Breaking the boundaries between academic degrees and lifelong learning

Designing demand driven lifelong learning processes for employees

Abstract

Many educational institutes and their staff, struggle with the issue of capturing the market of lifelong learning, whilst continuing to offer traditional courses. Whereas traditional courses are more or less fixed in curricula and cover certain topics in a planned period of time, lifelong learning requires agreements between teachers and students on specific topics related to competencies acquired before. Students with working experiences are mostly skilled in self-regulated learning processes. Education has to benefit from that.

Yet many post-academic courses are built around the same educational processes as the regular academic courses for those between the ages of 17 and 25. Those courses are supply driven and not demand driven and they are separated from the working context. They offer more general modules, which by definition are not relevant for the individual student. Moreover, the costs of these traditional forms of education are high, both in time and money.

This paper explores the design problems and generates the outline of a transformation framework to build lifelong learning processes in a demand driven way. The framework includes relevant components for students to regulate their own learning processes and ensure they are integrated in their work processes. The student, the coach and the assessor can continuously monitor the desired learning outcomes, by using assessment tools.

Tools for mass-customisation and automation (collaborative technologies) make it possible to support large numbers of students in their learning processes. This will be demonstrated by experiences from the Netherlands at the Johan Cruijff University, the Centre for Post initial Education (CPE) and the Network University, all three vested in Amsterdam.

Introduction

There are two main reasons for people who finished their regular education to continue learning when they have found a job. One is that they want to improve their competencies, understood as a combination of knowledge, skills and attitude (Parry, 1996; Stoof and others, 2001). They want as well to prepare themselves for a career. The second reason is that working situations are changing fast.

New developments in information and communication technology create changes in the working situation. In order to keep up with these changes further education is required. This may either be conceived as an improvement in acquired competencies or as an extension of certificates acquired. In both situations the question arises whether this additional learning should be supply driven or demand driven.

Supply driven learning can be understood as learning situations where the supplier develops a course or seminar, based on its own market research, resulting in an offer to customers. As far as universities and business schools are concerned they have material available from their bachelor, master or Ph-D program. For some employees this might just be what they are looking for, but for many these courses are too abstract and too little applicable in their own working situation.

They have other learning goals, related to the job they have or the position they want to acquire. For them another approach would be more suitable: demand driven learning. In this approach the learning goals of the learner, or maybe a group of learners are the starting point for the design of a course. The learner himself is in control of the learning process.

There are many concepts used to describe the learning demands of people who finished their initial education. One is life long learning. The national research network for new approaches to lifelong learning describes working definitions for formal schooling, further education and informal learning (Livingstone, 1998). In this paper we will use the definition of lifelong learning in the sense of *further education*. In addition to that we limit ourselves to work related lifelong learning, excluding such fine courses as for instance violin studies and sailing.

One important distinction is that we will explore lifelong learning as a demand driven learning activity of further education whereby the learner is in control.
When this concept is used in this contribution, it is restricted to situations where an employee is working on his employability. Therefore, an employer is involved in most of these cases. Employer and employee have both common interests and personal interests in describing the specific learning outcomes and in creating a learning situation.

They each have their own value chain with input of effort, time and money and output in terms of competencies for the employee that can contribute to the productivity of the company. We will use the concept of the value chain (Porter, 1985) to describe the

processes of creating value through learning/teaching activities.

Once the learning goals are stated a supplier is looked for or the employer might develop a course by his own personnel department. If a university or business school is approached to make an offer, then a third value chain becomes involved, that is the value chain of the institute (Thijssen, Maes, & Vernooij, 2001). As a well-organized institute it will try to reduce its costs and look for existing material as the basis for an offer. That is where demand driven learning can collide with supply driven learning.

In this contribution we will explore the value chains of the learners, the companies and the educational institutions. We introduce as well the home front as a separate role, that is the relatives and friends of the learner, that are influenced in their social lives, because of the time the learner invests in his learning. The three value chains and the role of the home front are explored in order to find the research questions today that are required to find the answers tomorrow.

It reports on the journey towards designing demand driven education that forces educators to rethink their role in learning processes and break through the boundaries of formal schooling. The aim is to present a fresh way of looking at design problems and inspiring educators by sharing experiences. First we will describe the various value chains and make an inventory on conflicting interests and problems. We formulate design goals at the end of this section.

