

Working Group Reports

Key words: Collaborative Learning, Cyber Risk, Digital Divide, e-learning, e-literacy, Equity, ICT, Imported Culture, Learning Environments, Power Shift, Privacy, Security, Social Issues, Virtual Reality

Abstract: These are the nine edited reports prepared by the different Professional Working Groups at the SECIII conference. Each represents many hours of discussion - both during designated conference discussion time and at more informal sessions. All of these reports were delivered at the final session of the conference

1. E-LITERACY

Just the term E-literacy raised a host of questions and generated a tremendous amount of discussion. What is the problem with E-literacy - is it the 'E' or the 'literacy'? Does 'E' refer to keyboarding, the content, or the interface? Is E-literacy just about using a computer and knowing what the software is used for? At what level of use are we talking? With reference to the 'literacy', do we mean 'competence' and if so, in what? Is this 'using' a computer? Is E-literacy a sub-domain of general literacy? What are the parallels between E-literacy and literacy and numeracy? Can a good, or acceptable working definition of literacy, numeracy and E-literacy be described as "to be on familiar terms with?".

The group felt the term E-literacy could be given a more precise meaning by adopting a structure proposed by Heinz Moser for Media Competence. Media Competence involves - Technical aspects, Cultural aspects (such as codes and forms of communication), Social competence (i.e. people should

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be able with using and not using ICT) and a Reflective aspect (they should reflect about ICT in society).

It may well be that there is no problem for the majority of students who live in an E-rich environment: they can acquire the competencies they need rapidly and easily. However, what about the 10 - 20% of children who - according to David Wood in his keynote address - find it difficult, even impossible, to learn using computers? It is clear that, initially at least, it is the teacher whose development has to be supported. This involves providing time, opportunity and training.

We have to discuss innovation with teachers and encourage them to combine teaching and learning methods, which should be offered in an ICT-rich environment, within which pupils will be enabled to make choices. As part of their general, out-of-school E-literacy pupils spend a lot of time playing computer games - as mentioned in the keynote by Colin Harrison. We have to find ways of using such games for 'educational' purposes.

Our conclusion is therefore that we do not need to teach E-literacy, but must provide plentiful and 'sensible' opportunities for both students and teachers to explore and resolve problems and issues using E-literacy and so acquire particular E-literacy skills, techniques and understanding. However, this implies changes in the way student learning is organised, so that participants in the student's education (parents, pupils, teachers) are prepared to adopt different roles at various times. Finally there are some basic concepts in E-literacy that have to be learned by all pupils and teachers.

Acknowledgement

The above summary is based on a report of the SECIII Working Group on E-literacy. Participants were: Yvonne Büttner (Chair), Barry Blakeley (Rapporteur), Beat Döbeli, Dirk Draheim, Michael Janneck, Peter Micheuz, Robert Munro, Prathiba Nagabhushan, Clara Oliveira, Ulrik Schroeder, Alnaaz Kassam, Tom van Weert.

2. COLLABORATIVE LEARNING

Collaboration intensifies the human aspect of learning. It increases our learning potential and empowers us with the knowledge of others. It is an ancient educational model (knowledge building in pairs by Plato and Socrates, study groups at medieval noble courts and constructive learning of the Reform Pedagogy movement).

Collaborative activities are democratic by nature, but require careful planning, monitoring and scaffolding by the teacher. Collaboration makes group members more flexible and eventually replaceable as the group as a learning community shares knowledge and experiences.

Concepts of collaboration vary from country to country – some projects are more mentoring-intensive, others aim at substituting teacher work through student engagement. In order to develop successful strategies and teaching aids, mental models and learning theories have to be used. Some important contributions in this area include Kenneth Brophy's Collaborative Learning Theory, Action Learning Theory by Ray Revans and Entrainment Mental by Jean Francois Chosson.

The organisation of knowledge in collaborative learning projects is crucial: currently we see rigidly controlled input and output methods and linear curriculum structures, which do not generally support the collaboration of learners. In a collaborative learning environment students should acquire *co-operative behaviour and learning content* at the same time.

ICT can support but may also hinder collaboration. All ICT-based collaborative projects should include face-to-face components to motivate learners and increase their social skills as well as their learning skills. Important bodies of research support the use of collaborative learning through ICT at all levels of education - such as:

- CSCL environments and cognitive tools e.g. Knowledge Forum by M. Scardamalia and K. Bereiter, University of Toronto.
- International digital projects of the European School Net (EUN).
- SEMIK Project which is concerned with collaborative learning experiments, created by H. Mandl at the University of Munich.
- KOLUMBUS Learning Space developed by the University of Dortmund.
- Collaborative mentoring at La Villa Media, Grenoble.
- The Jigsaw Classroom Method proposed by Aronson.

