

Learning to change: The Virtual Business Learning approach to professional workplace learning

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ABSTRACT

At the Open University of the Netherlands, the Virtual Business Learning (VBL) concept has been developed over a number of years. VBL serves as an 'umbrella' term that covers concepts from both the education and business worlds. Implementations of the VBL concept focus on the coached development of the professional competencies that underlie successfully innovative behavior in ICT intense enterprises. Learners in their role of professionals are immersed in a learning environment, which is an organization for learning as well as a learning organization. Employees in a VBL environment work on their professional development as well as on the development of the team and VBL organization. Concurrently, they have various duties with professional responsibilities, in a realistic business setting the work on authentic tasks.

In this article, we will first discuss the essential features of the VBL concept. Then the concept's potential for ICT innovation in companies is analyzed. For this, two examples will be used. The first example addresses learning of graduating students in the setting of an environmental consultancy firm. The second example concerns a VBL environment developed for a major ICT firm in the Netherlands. Finally, the strength of the VBL concept in both implementation modi is discussed and differences are highlighted.

Keywords

Virtual Business Learning, organization for learning, learning organization, collaborative working, collaborative learning, constructivism, authentic tasks, team learning, knowledge management, competence based learning

Introduction

At an accelerating pace of change, Information and Communication Technologies (ICT) generate new methods of working and doing business (Senge 1990). Continuous innovation, with the aim of satisfying the changing needs of the customer and stay ahead of the competition, is the key to success of modern business. Since most products and services have a high-tech and high-quality character this requires knowledge-based teamwork of well-educated professionals. The capacity of a company for generating new knowledge and for making

productive use of it (Kessels 2001) essentially derives from the experiences, skills and attitudes of its employees. This implies that the learning ability and knowledge creativity of a business are its major sources of added economic value (Sveiby 2001, Westera and Sloep 2001). Put differently, learning from new experiences and creating competitive opportunities within the context of one's company are vital to professional performance (OECD 2000).

Consequently, companies look for young professionals who are able to collaborate and solve complex problems. Innovative companies need professionals who combine up to date domain expertise with social and communicative skills; professionals who are well-informed, proactive learners, thoroughly familiar with actual professional practice, and capable of dealing with new situations. High performance professionals are permanent learners, willing to cross traditional boundaries. Since, as argued, creative use of available knowledge and experiences, and the development of innovative solutions are at the heart of today's professional work, effective facilitation of learning becomes an integral part of any successful business change. Accordingly, corporations focus on new methods to improve their economic and organizational output; in particular, they address the knowledge and learning processes of the firm (Senge 1990). Dominant approaches to the training of working professionals, however, still focus on the communication of bodies of knowledge via training sessions and dedicated performance support on the job (Tobias & Fletcher 2000). Neither adequately facilitates the learning required for collaborative, creative problem solving, learning to work with new methods and tools, and organizational learning (Schön 1987).

Companies tend to heavily invest in e-learning methods, in the hope that such methods accelerate the pace of learning and improve its cost effectiveness. In line with the vital role of learning and knowledge productivity, one witnesses a tendency to connect e-learning and human resource development (HRD) with knowledge management efforts. E-learning, it is hoped, thus becomes a booster to free up tacit knowledge, to enhance competence growth, and to instill knowledge management and organizational learning practices. Recently, however, it has been recognized that the learning needs of professionals in modern businesses require methods that go beyond customary methods of learning and e-learning (Brown & Duguid 2000, Kessels 2001, Marsick & Watkins 2001, Tobias & Fletcher 2000). The modern professional's needs can only be met by flexible learning arrangements embedded in the professionals' work practice, or at least in authentic, work-like settings.

The Virtual Business Learning (VBL) concept has been developed at the Open University of the Netherlands (OUNL) to address these requirements. VBL has been designed to meet the changing learning needs of tomorrow's and today's working professionals. VBL addresses both the formal and informal learning capabilities that are so important in professional work. Finally, the concept is sufficiently flexible to adapt to a large variety of requirements.