In section 2 we will introduce a framework for designing demand driven life long learning for employees. In section 3 we will share some insights on experiments with new educational design and in section 4 we list the learning points from these experiments for educational institutions. We conclude with recommendations for further exploratory research.

We will first describe the characteristics of the value chain of the Learner and explore the role of the home front. Secondly we will embark on describing the value chain of the company. By comparing these value chains we can identify conflicts of interest and specific problems. Then we will describe the value chain of the traditional educational institute en we will explore how this value chain fits the needs of the two other value chains. Based on this analysis we can formulate our design goals.

Three value chains

The demand driven value chain of the life long learner
As mentioned before, employees have two reasons to keep on learning after finishing formal education. To build a career employees have to develop their employability and seek for learning opportunities that fit in with their capacities and aims. From this respect

personal aims are the driving force. The second reason is the developments in society enforced by improvements in information technology. To keep up with these changes employees have to adapt their capacities to new requirements of the environment. From this respect social aims are the driving force.

The two forces come together in the characteristics of the value chain of the learner:
 - The individual and his or her desired competencies are the starting point.
 - The personal aims of the learner require demand driven life long learning.
 - The learner is in control by self regulating the learning processes.
 - The learning must fit in the constraints of time, money and energy.
 - The learning requires flexibility to learn as, if and when needed.
 - There is a need to make the content relevant for both the individual and the work context.
 - The social aims of the learner offer opportunities for co-ordination of learning outcomes with other employees.

To explore the value chain of the learner in more detail an analyses can be made of the phases of the value chain of demand driven life long learning.

Performing self-assessment
Identify talents in relation to self, career, and work.
Identify desired career steps and the learning requirements.
Identify required adjustments to the changing working conditions.
What do I want to learn? (Affective)
What do I need to learn? (Cognitive)
What do I choose to learn? (Conatative)
How must can I afford in terms of time, effort and money?

Designing a personal development plan
Which competencies do I choose to improve?
What do I hope to achieve related to my current and future work at my current company
What do I hope to achieve from the point of employability?
How much time, effort and money am I willing and able to spend?
How will it effect my relations at home and with friends (the home front)?

Searching for learning supply
What is available on the job?
What is offered by a branch organization?
What is offered by professional organizations?
What is available on the World Wide Web?
What can I find in libraries (articles, books)?
Which (short) training courses are offered by commercial and non commercial organizations?
What is offered by educational institutions? Is that demand driven or supply driven?

Matching learning needs and learning supply
What is the best match between learning needs and available learning supplies?
How much room is there for negotiating the gap between learning needs and learning supplies?
What will get me to my desired learning outcome best and fastest?
What inspires me most?
How much money do I want to spend?
Home much money will my employer provide for studies?
How to make a choice?

Executing a learning process
Gather knowledge and experience.
Apply and practice the knowledge.
Monitor achievements in terms of competencies gained and performances increased (job promotion).

Evaluating learning achievements
Evaluate periodically time and effort put in and results obtained.
Estimate the value learning represents.
Prepare for new future choices.

The role of the home front
The impact of the home front on the learner is often ignored. Family and friends however can have a great influence on the aspirations, inspiration and achievements of the learner. If a partner is supportive towards career advancement the learner is obviously more stimulated to spend time on further education. In that case it will be easier for the home front to carry the burden of having less time and attention from the learner.

On the other hand, if the home front is not supportive then the learner has a significant problem and will find himself in a time squeeze. He will be more interested in time effective learning programs.

The home front can also contribute in making suggestions for life long learning, i.e. friends may share their experiences and offer suggestions to the learner. If the learner achieves new competencies, he may benefit from it through better employability. The better position and income will be a benefit to the home front as well. This might be an incentive why the home front will put up with the learning activities of the learner.

The role of the home front will be taken into account in the design of the framework for demand driven life long learning. However, the influence of the home front will not be described as a value chain, because the role of the home front cannot be considered as a deliberate value adding process.

Supply driven value chain of the employer
The second important value chain to be considered is the value chain of the employer (Bennebroek Gravenhorst, Boonstra & Werkman, 2000). A clear description of this value chain makes it possible to confront the value chain of the learner (the employee) with the value chain of the employer. This results in an overview of common interests and possible conflicts (Argyris, Putman, & McLain, Smith, 1985; Argyris, & Schön, 1978).

