

Panel on Lifelong Learning

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Abstract: The panel started with short presentations by the panellists. The subsequent discussion focussed on the following issues: the need for academic staff to learn new technological skills to make changes possible; the need for the course development cycle in distance education to become faster and more accommodating to students' needs; the need to acknowledge learning taking place outside of universities; the different and necessary role in lifelong learning played by universities as places for reflection and critical perspective; the role of Information and Communication Technologies (ICT) in lifelong learning; the appearance in different forms of virtual universities; and the changing role of the teacher.

1. PRESENTATIONS

Tom van Weert stated that lifelong learning may be seen as working and learning at the same time—a dual mode of operation. What do people need to know of informatics to effectively use “computer tools” in this learning? The IFIP/ UNESCO informatics curriculum assumes that learners need basic instrumental competencies and conceptual competencies. Getting your European Computer Driving License is not enough: knowledge of the instruments or applications is needed, but so, too, is knowledge about how to apply these applications.

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Jan Wibe discussed the interest of IFIP Technical Committee 3 (Education) in Lifelong Learning (LLL). It will be a theme in the IFIP World Congress 2000 in Beijing. A new Working Group on Lifelong Learning may be established at the IFIP World Conference Computers in Education in Copenhagen in 2001. This Working Group would focus particularly on the actors in Lifelong Learning and on the use of Information and Communication Technologies (ICT) in delivering Lifelong learning.

Catherine Fulford presented a study showing that adult learners are happier and more satisfied when in an interactive environment. This was the result of research on interaction through two-way distance television. This research developed a taxonomy that independent observers may be able to use in other contexts. A unique aspect of the project is its attention to discourse analysis literature.

Ursula Fuller discussed a strategic institution-wide approach for informal lifelong learning. This was through the University of Kent's use of consultation to move toward a learning organization and to involve members more in this kind of organization. There were two major consultations in electronic form: through web based documentation, and follow-up e-mail for consultation. This potentially enlarged the decision-making responsibility. Their research revealed a high level of acceptability of web-based consultation; however, 100% of the organization must be electronically connected.

Fred de Vries pointed out that current distance education students do not follow a full curriculum; they are taking courses for lifelong learning demands, not for degrees. For instance, the Open University of the Netherlands offers a single package of 45 courses for specific students, but more flexible offerings will follow. Students are offered richer environments, with more students regularly studying from home through online virtual environments. The role of staff is also different because course development is now faster and more flexible—not the former 2-4 years. Their courses have to be more flexible and more personal for specific students. Higher education institutions will have to collaborate more because they have the same student market.

2. ISSUES RAISED IN DISCUSSION

Discussion started with a focus on the need for teachers to change from being simply the source of knowledge to being flexible enough to learn from their students and modelling lifelong learning as they, too, learn new technologies. Some said that this was not new, teachers have always had to

learn while teaching; however, now there is a greater imperative to keep up with technological changes.

Whether students would want to learn independently, or in groups or teams as in business, was discussed, as was the role of the university in imparting values rather than knowledge only. Universities were seen as validating knowledge in their accredited courses, whereas lifelong learners don't necessarily need the validation that universities provide. Recognition for prior learning was seen as important in lifelong learning because courses offered are not just imparting skills to the uneducated; learners come with many skills already.

The course development cycle in distance education must change, becoming more accommodating to students' needs. Institutions that are able to meet the needs of individual learners will survive, and commercial institutions will respond if universities will not.

Learning that takes place outside of universities must also be acknowledged because many people learn more in their workplace when they have an authentic purpose and task through which to learn. Universities play a different and necessary role in lifelong learning as places for reflection and critical perspective that are different from the workplace.

Whether or not stored profiles of each student's learning is a good idea was hotly debated. Some saw it as a way of speedily providing programs better suited to individual needs and providing flexibility for institutional change without loss of knowledge about earlier study and preferred learning style. Others saw it as negative, classifying students for life when they should be able to start afresh in each new program.