In the sections to follow we will first detail the characteristics of the VBL concept. We will expound its significance as an integrator of education and knowledge based business performance. Finally, we will illustrate how it may accommodate a variety of professional learning demands by discussing two specific examples in some detail.

VBL: an integrative approach to professional workplace learning.

The VBL concept situates learning in a virtual business environment. This virtual environment is set up alongside the actual business environment of the professional in need of training (Van Petegem et al. 2000, Schön 1987, Brown & Duguid 2000, Van der Vleugel 2000). The VBL concept is built on such notions as social constructivism, competence based learning, communities of practice, the learning organization, authentic situated learning, learning by doing, distance learning, and knowledge productivity (Jonassen 1994, Kessels 2001, Lave & Wenger 1991, Westera and Sloep, 2001).

It is a key assumption of our thinking that learning is *not* restricted to formal education. Learning can take place everywhere, at anytime, particularly also during ordinary task performance. Learning while working significantly adds to professional competencies for innovative business behavior. Especially this kind of learning, that focuses on the development of clusters of interrelated complex skills and know-how, profits from consciously embedding it in an authentic business process setting. VBL thus is a learning concept well-suited to direct use in organizational practice but also to organizational prototyping: optimizing professional learning performance for the envisaged future company practice.

Designing a VBL environment is about creating an open, complex business environment. It is about setting conditions rather than given instructions. A VBL environment may be portrayed as an organization for learning, as it explicitly addresses competency growth of its employees. In it individual learning, defined as increasing an individual's capacity to take effective action, is coupled to team and organizational learning, increasing the organization's capacity to take effective action (Kim 1993). This is done, for example, by linking role performance to business performance and by stressing that 'learning' occurs integrated within work processes that concentrate on actual or anticipated future problems. Individual competency growth takes place within the collective pursuit of the customer's needs. The learning while working situation is a quality and productivity add on to the performance of the work roles and processes. It is intertwined with the development and quality circles at the project team and organization level. In summary, VBL Learning is a form of double loop learning (Argyris and Schön 1996, Senge 1990).

Social interaction is essential to the success of learning in a VBL environment. After all, construction of knowledge takes place in social interaction with peers. Therefore, students in a VBL-environment have a role as (starting) professional. They work in teams on real tasks with real customers; they perform duties and have responsibilities for the development of the VBL-organization as a whole. In doing so they explicitly work on their personal development. Arranging this work is to a large extent the responsibility of the students themselves.

Learning in a corporate VBL environment takes place within the context of a constantly evolving, modern organization, in which the traditional boundaries of individual learning are surpassed. Individual learning objectives may include competency growth in ongoing work practices; they may also be tuned to new work practices. Learning activities are preferably - but not necessarily exclusively - performed virtually and asynchronously, in order that the participants' learning interactions may easily fit in with their work duties.

Key components of a VBL environment feature:

- an authentic or real business setting
- complex, non-routine, ill-structured tasks (duties, responsibilities)
- explicit facilitating of active construction of knowledge, new ideas, working methods
- assessments derived from professional practice and its performance standards
- a supporting ICT infrastructure

Note that the integration of learning and working tends to mask a profound duality in the mission of virtual business learning. A VBL environment simultaneously tries to realize optimal performance to serve its customers and optimal learning to serve its employees. Quality control in a VBL environment therefore relates to both quality of performance and competency growth. Included in the latter are also the contributions that employees make to the development of the organization as a whole. So, any VBL environment has to simultaneously address both formal and informal learning capabilities. It thus requires an advanced, virtual infrastructure for learning while performing at individual, team, and possibly even higher organizational levels.

Case studies: ICT innovation in companies by introducing VBL

Any implementation of the VBL concept has to be flexible enough to adapt to changing requirements. It should be able to simultaneously facilitate domain specific and attitudinal competency growth, individual learning and competency growth, and collective task performance and organizational knowledge processes. The attainment of some learning objectives will benefit from direct integration in the work processes of the actual work environment, others may be better served by temporarily separating work from learning, be it in time or in space. VBL scenarios therefore should vary according to the envisaged learning and performance objectives. To illustrate this we will discuss two exemplary implementations.