The most important characteristics of the value chain of the employer are:
 - The company is focused on value creation for shareholders (in some cases stakeholders).
 - It exploits the talent base of human resources amongst other resources like capital, information and natural resources.
 - The personnel department is focused on selection, training, deployment and redeployment.
 - There is a strong orientation on performance.
 - The aim is quick wins through Return on Investment (Return on People).

To explore the value chain of companies in more detail an analyses can be made of the phases of this chain.

Performing assessments
Identify human talent needed for the near future.
Assess the gap between competencies needed and current competencies available.
Decide on hiring new talent or training current talent.
Compare with financial resources available.

Prioritizing learning
Decide on the topics that need to be addressed to first.
Decide on in house training or outsourcing.
Decide on budget and time.
Select content of training/course and method of training.
Allocate requirements to individuals.

Searching for learning supply
What is already available in the company?
What is offered by a branch organization?
What is offered by professional organizations?
What is available on the World Wide Web?
Which (short) training courses are offered by commercial and non commercial organizations?
What is offered by educational institutions? Is that demand driven or supply driven?

Convincing individuals to increase their competencies

Communicate personally on career planning and function requirements.
Agree on content and planning of training/course.
Enrol employees in training/course.
Monitor progress of training/course.
Monitor performance on the job.

Evaluating increases in competencies and performance
Evaluate periodically the increases in competencies and performance
Measure the contribution of training/courses to the results of the organization.
Make new plans for the next period.

The confrontation of two value chains
Confronting the two value chains described, results in both common interests and conflicts of interest. Common interests exist where the employer seeks quick returns on investment by increased performance and loyalty of the employee. Especially the social aims of life long learning, related to adapting people to changes in working conditions, are a source of common interests.

As far as the personal interests are concerned conflicts may arise between the value chains. If the career planning of the employee fits in with the companies planning, there may be some problem in timing, but both benefit from the growth in competencies of the employee. Conflicts of interest exist where the personal aims do not fit the possibilities a company can or wants to offer to a person. Then the employee must negotiate or find its own way outside the company.

Supply driven value chain of educational institutions
One of the phases in the value chain of both employee and employer is the search for learning supply. One of the possible resources is the traditional educational institute. To explore the common interests and possible conflicts between this third value chain and the combined value chains of learner and company, a thorough investigation is required into the value chain of the traditional institute (Bates, A.W.,1997). Therefor a description will follow of this third value chain in order to explore how this value chain fits the needs of the two other value chains. Based on this analysis we can formulate our design goals.

To be accurate, not all educational institutes are traditional. Quite a lot use problem based learning (Arts, Gijselaers, & Segers, 2002) or aim at the development of competencies (Otting, Zwaal, & Eringa, 2002). Moreover, the introduction of internet can have a thorough influence on distance education as part of life long learning (Itzkan, 1994; Vernooij, Thijssen, & Schermerhorn, 2001).

Just like the employee and the employer there are some characteristics of value chain of the educational institutes. However our research is restricted to the Netherlands, but we assume the value chain of educational institutes in other countries are similar as they work under

similar conditions.

Some characteristics of value chain of the educational institutes:
- Traditional educational institutions have difficulty in capturing the market for life long learning.
- They offer traditional courses with fixed curricula, certain topics at certain times over a planned period of time.
- Modules are very general and not related to the specific needs of companies and persons.
- Processes for life long learners are the same as processes for regular students.
- The lectures are separate from the working context.
- The institute has little benefits from the students ability of self-regulation.
- The institution regulates everything in detail.
- Costs are very high both in time and in money.
- The flexibility is low as bureaucratic measures are inevitable to keep control of the whole organization.

The value adding steps an educational institute undertakes, can be described as follows:
- Identify a generic market need for a particular course.
- Investigate whether an existing course can be offered to fill the need.
- If not, select (top) teachers to design a course, if possible the best teachers.
- Decide then on theme's, topics and the order of topics in time and location.
- Gather literature (the best content) and design each module in terms of knowledge transfer by the teacher and learning tasks by the students.
- Execute the course by offering the best content by the best teachers.
- Assess students learning results through examination.
- Award the results with a diploma or certificate.

Conflicting interests and problems
The three value chains and the role of the home front are obviously different; they represent the interests of the four actors: the learner, the home front, the company and the educational institute.

