Editorial

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Biographical notes: Elspeth McKay - MACS(Snr), Senior Postdoctoral Research Fellow (HCI), at the School of Business IT, RMIT University, Australia; continuing investigations of how individuals interpret text and graphics since gaining her PhD in Computer Science and Information Systems, at Deakin University, Australia. She has a Bachelor of Business, with distinction (Business Information Systems), a Graduate Certificate of Applied Science (Instructional Design), and a Graduate Diploma of Education (Computer Studies). Her doctoral research identified that not all individuals cope effectively with graphical learning; identifying the complexity of the visual learning environment. Further work includes; the prospect of specialist e-Learning shells implemented through RIAs to increase the interactive dynamics of web-mediated knowledge mediation, and associated ontological strategies of learning contexts with web-enabled asynchronous learning frameworks, design and development of enhanced accessibility through touch screen technologies. Elspeth's continuing commitment to mentoring scholastic achievement is also evident in the number of her international invited editorships.

Dr. Piet Kommers is Associate Professor at the University of Twente and part time Lecturer at the Fontys Academy in The Netherlands. His specialties are advanced learning tools such as Concept Mapping, Virtual Reality and Mobile Learning. His research and teaching stretches from teacher education via European Joint Research Projects to international projects under the auspices of UNESCO.

His recent publications are on learners' preconceptions and representations that express pre-intuitive ideas before actual learning may start: *Cognitive Support for Learning; Imagining the Unknown*. He is editor of several research journals and organises conferences in Mobile Learning (IADIS International Conference on Mobile Learning 2005) and E-societies (IADIS International Conference e-Society 2005).

In this special edition on the *Effectiveness of Rich Internet Applications for Education and Training*, we have offered a peer reviewed dissemination platform for those who see the arrival of essentially cutting-edge Web-based learning tools. The manuscripts we have included may be prognostic, reporting actual successes/failure, experimental and even retrospective reflections. Once the invitation for this special issue was released, we soon became aware of an emerging tend for people to rely on Web-based information resources rather than "local" media devices.

Meanwhile, the added value of interactive web-mediated learning support systems has shown there is an immense attraction towards implementing information and communications technologies (ICTs) to enhance our learning potential. Some believe this rather new approach to increasing our experiential knowledge is now achievable through Rich Internet Applications (RIAs). However, the instructional/learning qualities that are highly interactive, immersive and constructivist have been ignored for several years for technical reasons.

Fortunately the newer systems' developmental tools like Java, Flash, Dreamweaver, VRML and X3D that have entered the web courseware design field, re-establish the essential criteria for realising more effective learning environments. The current ICTs provide a range of powerful tools that include: easier access, updating capability, scheduling of tasks, and flexible environments for both learning facilitators (teachers, corporate trainers) and students. There are three ICT elements that represent an RIA: rich client technology, server technology, and development tools.

RICH CLIENT TECHNOLOGY (the Flash player is a good example) to provide all the benefits of the web by keeping costs to a minimum (automatic compression and loading of components on demand). In addition: client-side scripting, high performance connectivity, real-time server communication.
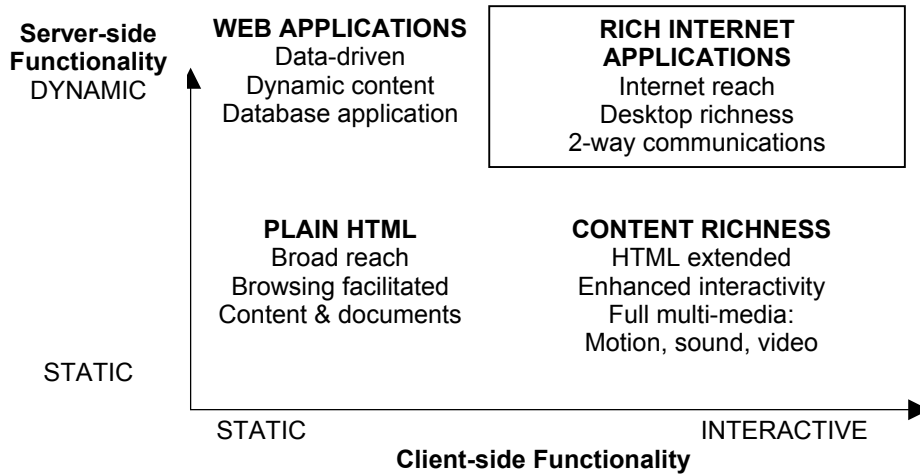
SERVER TECHNOLOGY provides the markup languages to connect to the rich client technologies; for example web database language tools.

DEVELOPMENT TOOLS offer an environment that provides the ability to create the various pieces of an application - from user interfaces to server-side logic.

Staffing this type of ICT production event requires a mixture of IT professionals: an application architect to integrate the ICTs into an existing environment, a multi-media expert to develop the interactive graphical user interface and communications service with the application server, and a web-designer in the initial stages of a system's development project to consult on the user interface specifications, and act as the conduit between the architect and multimedia practitioner.

Successful RIAs can offer a range of benefits that include: distributed, server-based internet applications that extend the interactive capabilities desktop applications. As such, they should enhance the user's interactivity and manipulation of data, rather than behave as fancy graphical page-turners. They should provide the user with a real-time status check mechanism whenever background processing is underway. This way, informed users can understand and stay oriented during a lengthy activity. Finally, because RIAs' can store client-side data, this allows customisation of their interaction during a system processing cycle.