The role of ICT in lifelong learning was again raised, and the discussion turned to how universities as we know them will disappear and how virtual universities will appear in differing forms. Some universities would be equipped with learning labs—computer centers where students sit together and interact together with the computers as tools. Some students in Asian countries were reported to be frustrated with distance education and the Internet. It was thought that the traditional classroom would take a long time to disappear.

Again, the changing role of the teacher in this scenario was raised. Some saw the role becoming more one of management—as organizing and structuring programs for students. Teachers tend only think only of individual students' learning, when they should have a macro vision extended to a more global body of learners. However, educators may view the global picture as removing a teacher's autonomy. Teachers' passion and inspiration with groups of students they know well (whether online or face to face) could well be lost in this macro organization of learning.

3. ABSTRACTS OF PRESENTED PAPERS

3.1 T. J. van Weert, Lifelong Learning with ICF-2000

3.1.1 IFIP/UNESCO Informatics Curriculum Framework 2000

Early in 1998, UNESCO requested IFIP to “Elaborate a complete modular framework for training in informatics, covering the undergraduate and postgraduate programmes and courses to be provided....”

IFIP Working Group 3.2 on Higher Education has produced the IFIP/UNESCO Informatics Curriculum Framework 2000 (abbreviated ICF-2000). Its authors are F. Mulder (NL) and T. J. van Weert (NL).

3.1.2 Categories of Professionals

There are three main categories of professionals acting or interacting with informatics in a broad sense:

- *I users*: non-I professionals using ready-made I technology or I applications in their work
- *I applicers*: non-I professionals applying I knowledge and I skills in areas different from informatics
- *I workers*: I professionals working in the field of informatics.

Within these main categories sub-categories can be discerned. In the context of Lifelong Learning the following are relevant categories:

- *Instrumental I-users* using computer technology or software packages in their work. Examples can be found in word processing, using databases, making spreadsheets, preparing presentations, graphical drawing, communicating by e-mail, retrieving information through the Internet, video-conferencing, etc.
- *Conceptual I-appliers* applying specific knowledge from the informatics domain or typical informatics skills in their own area that is increasingly infused by informatics. Examples are teachers who design computer-supported education, chemists doing molecular modelling, computer artists, the media specialists applying internet technology, economists introducing electronic commerce, etc.

3.1.3 Graduate Profiles

In order to efficiently and effectively cater to the educational needs of the identified categories of professionals, four graduate I-profiles are described:

1. Basic Instrumental I Profile (AI and all other categories);
2. Basic Conceptual I Profile (B1);
3. Minor I Profile;
4. Major I Profile.

3.1.4 Themes

Curriculum units for the various graduate profiles belong to one or more of the following twelve overall themes:

1. representation of information;
2. formalism in information processing;
3. information modelling;
4. algorithmics;
5. system design;
6. software development;
7. potentials and limitations of computing and related technologies;
8. computer systems and architectures;
9. computer-based communication;
10. social and ethical implications;
11. personal and interpersonal skills;
12. broader perspectives and context (including links with other disciplines).

This framework of twelve themes is a slightly adapted and newly edited version of the “common core” of issues, concepts and skills described in [1].

3.1.5 Sources

For each professional category, ICF-2000 contains a graduate profile (educational programme) containing curriculum units referring to a number of important and current informatics curriculum sources, such as:

- *CCS*, The ACM Computing Classification System [1998 Version];
- *CC91*, Computing Curricula 1991: Report of the ACM/IEEE-CS Joint Curriculum Task Force;
- *IS97*, Model Curriculum and Guidelines for Undergraduate Degree Programs in Information Systems;
- *HCI92*, Curricula for Human-Computer Interaction [1992] (by ACM-SIGCHI);
- *ECDL*, The European Computer Driving Licence standard of competence [since 1997].

3.1.6 Lifelong Learning: Basic Instrumental Profile and Basic Conceptual Profile

Lifelong learning can be described as working and learning at the same time, a dual mode of operation. Learners will need both the Basic Instrumental Profile (BIP) and the Basic Conceptual Profile (BCP). Getting your European Computer Driving License is not enough: knowledge of the instruments or applications is needed, but so, too, is knowledge about how to apply these applications.