Each value chain serves a different interest:
- The interest of the life long learner by the learner in terms of time, effort and money spent on learning in relation to career and personal and home front benefits gained.
- The interest of quick returns on investment of the employer by increased loyalty and performance in terms of contribution to the companies results.
- The interest of standardization of processes at the educational institute in set curricula over time.

Now that we have looked at the various value chains, we can formulate the design goals of demand driven life long learning: Design innovative learning programs for life long learning, matching the interests of the learner, the home front, the company and the

educational institution. This implies process oriented teaching (Vermunt, & Verschaffel, 2000). Safe time, effort and money and increase the value of the life long learning process for all actors involved.

A framework for designing demand driven life long learning processes (DDLL)

Life long learning must adhere to quite a lot of design criteria. In order to form a framework for designing life long learning processes, we identify a set of design criteria based on the value chains in the previous section.

Design criteria

Learner driven relevant
Address the specific learning need at a specific time (competencies for increased performance).
Must fit in the context of actual work and career within the actual company.
Must fit in possible future jobs at companies or institutions (employability).
The time, effort and monetary expenditure should be as low as possible.
It must inspire and appeal.
It must fit the personal learning style and be totally flexible.

Home front relevant
Must fit in the personal circumstances of the learner (family, friends, hobbies etc).
The home front must see the potential benefits.
There must be time left for family activities; maintain life/work/learn/family/friends balance.
The home front must enjoy the rewards of increased competencies of learner in terms of happiness and in terms of higher income.

Company relevant
Will the learner actually increase performance?
Will it make a contribution to the companies results?
Will the company benefit immediately and over a longer period of time?
Does it increase company loyalty?
Does it contribute to building the competencies for the future?

Educational institution relevant
Will it open a new market effectively and efficiently?
Will it allow for the successful exploitation of current resources (teachers, knowledge base, infrastructure)?

Will it generate additional revenue?
Will it provide for experiences that benefit the core business and competencies of
the regular education?

Serving mutual interests
Combine interests of learner, home front, company and educational institute.
Share resources.
Safe time, money and energy.
Increase collective value.

In fact there is a supply and a demand relationship between all four actors, which need to be aligned. An important item educational designers often forget, is the issue of the personal circumstances of the learner. We named it the home front. From the perspective of the learner the home front presents a very important base for happiness and fulfillment.

We are talking about family, children and friends. They can make or break lifelong learning if they withhold their support and stimulation. On the other hand they can be the trigger for aspirations and ambition. Therefore we introduced design criteria for the home front as well.

The DDLL Framework
Now that we have all the design criteria on our design pallet we can start designing the DDLL Framework. Figure 1 includes all the above competing interests.
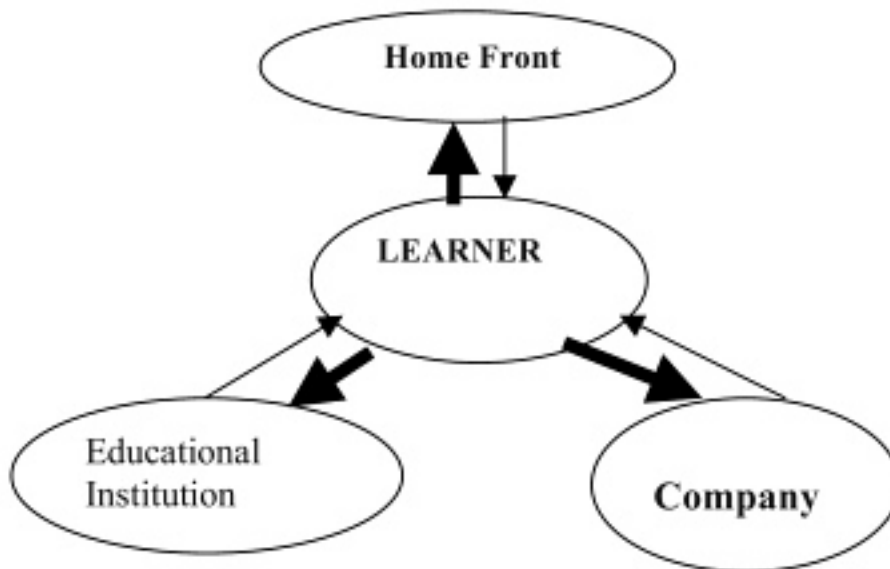

Figure 1: the DDLL Framework

Note: The black arrow indicates the demands the learner imposes upon his or her

environment. The thin arrow identifies the supply relationship from the environment to the learner.