The VBL case *InCompany*, advanced learning

This VBL implementation exemplified a kind of implementation that focused on the needs of graduating students and young trainees. The VBL environment exposed the students and trainees to the dynamics and complexity of reality and this enabled them to acquire immanent professional skills in an integrated fashion. Learning via immersion in the professional reality thus was the primary focus. In the case under discussion, graduate students in environmental science were given demanding, authentic business tasks. It was intended that,

ultimately, they would transfer these skills to the practices of their future firm. Currently, three different VBL environments of this type exist: an environmental consultancy firm (*InCompany*) and two ICT firms (OTO, and IT 4 Society). We will discuss the first in some detail.

InCompany, an Environmental Consulting Firm, was started, as a pilot in 1998. It still is in operation, though the details of it have obviously changed. As part of the Open University of the Netherlands' (OUNL) curriculum in environmental studies, it is the final assignment for graduating students in Environmental sciences. *InCompany* acquires projects from public and private parties. Sometimes changes are negotiated to make the project fit available skills, time and expertise. After all, assignments have to be rich and challenging enough to foster students' competence growth. Teams are then put together, matching the student's demands for competency growth with the project's competence requirements. So essentially, students get assigned to projects for which they still lack the required competencies. Students are also responsible for the business objectives and the further development of *InCompany*. They have roles related to the firm's communication, information and knowledge management processes.

Learning is facilitated via intake assessments, matching learning (i.e. competence growth) objectives with challenging roles and tasks, learning stimuli built into the VBL environment, and coaching. Tasks within the collective performance (for the customer and *InCompany*) are also attributed to the students according to their learning needs. Competence consultants – a staff role - guide the student's learning processes, they monitor the student's development and provide feedback and advice. The VBL infrastructure affords just in time learning, a knowledge base with background knowledge, and experts who may occasionally be consulted. Mostly the experts are external to the firm, sometimes students with a particular expertise may act as expert to their colleagues.