Figure 1   Rich internet application's environment

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Server-side          WEB APPLICATIONS        ┌─────────────────────────┐
Functionality           Data-driven          │     RICH INTERNET       │
DYNAMIC               Dynamic content         │     APPLICATIONS        │
  ▲                 Database application      │     Internet reach      │
  │                                           │     Desktop richness    │
  │                                           │   2-way communications  │
  │                                           └─────────────────────────┘
  │
  │                     PLAIN HTML              CONTENT RICHNESS
  │                     Broad reach             HTML extended
  │                  Browsing facilitated      Enhanced interactivity
  │                  Content & documents        Full multi-media:
  │                                            Motion, sound, video
  │
STATIC
  │
  └─────────────────────────────────────────────────────────▶
               STATIC                          INTERACTIVE
                    Client-side Functionality
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In Figure 1, we see the plethora of RIA attributes that sit as a nexus between server-side and client-side functionality to include: increasing the reach of the internet, to enhancing desktop with two-way communications platforms.

Instead of focusing on the actual layers of representation and storage, the manuscripts in this special edition express communicative patterns among learning partners that would have been complicated without having the interconnected work spaces as we experience world wide web (WWW).

More than during the "de-schooling society" of the seventies, the web-based learning projects of that time, demonstrate that schooling was an exponent of learning communities, rather than political ambitions. For instance the manifestation of learning experiences via electronic portfolios. It is not only the learners themselves who become aware of prior learning; we can see in the following manuscripts that new generations may build upon these experiences. In this sense, through implementation of RIAs the learning communities may learn "between" rather than "in" themselves.

Traditionally it may have been a great effort to find the "right person" to interact with during some particular learning session. Now as the granularity of learning reports evolve, it is even possible to locate these critical moments where learners tend to gain understanding or tend to restructure earlier conceptions. In this sense, it is the growing awareness that various learning institutions may not only facilitate gaming among their learners; the facilitators or institutions themselves are involved in gaming patterns. The game for this emerging new genre is bringing forward a new generation that can exclusively reach the experts via universities. In the near future, they may even reach more and more sophisticated experts in far flung locations directly, compared to the commonly available curricular resources available at the more traditional learning locations.

The manuscripts in this special edition provide a helicopter view of web-based learning services. Readers will see that it stimulates us to extrapolate the obvious trends in e-Learning the last five years.

From traditional instructional strategies, via constructivist to existential learning. This trend shows that learners are increasingly seen as autonomous learners that need to build up learning and information skills so that they can survive on the WWW.

Learning per se has become a sector of working and playing. Both learning and playing have an important role in working and vice versa. At the same time many sincere attempts are made to integrate gaming in the learning arena. In contrast to playing, gaming manifests as 'becoming smarter' in the game, while playing has a more direct type of spin-off advantage to 'learning a certain topic'. It is quite likely that playing will get a more prominent role in simulations and learning games.

Mobile and ubiquitous learning: from the desktop via the laptop to tablet PCs, PDA's and finally the mobile phone. The continuing trend to integrate learning in the manifold aspects of life brings forward the need to stay online. Given the economies of scale for learning in teams rather than individually, it is easy to predict that online mobile devices will become the next emerging interface for connecting various types of expertise, so that first hand learning becomes the preferred communication experience.

For the learner, no doubt the coming years will become challenging as learning institutions start exploring alternative scenarios like: the lecture hall, the practicality of the economies of scale, the potential for shared study rooms. Will they all survive? However, we predict that many types of new learning transactions will emerge. One innovative idea was recently brought up in the European Union (EU) projects MySelf[1] and Intuition[2]. Collaborative peer learning has reached a level of saturation. Complementary to peer learning, is seeking and consulting learning partners who already have a higher level of mastery. It is proposed that for propelling this commitment to others' learning, it is necessary to create some type of voucher system that provides the learner with a 'right for consultation time' from another person, once the learner has offered their time to help a less advanced learner. Learning, gaining consultancy, and being mentored, are all diverse aspects of the face-to-face learning context, which had been envisaged exclusively as 'optimal participation in a classroom led by a teacher'.

This special edition provides you with real examples of RIAs that innovate new learning scenarios. Most striking, is the widening interpretation of "interaction". In the era of early technologies: like interactive video, clickable hypertext, questioning-and-answers. It was a defacto merit, if the learner could react in diverse ways and received an answer that essentially rested upon the correction of an earlier reply. "Interaction" in its new context of constructivist and existential learning is the manifestation of relational learning: based upon some-one's personality and even someone's attraction for identification, interaction is a much broader process than instruction, questioning or sharing information. We propose that it is the development of a level of mutual trust between a facilitator (learning system) and learner, in which there is a flow from 'receptiveness', to a final personal appreciation of experiencing the knowing of something worthwhile. In this collaborative manner, a novice really learns and builds upon their earlier efforts to succeed in the acquisition of knowledge. In other words; the web-based facilities "meeting" a person and sharing more "subtle expressions of expertise" revitalise a genuine value in teaching and learning.

Beyond the scope of web-based facilities and tools, it is now an urgent episode to sketch the new "community squares" and "curbside cafes" where learning will occur in the coming decade. Wikis and blogging may continue for their pseudo-flexibility. However, we propose they are not enough to bring the required knowledge hierarchy between understanding and intuition. You are kindly invited to critically reflect upon the envisaged ideas in the articles of this special edition.

All published manuscripts in this special edition were double-blind reviewed before final selection by the Editors for publication.

Notes

1   The European MySelf project http://www.myself-proj.it/

2   EU Network of Excellence "Intuition" http://europa.eu.int/information_society/activities/ atwork/projects/fp6projects/intuition/index_en.htm