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Learning by Sharing:

Developing an Integrative Learning Model

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Learning by Sharing: Developing an Integrative Learning Model

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ABSTRACT: The dawn of the information society entails the concerted interaction of life long learning processes, entrepreneurial behavior and individual self-development; organizations have to be redefined as generic learning environments for individuals. This emerging perspective presupposes new learning models and learning infrastructures, examples of which are under development at the University of Amsterdam.

The leading learning *model* as described in this paper engages three types of individuals participating in the learning process and three different methods of learning whereby “learning by sharing” acts as the integrating concept. The individuals are business individuals, researchers/teachers as well as students. The learning methods vary from learning by practicing to learning by experimenting to learning by investigating.

Keywords: Learning, learning model, learning by sharing, information and communication technology.

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1. Introduction

The university as an institution is at a decisive moment in its history: if the concepts of ‘learning organization’, ‘learning society’, etc. appear to be true, then the university could become the metaphor of the future organization. At the same time, the university is confronted with numerous challenges and/or threats: the demand as well as the supply of education is globalizing, the coming generation of students thoroughly differs from its predecessors, needs for permanent education replace the classical learning phase between 18 and 23, new technologies entail new learning models (“learning in space” instead of “learning in time”).

Despite the apparent restlessness of the past 30 years, the (European) university model has not fundamentally changed: learning before working, educators teach students the outcome of their research (in the best of all worlds) or what they have read before (in most cases), the university learning processes are still taking place in the splendid isolation of the ivory tower. In the past 20 years the Department of Information Management of the University of Amsterdam has experimented with alternative learning models, most prominently in a successful postgraduate course in Information Management. The lessons learned from this ongoing experience are now fully applied in a new setting, the Anton Dreesmann Institute for Infopreneurship, where Information and Communication Technology (ICT)-based learning and entrepreneurship are at the core of activities.

Both past experiences and new explanations made clear that the traditional learning model, with its basically one-dimensional (from teacher to student to organization) and sequential (learning precedes working) character, has to be replaced by a multi-dimensional learning model. This ‘Learning by Sharing’ model is outlined in this article.

The proposed alternative learning model anticipates to problems of traditional learning as we still come across at many universities today. One of the most disturbing problems is the notion of learning as a passive process in which the teacher is perceived as the untouchable messenger of objective knowledge and the student merely as the uncritical receiver of this knowledge. Curricula can be fulfilled by the sheer absorption and accumulation of knowledge. The actual learning process occurs according to a predetermined route, that is, a fixed curriculum, although universities tend to emphasize on self-steering by the student in carrying out learning tasks. The teacher’s role is restricted to designing the curricula, prescribing the learning path to be followed, and most often giving insufficient guidance or feedback to students on the way they learn as opposed to feedback on learning content and results. On top of that, the student is working its way toward graduation in solitude. Summarized, universities are focused on a rather hierarchical knowledge transfer, and as a consequence provide little stimulation for students to broaden their interest. Therefore students are confined to a rather passive and isolated learning process.

2. Learning by Sharing: an Eclectic Learning Model

Some existing learning models actually provide solutions for the problems mentioned in paragraph 0. These solutions are incorporated and further extended in the proposed alternative learning model. The prevailing models providing for these features are the constructivist, the cooperative and the cognitive information processing model of learning [Leidner and Jarvenpaa, 1995].

Firstly, drawn from the cooperative learning model, the basic premise of the Learning by Sharing model is that "[l]earning emerges through the shared understandings of more than one learner" [Leidner and Jarvenpaa, 1995: 270]. It is argued that learning should not be a solitary process: "[K]nowledge is created as it is shared, and the more it is shared, the more is learned" [Leidner and Jarvenpaa, 1995: 268].

Secondly, drawn from the constructivist learning model, the Learning by Sharing model is learner-centered and not teacher-centered. For the student this means that the notion of self-regulation in studying is complemented with self-regulated education [Kaldeway, Haenen, Wils and Westhoff, 1998]. This extends the constructivist belief that "[i]ndividuals learn better when they discover things themselves and when they control the pace of learning". In the proposed model therefore, it is the student who designs his/her own curriculum, thereby creating an individual learning route according to his/her interests, capabilities and learning styles. The teacher in this *education à la carte* fulfills the role of a coach. The teacher presents the student the various opportunities and possibilities for the design of a personalized career. The teacher monitors the entire learning process and gives feedback when and where needed. Ultimately, then, will the teaching style match the learning style of the student [Kaldeway et al., 1998: 274]. Altogether, the learner-centered approach transforms the passive attitude of the learner into an active attitude.