Collaborative learning methods are generally *taught but not experienced directly* as part of Theory and Practice of Learning studies in teacher training. Theoretical knowledge is not applicable in classroom practice unless teaching methods are associated with this knowledge.

Assessment Issues

Collaborative learning requires suitable assessment methods that value teamwork. If individual achievement is the only valuable outcome, group members will compete instead of supporting each other. Traditional examination and grading systems discourage teamwork.

Research at Budapest University on personality traits and work in CSLEs has found that the personality of the learner and teacher contribute hugely to the success or failure of participation in a collaborative learning experience. Some characteristics are modifiable through successful mentoring but certain learning and teaching styles are not. In Australia the "Electronic Peer Review" method under development at the University of Adelaide and the

computer-based essay evaluation software used at the University of Melbourne offer promising assessment alternatives.

School disciplines or learning areas allow for different collaborative methods. Some knowledge items, skills and abilities can be fostered through collaboration while others require frontal or individualised approaches.

ICT can support accurate and detailed assessment of the collaborative process, but privacy needs to be protected and too much control avoided. Some educators believe that the collaborative process should not be monitored and only the outcomes should be assessed – others find ICT-based evaluation of collaborative learning important for developing successful teaching strategies.

Ideas for Action

Collaboration as a learning activity should be encouraged at all levels of education and professional life. Present assessment practices - both at school and in professional life - do not support co-operation.

Mental models of learners and *learning models* should be conceptualised before planning a collaborative learning project.

Human aspects of collaboration in an ICT-supported environment should be carefully studied and the results used in CSLE design.

Widely used ICT-based learning tools and environments should be assessed to find out if and how they support collaborative learning and other contemporary educational paradigms.

Collaboration needs a supportive institutional environment for effective implementation. *ICT acts as a catalyst, evaluator and moderator* for collaborative learning and makes desirable communication, mentoring and co-operation practices easier to realise with large groups of learners. Face-to-face teaching and tutoring is and will always be, however, at the core of education.

Acknowledgement

The above is based on the report of the SECIII Working Group on Collaborative learning. Participants were: Bernard Cornu (Chair), Andrea Karpati and Anna Strehler (Rapporteurs), Jane Andersen, Iolanda Cortelazzo, Dirk Draheim, Ruth Messner, Guido Rößling, Sjoerd de Vries.

3. SOCIAL ISSUES AND THE SHIFT OF POWER

Looking at the social issues associated with Information and Communication Technology (ICT) the following observations can be made:

- Business culture is increasingly competitive.
- It is difficult to work and live in a 'Tree' structure and a 'Network' structure at the same time.

- Digitalisation is the "most extreme" form of abstraction.
- Internet is transforming social interaction among different age groups in society in all countries.
- Many university students in Europe are dissatisfied with their curricula.
- ICT is a major component in merging personal, private, leisure and work time creating increased stress.
- In contradiction to claims made in the nineties of the last century, ICT has not decreased the gap between North and South - it has worsened the situation.
- The frontier between fact and fiction is fuzzy.
- Important areas of ICT "know-how" still lack understanding on a conceptual level.
- Today we have more and more information but less and less critical understanding.

We would therefore like to recommend the following:

- Emphasise critical analysis and become more a producer than a consumer.
- However, do not apply the rules of the production process to the learning process.
- Be aware of different rules and regulations in different kinds of environments (school, job, games).
- Foster interpersonal and social relationships among individuals and/or groups in a society/countries.
- Change learning from a push model to a pull model.
- Take into account and integrate many power shifts like: Teaching to learning; global to local; central to peripheral; traditional to new media; private to public; school to society; individual to groups (Increase the multiplicity of partners).
- Try to integrate ICT into society and not vice versa.

Concrete actions which can be undertaken in view of these recommendations are:

- Do not be afraid to tell students that you do not fully understand all of the leading edge concepts.
- Provoke and facilitate frequent face-to-face exchanges and communication among top professionals in industry, top academic researchers and decision makers in education.
- Stimulate young researchers to carry out research into social issues/power shifts.
- Establish links with the concrete actions of the other working groups in respect of equity, imported culture and cyber crime.

- Include social aspects/power shift issues in teacher education in a comprehensive manner.
- Help parents understand the importance of social aspects in child development.
- Take the opportunities offered by ICT to allow young people to teach adults about technology (use of a mobile, sending an email, programming a DVD recorder) to overcome the generation gap.
- Focus on learning by doing - become a coach or a mentor for others.
- Explore and provide the possibility of 'Time outs' for personal development during the life long learning process.
- Encourage each school actor to be a producer by initially focusing on the process of learning and not on the end product. Increasingly refining the product comes later.