3.1.7 References

1. Mulder, F., van Weert, T.J. [eds.] *Informatics in higher education: Views on informatics and noninformatics curricula*, Proceedings of the IFIP/WG3.2 Working Conference on "Informatics (computer science) as a discipline and in other disciplines: what is in common?" London: Chapman & Hall, (1998)
2. The European Computer Driving Licence - ECDL [since 1997], <http://www.ecdl.com/> The ECDL is an internationally-recognized standard of competence certifying that the holder has the knowledge and skills needed to use the most common computer applications efficiently and productively. In the different countries of Europe study materials have been developed for ECDL in many languages.

3.2 J. Wibe, Lifelong Learning

Businesses and industry in developed countries are being forced to become more and more knowledge-based (their added value is in knowledge). To be able to work adequately way these traditional, Tayloristic organizations have to become learning organizations: organizations in which the workers are continually learning. For this learning, they do not necessarily take courses; they learn during their work, applying new knowledge to solve new problems in innovative ways. Workers form part of a network of experts who help them with expert advice or who point them toward useful information. Their work is team-based and is supported by ICT. They use generic work tools (such as MS Office), generic communication tools (such as e-mail and the World Wide Web), specialized work tools (such as business-related information systems or CAD/CAM tools) and customized groupware tools.

Concurrently, educational institutions are finding that students are not full-time students any more. Students have jobs and combine their study with these jobs. Students also want confirmation that what they are studying is useful. They want to apply their acquired knowledge now and not want to wait for job experience reveal how, as formerly. And their future employers take much the same attitude: they expect graduates to fit directly and

effectively into the business when they start their career. Educational organizations find work entering their premises: learning and working are growing together.

3.2.1 The learning organization

What we see emerging is a situation in which students/graduates take a lifelong part in learning, first in a learning network at school or university and later in a learning network at their work place. They move fluently from the one to the other: working and learning have grown together. There is no work without learning and no learning without application (work).

Lifelong Learning therefore materializes as the new learning organization of the future, to be found at school and outside school. This learning organization is a learning network in which teachers, content experts and students participate on equal level. It is a flexible network supported by ICT. Glimpses of this learning organization of the future can be seen in the learning networks of innovative businesses of today.

3.2.2 Lifelong Learning and Higher Education

In our universities, new didactic approaches are emerging such as competency-based learning, team-based learning, problem-based learning, etc., which bring the educational and working situation closer together. We also see changes in the organization of education: the student, as learner, at the center; the teacher as coach of the student's learning process; teachers working in teams, etc. There is also a demand for flexibility in content, in time and in place of learning. These examples give an indication of more profound changes to come.

3.2.3 Informal education

The system of elementary, secondary, vocational, and higher education, has a very long history. Beside this system, education via correspondence, now called distance education, existed during the whole of this century. Educational institutions have had a near monopoly on educating people. The first substantial break came with the Open University in the United Kingdom in 1968. Since then, new institutions, both private and public, have appeared in the distance education sector. For example, we see dual mode universities offering courses both on-campus in the traditional way and off-campus as distance education.

This education is delivered by formal institutions. A new trend is informal education, which may be organized by any individual or in any

organization. Community learning also belongs to this informal education. Individuals may learn from each other, and they can also organize their learning without taking any specific courses. So-called “Virtual Teacher Centres,” where material is collected, may support this learning (cf., <http://vtc.ngfl.gov.uk/>). In the context of LLL, we may say that active citizens are learning citizens. The question is who is managing the learning?

3.3 Ursula Fuller, Strategic institution-wide consultation using an intranet

3.3.1 Problems in developing university policy

Lifelong learning take place not only as part of formal educational programs; it is also an integral part of working in a learning organization. The task of developing university policy has traditionally been carried out by a hierarchy of formal committees in a slow and ineffective way that maximizes management control and minimizes staff ownership. At the same time, higher education institutions have traditionally sought to communicate with their employees by deluging them with paper memos, in the mistaken beliefs that more communication equals better communication and that the issue of a written communication fulfills the organization’s obligation to inform and educate its staff.