An innovative feature of the Learning by Sharing model, then, is the emphasis on the meta-level of the learning process, that is, the meta-cognitive level. This comprises the need to reflect on the learning process, for both teacher and student, respectively referring to 'learning to educate' and 'learning to learn'. For the teacher, this entails constantly reflecting on the teaching approach and method and adjusting them accordingly. The student, also, performs self-evaluation and reflection on self-regulated learning. According to Kaldeway et al. [1998] this self-reflection comprises, amongst others, determining whether or not the intended learning goals were met.

In order to introduce real life experiences and hence to establish a learning community, our model introduces an extra party into the learning process: business individuals. By inviting business individuals into the learning process, the learning processes change drastically. Instead of the traditional student-teacher relationship, the third party introduces a real time and real life link to day to day practice. Business

individuals, students, and teachers/researchers learn by interacting. In the following paragraph we will describe the reciprocal relationships among the actors involved in the Learning by Sharing model.

3. Learning by Sharing: a Model of Cooperation and Collaboration

The Learning by Sharing model, as developed in this paper, incorporates the cooperation and collaboration between the three parties involved in any high-level real life learning: the learning institution (university) via the participation of teachers/researchers, the student having educational needs and society (in the case of business education, represented by business individuals), see [Figure 1](#).

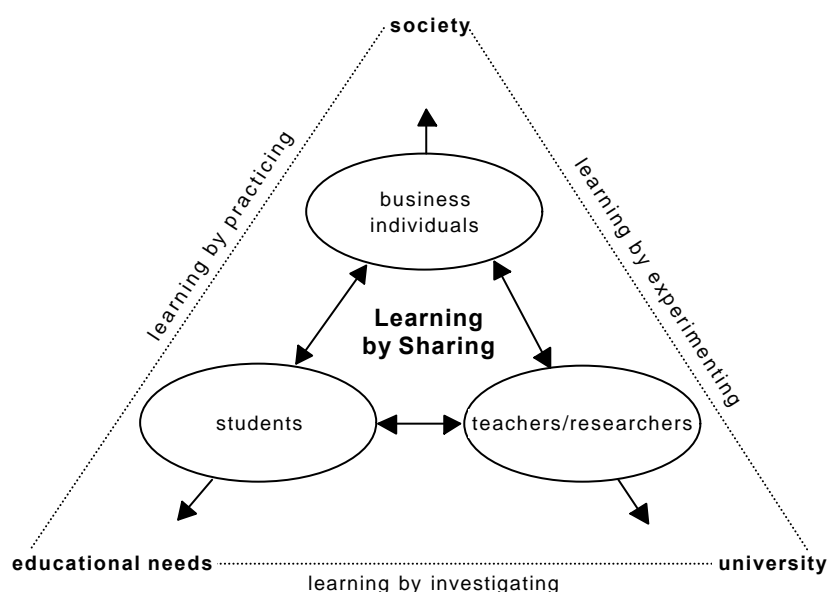


Figure 1: Learning by Sharing

The different interactions of the three parties involved are represented along the sides of the learning triangle; hereafter, they will be successively be dealt with.

3.1 Learning by Experimenting: Greater Interaction between Teachers/Researchers and Business Individuals

A key aspect of enhancing the social basis of science is the collaboration of universities with practitioners' communities. Although many academia already maintain such partnerships, we argue not only for intensification but also for a redefinition of these partnerships. Traditionally these relationships are dominated by the stereotypical view of the practitioner as "... the passive [and theoretically ignorant] recipient of the expertise of academics" [Argyris and Schön, 1996: 34], and the scientist as theoretically well grounded but lacking considerable insight to the 'real world'.

The intensification entails amongst others a more frequent and long-lasting information exchange between the parties involved. The researcher not only needs to maintain a dialogue with other scientific communities but also with the various external individuals actually working in the field. This dialogue, then, can develop into actual cooperation, in research and in teaching, on specific subjects of mutual interest.

Not only does the direct link between the two communities enable the researchers to conduct truly innovative and progressive research, it also ensures the production of useful knowledge, that is, useful to the practitioners [Argyris and Schön, 1996: 43]. The notion of 'researchers as practitioners' refers to the empirical testing of scientific theories, after which they can be adjusted according to the (business) practice. Applied research then becomes research that matters, of which the results are instantly applicable.

'Practitioners as inquirers', refers to practitioners employing theories in use [Argyris and Schön, 1996: 50] and thereby adjusting practice accordingly.