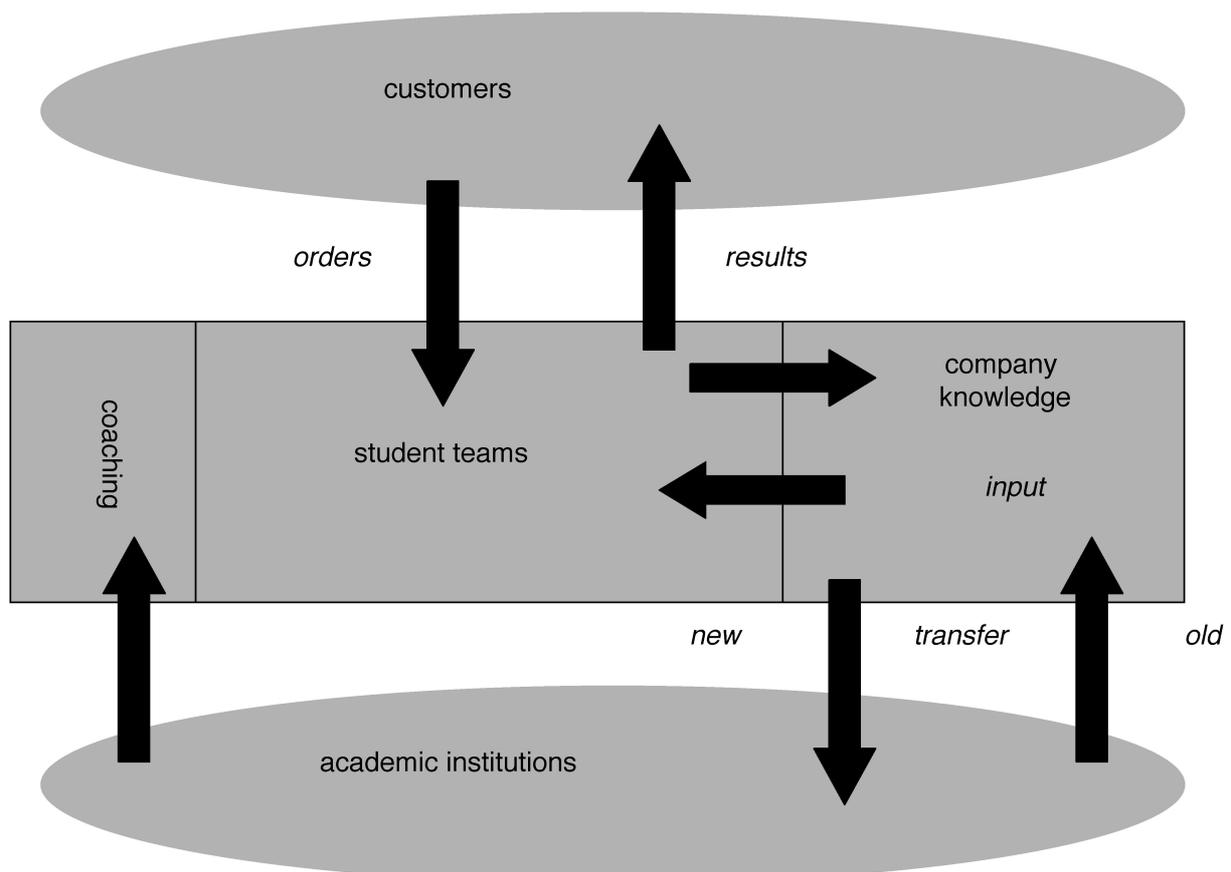


Figure 1. a visualization of the knowledge flows within the *InCompany* environment

ICT mediation for *InCompany* primarily focuses on facilitating the learning and work and acts as unobtrusively as possible. The *InCompany* learning environment consists of an intranet web environment, grafted on existing facilities (*StudyNet*) that the OUNL uses for its education. In addition to this, dedicated tools have been to this.

All organizational and learning information resides within the *InCompany StudyNet* environment. For collaborative work and learning an existing, highly flexible groupware platform, *eRoom*, has been tailored to fit *InCompany's* needs, that is, being able to support the working and learning processes in an authentic setting of a virtual organization combined with the ability to launch educational stimuli. An underlying concern was that the ICT tooling had to be supportive of the users, yet intuitive to them.

A number of teams have reported favorably on their VBL experience. The confrontation with authentic tasks, they said, made them aware of the tension between collective performance and individual competency growth. Interestingly, in spite of their academic upbringing, the students upon becoming VBL employees were inclined to prioritize business performance over their own competence growth. Satisfying the customer's demands seems to be force driving this. (Ivens and Sloep, 2001).

Another interesting observation is that, although *InCompany* does not use very advanced ICT tools, it still has triggered the faculty to use ICT tools similar to the ones used in *InCompany* within and across the boundaries of their ordinary courses. Introduction of new virtual functionalities apparently grew from experiences gained in *InCompany*; and the new functionalities were easily accepted as further improvements for learning and working *tout court*.

The *TAS-VBL* case, learning at work

As argued, the VBL concept may also be used to facilitate learning at the very workplace itself. The business environment of a VBL implementation thus *is* the actual working environment of the company. An implementation of this kind concentrates on cooperative working and collaborative learning. The case in point concerns a VBL environment for IT managers of *TAS* (now Pink Roccade Training & Education).

The *TAS-VBL* underwent several releases of the same concept, each targeted at a different learning need. The first release aimed at skilled consultants, who had to learn to use the Fagan method of software inspection. The second release of the *TAS-VBL* aimed at introducing new trainees to IT basics and the working methods of the *TAS* company. The third *TAS-VBL* release focused on an integrated training of project teamwork; here the aim was to replace the firm's conventional SDM training courses and have trainees make adequate use of the SDM methodology for systems design. All releases aimed at fusing formal and informal learning. It was hoped that a better integration of on the one hand soft and hard skills, and on the other hand its assessment procedures and instruments could be achieved.