Explanation of the DDLL Framework

1. Learner at the heart of the DDLL Framework
The learner wants to be in control of his (you may read as well her) own destiny and matches his need for personal achievement in his own work/life balance. There is a trade off between time, effort and money spent in relation to the benefits gained in each area of the framework. The learner plays various roles in life.

Within the home front the learner plays the role of mother, father, friend, employee, citizen etc. But in fact the learner is one and the same person. In the context of learning we will make a distinction between the role of a person as learner and the role of a person as participant in the home front.

2. Home Front on top of the DDLL Framework
The effort of working and learning may take away time from family, friends, children and hobby. For an acceptable balance between personal needs, private life, learning and work the immediate family must benefit as well. Possible benefits are: a happier learner, increased performance in less time, better income, money, and time to share together. It is stated that the balance between work, learning and life will be a very important criteria for both the learner and his/her immediate surrounding.

The home front will not hesitate to make a sacrifice if all involved can see the short-term and long-term benefits of increased personal performance and income. But, how many companies and educational institutions are really concerned with these questions?

3. The Company at the right of the DDLL Framework
The employer has a dominant role in the DDLL Framework. The employer is placed at the right of the DDLL Framework because the employer has often the right of way. The company pays the monthly salary, provides for interesting work and a working environment and in return demands a certain amount of loyalty, commitment and a clear contribution to the companies' objectives.

In the case that the company pays for the education both in time and money, it feels entitled to a specific return on investment. These returns could be: more competence and more dedication of the employee and better performance of the learner and the company as a whole.

More and more companies are committed to developing human talent. They have a clear policy on the matter, allowing the learner to choose for a career within the company based on very transparent information that the learner can share with the home front. No wonder

large companies have started Private Label Universities, Academies and other in company training programs. They take the lead in the educational process and exclude the traditional educational institutions from playing a dominant role in lifelong learning.

4. Educational Institutions at the left of the DDLL Framework
If traditional educational institutions play a role at all in the LL-process they are at best placed on the left. The learner and the company do not usually regard traditional institutions as sufficiently relevant and flexible to generate specific and immediate value to them. This position is partly due to financial constraints and habits grown out of the traditional view on education.

It is however possible to improve this position drastically if the educational institute supports the DDLL-process of the learner as if and when needed. That means, just in time and with relevant knowledge and support from the learner's and companies point of view. This has an important consequence for the educational institute. The institutes must learn that the DDLL-market is a completely different market, with different needs, preferences and prices.

It requires customer intimacy (Treacy & Wiersema, 1995) with both learners and companies and it requires operational excellence 24 hours a day, seven days a week. They must see it as an attractive opportunity to expand their territory from the ages of 18-25 to 25 and over. Further education is not restricted by age, in fact lifelong learners may be of all age groups.

Life long learning represents a huge, but very difficult market. Education must be immediately relevant to the learner and to the company. Both are clients with very specific and individualized needs and preferences. Education must be tailor made, context specific and available just in time.

Educational institutions in the Netherlands, such as (see as well section 4): The Johan Cruyff University, the Centre of Post Initial Education, and the Network University, proof that it can be done in a flexible way. Four main requirements are:
(1) individualized education by addressing learner needs,
(2) assessment of the competencies a learner has developed,
(3) access to knowledge and support as, if, and when needed,
(4) distinct value by offering the best assessors, coaches, teachers and granular content.
With granular content we mean, small learning units, which require only a couple of hours of learning or less, so they can be scheduled as, if, and when needed.

If we take the three value chains of the introduction section and the role of the home front, and we focus on the learner, we can place the roles of the home front, the company and the educational institute in a new perspective. In a DDLL process the learner is in control. This means that the learners value chain is leading.

We will repeat the main steps in the learner's value chain and place the roles of the home front, the company and the educational institutions in a supporting function. In the design of the DDLL Framework a system of co-creation, communication and collaboration emerges. All creating learning value in harmony.

A system of co-creation, communication and collaboration

In figure 2 we align the phases of the value chain of the learner and the support functions of the home front, the company and the educational institution with the learning process.