For the research community, the combining of leading methods and topics ensures that the contributions made by the researcher are both grounded in theory and relevant to business practice. Participation in research activities enables the practitioners to significantly enhance their operating capabilities (operational excellence), and to keep track of the state-of-the-art developments in science at the same time. Scientists and practitioners working in partnership on key issues and challenges of business practice (joint applied research) is therefore mutually beneficial for all parties involved.

Apart from participating in research activities, business individuals could also be deployed as teachers in educational programs. For the students this provides an opportunity to learn from 'first hand' experiences of business individuals. When interacting with the students, the visiting lecturers stand a chance to reflect on their business practices at the same time (by (doctoral) students questioning particular cases from their specific theoretical background).

The final aspect of the interactive relationship 'learning by experimenting' involves the teaching in business environment: 'the researcher as consultant', objectively reflecting upon business practice from a scientific point of view.

3.2 Learning by Investigating: Greater Interaction between Students and Teachers/Researchers

Universities today are facing three major educational problems. First, the amount of time needed for the introduction of new research issues into active courses causes a continuously outdated education program. On top of that the traditional perspective in which the student is considered a 'knowledge consumer' and the

teacher a 'knowledge provider' results in impersonal student-teacher/researcher relationships and one-way knowledge flows. Furthermore, since the 1950s research has outgrown teaching in importance. [Leggon, 1997: 221-243]

Further integration of research and educational activities should be considered in order to address the issue of outdated educational programs. Ideally, teachers base their educational material on research topics they are currently involved in. Specific educational needs guide each individual student in composing their personal education-à-la carte. Teachers act as a coach and stimulate this self-guided education. This reciprocal relation serves teachers in enhancing their research and students by fulfilling educational needs with recent research results. This participation enables students to influence future research by pointing out their topics of interest to solve the problem of one-way knowledge flows. Then teaching serves as a way to explicit research results and as a medium for reflection and reactions by students. Also direct response on the educational program may encourage the teacher to change the teaching method. This integration of research and teaching solves the prioritizing dilemma of choosing between teaching and researching.

Students as opposed to teachers are more likely to be considered as early adapters of emerging technologies. Teachers could use their students' knowledge to learn about the possibilities of these technologies to enhance their communication and interaction or even their educational program. These new insights could be reason to change the way teachers teach, their educational methods. The reciprocity of the student-teacher relationship is found again here in the way that knowledge sharing forms the basis for improving the interaction and learning process between student and teacher.

3.3 Learning by Practicing: Greater Interaction between Students and Business Individuals

Regarding the relationships between university students and business individuals we notice that there is a gap between learning and working, between theorizing practice and practicing theory. This is why we advocate learning by practicing to bridge the gap on our way to life long learning [cf. Roobeek and Mandersloot, 1998].

Traditionally, internships are intended to diminish the gap between learning and working. At present, internships are characterized by some problems, however. A common purpose between student and business individual is often missing [cf. Ghoshal and Bartlett, 1997]. Some internships lack academic challenges as students are exploited as cheap employees. The duration of internships varies tremendously across education programs, varying from several weeks to an entire year [Ontwerp Hoop 1998, 1997]. The quality of guidance by both the university as well as business individuals differs across internships.

Learning by practicing bridges the learning and working gap to a much larger extent. By intensifying the interactions between student and business individual, the traditional boundaries are blurring. Students and

business individuals will not only interact in an earlier stage of the study of the former, but also more frequently. During their entire (under)graduate career, students might participate in projects with various business individuals. For example, students might work one day a week in a relevant business environment and build up relevant working experience. Learning is both for the student as for the business individual a common natural process.

Table 1 shows the tradeoffs between theorizing practice and practicing theory that are assimilated by learning by practicing [cf. Roobeek and Mandersloot, 1998]. The student is a learning worker and the business individual is a working learner. Simultaneously, the student and the business individual learn how to assess the tradeoffs between theory and practice. The student can apply and reflect on his body of knowledge instantly. The immediate reflection enables the enhancement of the body of knowledge. On the other hand, the business individual benefits from the instant employability of an individually learning/working student. The student's body of knowledge is quickly disseminated and swiftly adapted by the business individual. Learning by practicing enables the student to do research projects in practice. For example, research questions for graduation projects might be derived from problems encountered in the business environment. The business individual gains by a better understanding of and seeing possible enhancements of the business by application of theories. Both the student as well as the business individual are building a network of relationships. The student is exposed to various business individuals from several organizations. The business individual gets acquainted with various students from many universities. In summary, learning by practicing is a basis for permanent education for the student and is part of life long learning for the business individual.