The infrastructure was set up so as to foster the desired competence growth of the trainees while they were still 'at work'. With great care role performances and communication structures were laid out, featuring coaching and expert consulting. Competencies of in-company roles were linked with professional assessment, business operations and the organization of the workplace. The knowledge acquired by the trainees could be pulled in just in time and in just the right quality and quantity. When needed, active stimulation was given and coaches pushed knowledge. The knowledge base was seeded both by the IT company itself and by the OUNL. Finally, an internal coach of the firm monitored learning and work performance and was authorized to take action on priority conflicts.

With respect to ICT mediation of the *VBL-TAS* implementations, the same design principles were followed as with *InCompany*: ICT itself does not innovate, it facilitates innovation. The ICT of the *TAS-VBL* environment therefore doesn't need to be extremely advanced or high tech. The ICT tooling should merely enable all virtual communications and actions required. New work and learning methods of the VBL require new ICT tools or components but at the same time the VBL environment has to have a flat learning curve. *TAS* users need to feel safe with the needed artifacts and support tools. Feeling comfortable in VBL cyberspace favors the reception of new methods for learning and work. For the ICT tooling of the *TAS-VBL* environment, the characteristics of the specific target groups in each release and company specific preferences guided the implementation. Within the *TAS* company proper, Lotus Domino and Lotus *Sametime* were already in use. To match the firms' educational objectives *TAS* aimed at an accelerated pace of delivery. Budgetary constraints too played a role in the decision to implement the *TAS-VBL* in the existing Lotus platform with the add of some features of Lotus Learning Space.

The transformation from a *TAS* traditional training courses to a VBL environment led to

- savings in overhead costs

- flexible inflow of learners
- minimization of frictions between work and learning (absenteeism, prioritization of work over learning)
- improved match between learning and working: flexibility of the learner to fit his learning activities into his work obligations
- tailoring learning activities to the business related needs of competency development
- assessments of learning and working linked to one's own business needs
- explicit attention for planning, communicative and coordinative aspects as integral part of work practice

Moreover, as a result of integrated learning and working in the actual business setting, the *TAS-VBL* led to additional merits for the company, itself

- direct transfer of training results to the workplace, a weak spot in current training practices.
- maximization of use of existing ICT tools available in the company. The VBL trainees were motivated to intensely use existing tools and explore new possibilities of available ICT. In addition to this, they triggered colleagues to use these tools too
- the VBL experiences enhance the development and use of knowledge management tools, such as knowledge base with working procedures, templates and best practices

Conclusion and Discussion

The key achievement of the VBL concept, it seems to us, is that working and learning are seamlessly integrated. They really become one activity that simultaneously addresses professional development, team learning and organizational development. Therefore, any VBL implementation is both an organization for learning and a learning organization, with tools to support collaborative work in a networked environment, tools for assessment and tools for knowledge management. Although these basic elements are common to each kind of VBL implementation, different VBL scenarios may be discerned, with different strengths and weaknesses.

The examples discussed in this paper focus on personal professional development. Transformation of conventional training into any one of these types of VBL arrangements enables:

- rapid and efficient transfer of acquired knowledge and skills to professional practice
- increased organizational flexibility by having different teams start after each other at short intervals
- flexible integration of learning in the professional's regular work
- facilitation of individualized learning, addressing contextualized individual competence growth
- quality control according to professional standards, matching intake and assessment to observable results in professional practice
- improved facilitation of integrated learning processes on multiple dimensions
- development of domain knowledge and skills, combined with the social, communicative and organizational skills required for teamwork
- an explicit and critical reflection on the learning processes and a transfer of valuable experiences to organizational memory.

Other VBL scenarios focus on team and organizational levels. One may for example focus on exploring and planning organizational change. One may think of a VBL environment that supports Business Process Redesign (BPR), or one that stimulate professional teams to discover the best way to work under new conditions. Especially high tech ICT enterprises are interested into this type of VBL concept. A telecom firm investigated the potential of this kind of VBL scenario for dealing with ill-anticipated knowledge and skills gaps. Such gaps arise quickly due to rapid ICT changes in the business cycle of the firm.