3.3.2 Consultation via e-mail and intranets

Experience with the use of e-mail and intranets suggests that electronic consultation turns a discrete process into a continuous one, and tends to make contributions private rather than public. This may enable people would not normally do so to volunteer their opinions and thus democratize the consultation process. The resulting decisions may have wider ownership than is achieved by consultation via formal committees.

3.3.3 Consultation at the University of Kent

The University of Kent at Canterbury, UK, carried out two institution-wide consultations on matters of strategic importance in the period August 1998 - April 1999. A questionnaire to all staff, sent out in July 1998, revealed wide acceptance of the concept of web-based consultation and a belief on the part of many staff that this approach could widen participation in the consultation process. The 1998 update of the University’s Plan, required for submission to the Higher Education Funding Council for

England, as well as a basis for internal planning and action, was the first document to be subjected to this treatment. Although some members of high-level committees felt threatened by a mode of consultation that partially bypassed them, a version of the plan, one that incorporated suggestions received in the consultation period, was approved by the highest-level committees (the University's Senate and Council) with little further discussion.

3.3.4 Benefits

A major benefit is that the Plan has become an active document that is readily available to all staff and students in a way that was impossible with the paper version. The online Plan now makes a significant contribution to staff learning about the university's aims, objectives, and its strategy for achieving them. The second consultation, on a document required for external audit of the University's quality assurance procedures, also went smoothly and produced more useful input than would have been expected via paper-based consultation. Because it described practice contributing to quality assurance across the whole university, it, too, enabled staff to learn about best practice in departments other than their own.

3.3.5 Conclusion

Our conclusion from these experiments is that institution-wide consultation using an intranet can widen involvement and hence contribute to improved staff morale. It can also generate active documents that are readily available to staff and students. And it challenges all staff to become involved in the planning process as well as in the implementation of the resulting plans.

3.4 Catherine Fulford, Designing a Taxonomy of Interaction Strategies for Two-way Interactive Distance Education Television.

3.4.1 Categorization of verbal strategies

To a large extent, the teaching and learning process can be conceived as comprised of students' interactions with the instructor, other students, and learning materials. This project focused on the creation of a categorization

schedule designed to classify teacher verbal strategies to foster interaction through the Hawaii Interactive Television System (HITS) operated by the Distance Learning and Instructional Technology Department at the University of Hawaii.

3.4.2 Data collection

The procedures for data collection included:

- a) the development of the taxonomy using research on discourse analysis and viewing videotapes from 15 two-way television courses;
- b) the review of the first draft by instructional design experts to evaluate the extent to which categories had been defined exclusively and clearly;
- c) assessment of the reliability of the taxonomy by three independent raters.

3.4.3 Taxonomy

The taxonomy is basic and simple in design. Beginning with a framework of learner-learner, learner-content, and learner-instructor interaction, three categories were added. A "Motivation" category was added for strategies instructors used to directly motivate students to engage in interaction.

Second, an "Immediacy and Personalization" category was included. Research has found that student satisfaction levels increase when teachers express immediacy behaviours attempting to make students feel welcome, accepted, and comfortable, such as using personal examples, or inviting students to meet after class.

Finally, to acknowledge the discontinuities in time present in a distance education environment, a "Delayed Interaction" category captured strategies directed specifically at fostering asynchronous communication flows, such as communiqué via electronic mail, web-based discussion groups, facsimiles, and electronic bulletin boards.

3.4.4 Results

Three independent raters used the final version to assess the exclusiveness of categories and ability of independent researchers to categorize specific utterances in similar categories. The range of Kappa coefficients (K) from 0.8394 to 0.9218 and the overall K of 0.8714 suggest a strong level of agreement among raters. The Z-scores for each individual segment and across the four video segments confirm inferences drawn solely from the Kappa coefficients. At $\alpha=0.01$, the minimum Z-score necessary to reject the null hypothesis is 2.32. Segment and overall Z-scores suggest that the Kappa coefficients are significant at an $\alpha<0.001$. Given these statistics, it

would therefore be statistically appropriate to accept this instrument as reliable.