Acknowledgement

The above is based on the report of the SECIII Working Group on Social issues and the shift of power. Participants were: Raymond Morel (Chair), Muddassar Farooq (Rapporteur), Dirk Draheim, Marc Pilloud.

4. VIRTUAL REALITY

The following observations can be made about Virtual Reality:

- Virtual Reality allows you to move through a world without limits.
- The more senses are involved the more the experience is Virtual Reality.
- It is learning by experience (but there can be risks involved).
- It allows sharing of experiences.
- It enables financially efficient and time efficient creativity.

The following recommendations with respect to Virtual Reality are proposed:

- Explore historical environments.
- Develop Virtual Reality experiences for special needs students.
- The educational community should share information about Virtual Reality.
- One set of Virtual Reality equipment should be provided for each school.
- Develop good models for educational use.
- At future IFIP events a 'track' on Virtual Reality should be established.

Acknowledgement

The above is based on the report of the SECIII Working Group on Virtual Reality. Participants were: Pieter Hogenbirk (Chair and Rapporteur), Maria Iding, Wolfgang Luther, David Passig, Marc Pilloud.

5. EQUITY AND THE DIGITAL DIVIDE

The introduction of Information and Communication Technology produces Haves and Have-Nots due to the following:

- Technical aspects of infrastructure, ability and bandwidth: there are countries which do not possess the technical infrastructure to support this technology – sometimes there is not even electricity; Even if there is access to computers and electricity there might be further limitations, such as in bandwidth.
- Gender: fewer girls are involved in ICT; is this because there is not a conducive environment for women and girls?
- Politics: ICT is a threat for countries which do not want the free flow of information.
- Techno phobia; there are technophobes who are scared of the technology and will not use it even if they have access.
- Language: a dominance of English and Western language which limits access to information.
- Literacy: access to computers and the Internet is seriously limited when users are illiterate. However, people may also have no 'lectronacy', which means they are illiterate with respect to electronics.

There are, however, positive points:

- Technical: sometimes the need for ICT allows certain countries to leapfrog many technologies to acquire access (electricity, computing, networking).
- Gender: some uses of the net, e.g. e-mail and chat lines encourage girls to get more involved.
- Political: because of the free flow of information some countries are forced to become more open.
- Cultural: more 'broadcasters' and broadcast opportunities are available so more cultures can speak for themselves and explain themselves; especially when the bandwidth is available, multimedia applications open opportunities for more varied cultural expressions.
- Educational: the Net opens access to educational texts and information about learning that are up to date and freely downloadable. Users of the Internet can also freely join global discussion lists.

In view of the above the following recommendations are made:

- The technology should be expanded so that multimedia can be used to overcome linguistic barriers.

- Educational systems in the West should open up and learn about cultures of the world.
- There is a need to help poorer countries to access ICT using alternative technologies - satellite phones, solar-powered laptops and cheaper computers.
- There is a need to create a culture of inclusion for other cultures and females.
- Developing countries must be included to participate in global trade markets.

Acknowledgement

The above is based on the report of the SECIII Working Group on Equity and the digital divide. Participants in this Working Group were: Johannes Magenheimer (Chair), Alnaaz Kassam (Rapporteur), and others.

6. IMPORTED CULTURE

Imported culture can be defined as cultural imperialism where dominant cultures take over less dominant ones. The following facts can be stated:

- Dominant cultures, for example the Coca Cola culture, do not necessarily reflect the true American identity. It is actually very commercial and stereotypical 'culture'.
- American identity is diverse and includes many cultures.
- The Internet has the power to include everyone if it is used pro-actively.
- Strong commercial influences may drown all diversity.
- Various diasporas (immigrants) could use the Internet to develop their own cultures in their new countries and could introduce new ideas into their home countries.

It raises a number of questions:

- How important is it to preserve individual cultures?
- How important is it to have diversity?
- There is no one right way.
- Have civilisations always enriched each other?
- Is it important to preserve linguistic, cultural and religious diversity?
- Can we use the Net to revive and preserve cultures and languages?
- Are languages and cultures equal in importance?

The following recommendations can be made:

- It is important to re-define American culture so that it is more diverse and less commercialised.
- It is vital that we do not lose languages because they are repositories of culture.

- It is important to include minorities, females and special needs in the decision making process in powerful media circles so as to be more inclusive.
- It is important to develop educational materials which include global diversity and include a range of authors.
- Other cultures should be encouraged to tell their own stories and use/add to the Internet so that it exhibits a rich content of oral cultures.
- Create search engines that discriminate less and are more inclusive.
- In these early days of networked technologies, it is vital that we include all members of society and that the flow of information is from the less dominant to more dominant people.
- There is a real danger that the commercialism of traditional media will take over the new media; we must be vigilant and ensure this does not happen.