Another possible VBL scenario is geared towards enabling collective learning and knowledge creation. It focuses on learning stimuli that merge personal knowledge creation with team and enterprise bound knowledge cycles. Achievement of transfer of new insights to and consolidation of personal experiences to the organization as a whole is envisaged. Early 2000 a pilot of this type started for the Dutch Union of Water Management.

Our experiences with different VBL implementation projects thus far have convinced us that the VBL concept is widely applicable. It offers new modes of learning and working that in a unique and successful way address issues educational institutions and companies alike have come to face recently. In our opinion, the concept has a bright future indeed.

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References

- Argyris, C., & Schön, D. A. (1996). *Organizational learning II: theory, method, and practice*, Reading, MA: Addison Wesley.
- Brown, J. S., & Duguid, P. (2000). *The Social Life of Information*, New York: Harvard Business School Press.
- Ivens, W. P. M. F., & Sloep, P. B. (2001). Changing environmental sciences education needs: how can we meet them? Experiments with constructivist learning within environmental sciences curricula. *Paper presented at the auDes-conference Bridging Minds & Markets*, 5-7 April 2001, Venice.
- Jonassen, D. H. (1994). Toward a Constructivists design model. *Educational Technology*, 34 (4), 34 – 37.
- Kessels, J. W. M. (2001). Learning in Organisations: A Corporate Curriculum for the Knowledge Economy. *Futures*, 33, 497-506.
- Kim, D. H. (1993). The link between individual and organizational learning. *Sloan Management Review*, 3, 37-50.
- Lave, J., & Wenger, E. (1991). *Situated Learning. Legitimate peripheral participation*, Cambridge: University of Cambridge Press.
- Marsick, V., & Watkins, K. (2001). Informal and Incidental Learning. In Merriam, S. (Ed.) *New Directions for Adult and Continuing Education*, No. 89, San Francisco, CA: Jossey-Bass, 24-34.
- OECD Organisation for Economic Co-operation and Development, Centre for educational research and innovation (2000). *From initial education to working life: making transitions work*, Paris.
- Petegem, W. van, Sloep, P. B., Gerrissen, J., Jansen, D., & Schuwer, R. (2000). Virtual Business Teams: Enabling Competence-Based Learning and Working in a Virtual Networked Enterprise. In Erkiä Rämö (Ed.) *Proceedings of ENABLE99, Enabling Network Based Learning*, Espoo, Finland: Vantaa Institute of Technology, 82-88.
- Senge, P. (1990). *The fifth discipline*, The art and practice of the learning organization, New York Currency Doubleday.
- Schön, D. A. (1987). *Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in the Professions*, San Francisco: Jossey-Bass.
- Sveiby, K. E. (2001). A knowledge-based Theory of the Firm To guide Strategy Formulation. *Journal of Intellectual Capital*, 2 (4), <http://www.sveiby.com/articles/Knowledgetheoryoffirm.htm>.
- Tobias, S., & Fletcher, J. D. (2000). *Training and Retraining A handbook for business, industry government and the military*, New York: Macmillan.
- Van Merriënboer, J. J. G. (1997). *Training Complex Cognitive Skills: A Four-Component Instructional Design Model for Technical Training*, NJ: Educational Technology Publications.

Vleugel, H. van der, Gerrissen, J., Jansen, D., & Sloep, P. B. (2000). Modes of Personal and Organisational Learning in VirtualBusinessTeams. In Erkii Rämö (Ed.) *Proceedings of ENABLE99, Enabling Network Based Learning*, Espoo, Finland: Vantaa Institute of Technology, 46-55.

Westera, W., & Sloep, P. B. (2001). *The future of education in cyberspace*. In Van der Vaart, L. R., & Shavinina, L. V. (Eds.) *Provocative and Do-Able Futures for Cyber Education: Leadership for the Cutting Edge*. NY: Mary Ann Liebert Publisher, 115-137.