphorical design

The way students will use the PDA and the image attached (lifestyle consequence) is related to the metaphor. At this moment the mobile phone is still more popular than the PDA, but this will change. The mobile phone will include new features and will function as a remote control, and therefore will be the right tool for ubiquitous learning. This creates the possibility to serve the user wherever he/she goes. The metaphor becomes this: despite travelling around, you will 'stay who you are'. It is like taking your valuable things with you and leaving coincidences behind you.

7.5 Structural design

The analogy between the familiar and the unknown can only work if the learner can fall back on a schematic constellation of transitions between those concepts that seem virtually unrelated. Even if the formal relationship between the notion of 'power' and 'responsibility', for example, is absent, the learner should show willingness to start thinking about the potential dependency.

7.6 Navigational design

Once the student's mind is open to understanding the hidden relationships in the target domain, it is the role of the teacher and curricular materials to guide the learner through episode and episteme. Navigation needs both the map of induced meaning and the learner's agenda on what to achieve in a certain session. When it comes to testing, it is the responsibility of the test design to link the semantic priorities with the progression from easy to complex. In other words: the test sequence needs to respect the learners who have a partial understanding. Asking questions on combinations of concepts may unnecessarily harm the weaker students.

8 Conclusion

The experience of mobile learning is fruitful for undertaking more drastic innovations in education and training. Its main message is that the learner as a 'person' needs to be taken seriously. In order to provide a solid sequence of considerations and choices, the design cycle from existential until navigation needs to be taken into account. This notion is vital before a real sustainable benefit from mobile learning can be expected. We wish you to enjoy this special issue very much.

References

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