Acknowledgement

The above is based on the report of the SECIII Working Group on Imported culture. Participants included Carolyn Dowling (Chair) and Alnaaz Kassam (Rapporteur).

7. CYBER RISK, SECURITY AND PRIVACY

The following observations can be made:

- There are surveillance cameras everywhere.
- Governments are checking e-mails.
- Encryption of e-mails has been possible for more than 15 years but is not applied.
- Manipulating private data or stolen pieces of new technologies is becoming a problem.
- There are hidden links between mobile industries, factories and network providers.
- There are issues related to websites and privacy and updated and dynamic information is difficult to control in real time.
- People who create systems without risks never communicate their opinions with people who are aware of the risks (identity card, mobile telephone, controlling movement through GPS).
- Everybody feels suspicious about ICT, but only a few do something about it (copyright, giving your bank account).
- It is sometimes dangerous to rely on technology and often digital technology and human factors don't mix very well - e.g. the Konstanz/Bodensee air crash.

Society should be asking a variety of questions, including:

- Should technology be used before public concerns or objections have been assuaged e.g. E-voting, identity cards?
- Should systems, which preserve privacy, that have developed over many years, even many centuries, be swept aside by technology?
- If a technology makes something possible, can human rights be bypassed e.g. digital pictures placed without permission on the web, doctoring of images?
- Should we be taking responsibility or risks?
- How should we educate the users?
- Is informational self-determination a part of human rights?

The following recommendations can be made:

- We do not have to create a system we cannot control (the role of agents in information systems).
- Open sources are the best guarantees to uncontrolled agents.
- Take care with cookies and customer profiles.
- There should be no advertising of/on and no link to an Internet service without an agreement guaranteeing protection of privacy.
- We have to protect minors in the educational system (there is a major difference between children in school and employees).
- We have to inform and to educate the user.
- We have to educate the user to understand a code of ethics.

Recommended actions:

- Use practical exercises, and simulations of cyber societies (role playing, case studies) to train students on cyber risk (on both an emotional and cognitive level),
- Develop discussion on general issues of ethics, freedom, responsibility and risks.

Acknowledgement

The above is based on the report of the SECIII Working Group on Cyber risk, security and privacy. Participants were: H  l  ne Godinet (Chair), Johannes Magenheimer (Rapporteur) and others.

8. ICT LEARNING ENVIRONMENTS

The following observations can be made:

- ICT learning environments promote effective learning.
- ICT learning environments can be used both in dedicated laboratories, in conventional classrooms and at home.
- Both students and teachers require training in the use of ICT learning environments so they can be used to full advantage.

- More social teacher/student interaction is needed for effective learning.
- Teachers and students should spend more time together on tasks/activities.

Recommendations on the basis of these observations are:

- Integrate ICT learning environments into course design.
- Design learning activities for use in laboratories and at home.
- Provide close articulation of course materials.
- Learning activities must be effectively guided.
- Provide introductions and constant follow-up, as well as new materials.
- Ensure the focus is more on learning than on visual materials and the technology itself.
- Prepare learning materials as an enhancement, not as a replacement.
- Be prepared for questions that will be asked by the learners.
- Promote effective time management among teachers and students.
- Reserve extra time for ICT learning environment related tasks and activities.

Acknowledgement

The above is based on the report of the SECIII Working Group on ICT learning environments. Participants were: H el ene Godinet (Chair), Guido R obling (Rapporteur), and Christino Carbonell.

9. E-LEARNING

E-learning is not just delivery of knowledge to students in a cost-effective way - it is learning in full awareness of an ICT-rich environment. The key question is: Why should learning change? There are several reasons:

- E-learning is more effective.
- We have a new world order and a society, which has changed markedly over the past twenty years. A new world and a new society demands new approaches to learning and E-learning is very much in tune with our e-society.
- World wide demand for education is greater than we can satisfy with the teachers we can provide, especially in developing countries.
- Students are now learning part-time (often because of financial necessity).
- Society is convinced of the need for lifelong learning and knowledge can be out of date in 2 - 3 years.
- We need the availability of e-learning.

We should make use of the knowledge students gain from the work they do while they are learning. Learning should be in teams some of the time

because learning is a social activity. However, we must also remember that learning is still a very personal activity.

How should learning change? ICT offers flexibility, empowerment, a change in the style of thinking and an attractive, rich environment, especially for young people. Teachers do not seem to have grasped this. Too many teachers equate E-learning with the web. They direct pupils to look for web sites and provide no support in searching, evaluating, structuring the approach, or the information the pupils uncover. We need to change the way we handle teachers and learners. We also need to capture the imagination and support of parents to back any changes which are made (see David Wood's Keynote paper). Despite considerable expenditure the infrastructure in schools is still a problem.

Acknowledgement

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