Students	Business individuals
learn and work	work and learn
relevant practice for theories (work experience)	relevant theories for practice
instant application of and reflection on body of knowledge	instant employability of independent learning working student
quick dissemination of knowledge	quick adaptation of knowledge
do research projects in practice	gain from research projects
networking (learning to know various business individuals and organizations)	networking (learning to know various students and universities)
basis for permanent education	part of permanent education

Table 1: Learning by Practicing

A number of implications for the university to embed learning by practicing are apparent. First, the university should serve as an intermediary between students and business individuals. Second, the university

should safeguard the academic value of the learning by practicing relationship. Third, the educational needs of students must be addressed by providing them with relevant ways of thinking and practicing. Finally, the quality of guidance of students should be greatly enhanced.

4. Role of ICT in the Learning by Sharing model

This section describes the possibilities of ICT to facilitate the Learning by Sharing model. To put it simply, ICT enables business individuals, teachers/researchers and students to learn, wherever and whenever they want. Generally speaking, ICT not only facilitates communication, collaboration and coordination among the participants, it also supports specific learning processes.

Communication tools like e-mail and ICQ, support and intensify the exchange of information between the parties involved regardless of temporal and spatial constraints. These technologies enable the intensification of a dialogue between teachers/researchers and business individuals, a two-way knowledge flow between teachers/researchers and students, and an intenser interaction between students and business individuals.

Collaboration tools like groupware facilitate experimenting, investigating and practicing together. For example, a group decision room can support the decision making process of formulating cooperative projects of business individuals, teachers/learners and students.

Experimenting, investigating and practicing together brings in the need for *coordination*. To enable the participants to learn in parallel, coordination is key. Activities carried out and results achieved by various participants must be aligned with each other. For example, agent technologies facilitate the matching of various participants based on the maximization of each individual's needs and the needs of the entire group. Tracking technologies could keep track of each individual's performance and give suggestions for adjustments.

Concerning the support of learning processes, ICT facilitates the access to educational resources, the support of the learning process and the development of skills [OECD, 1997: 121, 122].

Access to educational resources by all participants is greatly enhanced by ICT. Firstly, access to information resources and educational materials is enhanced as temporal and spatial constraints are dissolved. For example, participants can enroll on any digital course any time, any where. Third, participants have easy access to world wide information resources, such as CD-ROMs, newsgroups, websites and virtual communities. For example, members of the scientific community gain access not only to an enormous scale of other scientific communities worldwide, but also of the various business communities globally. In other words, yesterday's and today's knowledge is widely available, ready to be transformed into tomorrow's knowledge.

The *learning process* itself can be supported by ICT also. First, ICT facilitates the creation and use of a knowledge base among the participants. This knowledge base could consist of frequently asked questions

regarding a certain project topic. Second, ICT enables immediate feedback on activities carried out and results achieved by the participants facilitating real time parallel learning. Third, based on their individual needs and the tracking history of their performance ICT could give suggestions for the next step(s) in the learning process. For example, based on their interests agent technologies could advise a student to enroll into certain courses or solicit for participation in certain research projects with certain business individuals and teachers/researchers. Fourth, ICT supports education-à-la-carte. For example, computer based training enables students to learn wherever they want, at their own pace in their own way. ICT stimulates the (self guided) discovery process, whereas the teacher/researcher or the technology serves as a coach. As an example, hypermedia let users search and use educational material in a way that suits their own logic. Finally, to enhance the transfer of knowledge across various settings ICT enables multi-perspective education. A certain problem is being addressed from multiple perspectives by the same individual. For example, computer simulation and virtual reality enable individuals to approach a problem from several perspectives. A participant could analyze a problem from the perspective of a business individual, teacher/researcher or a student, for instance. ICT is not only used to customize education according to different learning styles, it also facilitates the structuring of providing pieces of information to match the students individual way information processing and learning method and it provokes the process of self-guided discovery.

Finally, ICT supports the *development of skills*. The importance of being skilled in using ICT will increase in the future, regardless of the role of an individual. Again, we might learn from each other. For instance, students as opposed to teachers are more likely to be early adapters of emerging technologies. Teachers could use their student's knowledge to learn about the possibilities of these technologies to enhance their communication and interaction. Thus, knowledge sharing forms the basis for the improvement of the interaction between student and teacher. Another possibility is to make use of computer based training to learn to use application software, for instance..

5. Conclusion

In this paper, an integrative learning model, Learning by Sharing, was successively built up. Its main attributes are the systematic introduction of the external world and the reciprocal nature of any interaction process: students, teachers/researchers and business individuals all learn from the same learning experience.

The method as outlined in this article, is under full implementation at the University of Amsterdam. Preliminary results show that its application leverages the speed and depth of learning considerably and that the interaction satisfies the need for self-development of all three parties involved.

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