Roles	Exploration	Orientation	Negotiation	Decision	Consumption	Completion	Exploration
Learner	Assess	Plan	Search	Match	Learn	Achieve	Next Steps
Home Front (Family, friends)	Stimulate support or object	Negotiate	Advice	Accept or deny	Grin and bear	Enjoy rewards	Objects Stimulates Supports
Company Line Manager, Mentor, Trainer	Personal Attention Line Manager	Opportunities Resources Mentor	Recommend Mentor	Transparency Payment Line Manager Mentor	Resources Stimulate OJT Line Manager Mentor Trainer	Enjoy rewards Promote Line Manager	Personal attention to Career Line Manager
Educational Institutes Assessor, Coach, Teacher, Animator	Provide information	Add knowledge and objectivity Assessor	Match competencies and opportunities Coach	Provide for tailor made supply of learning granules Coach	Access to best teachers and content as, if, and when needed Coach Teachers	Competence profiles and performance appraisals Coach Assessor	Build network, come back, manage relationship Coach, Animator

Figure 2: Relationships between value chains.

Implications for traditional educational institutes
What can educational institutes learn from figure 2?
 - The learner and home front are at the centre of attention and are leading.
 - The context of work, employer, position and future career opportunities are input for design and execution.
 - The assessor provides for objectivity in the assessment of competencies.
 - The assessor, teacher and coach team up to support the learner in matching his or her needs and to provide for granular supply, access and support.
 - The mentor, trainer and line manager team up to support the learner in providing (financial) resources and on the job training as well as career opportunities.
 - The coaches, mentor and line managers team up to provide access to the best teachers, the best content, the best working and learning conditions available on demand by the learner, monitoring and evaluating competency profiles and performance appraisals.
 - The assessor and the line manager assist the learner in his assessment. Rewards are provided and celebrations involve the home front.
 - An animator is required to stimulate and activate learners to explore the possibilities.

- The educational institute provides for ways to keep in contact and is available for the learner on a DDLL basis as, if, and when needed.

Difference with the traditional value chain
What is different to the traditional value chain?
- The learner is the starting point.
- The home front is included.
- The employer is partner.
- The program is individualized by assessors, coaches, teachers and content through mass customization (no fixed curriculum but granules).
- Access is as, if, and when needed and through any channel (Contact, Web, E-mail, Readers, Articles, Books, Learning tasks in Theory and Practice).

Examples from experiments

Now that we have described the outline of the DDLL framework we will briefly examine some experiments at educational institutions in the Netherlands. We will look at the schooling of professional teachers at the University of Amsterdam and at the futuristic way of supporting demand driven learning networks at the Network University in Amsterdam.

But before going into the two examples we will explore the roles of assessor, coach, teacher and trainer at the Johan Cruyff University, which is a part of the economics department of the Hogeschool of Amsterdam.

Johan Cruijff University: the roles of assessor, coach, teacher and trainer
At the Johan Cruijff University (JCU) a system of competency-based education has been developed that can be used to break the boundaries between traditional education and life long learning in companies (Vernooij, 2001). The JCU is developed to offer elite athletes in all kinds of sports an opportunity to combine their sport with a professional education in commercial economics and marketing. Special arrangements are made to support the athletes while they are in training and competition.

In fact the educational institute uses a traditional program in economics to fit in with the demands of the students. However the way the educational content is offered, can be used as a model for life long learning.

The curriculum of the JCU is build on blocks of courses and training sessions, related to a role that a marketer can perform. At the start of the educational block an *assessor* estimates the competencies that have been acquired by the student up till that moment. At the same time the student orientates on the competencies required to fulfill the role of that period.

The *coach* supports the student in formulating learning goals as the bridge between

acquired competencies and desired competencies. Then the student submits his learning goals and plan for action to the assessor to acquire consent for his study program.

Teachers and trainers are involved to support the student in acquiring knowledge and developing skills. These teachers and trainers report to the student as well as to the assessor about the performance on exams and tasks. In this way the assessor does not have to be an economist to judge the growth in competencies in economics or business, as the teachers and trainers know about the development of knowledge.

Neither does the coach has to be an economist, because besides supporting the study plan of the student, it is his of her job to support the learning process and to make special arrangements if sports and study have conflicting demands.

Centre of Post Initial Education: teacher training
A professional group for whom life long learning is important, is the group of teachers. To support learning of this group the University of Amsterdam created a special institution: the Centre of Post Initial Education (CPE). This institute started out by offering existing courses from the regular master program to teachers in the area. Soon after that, special courses were created and offered via advertisements in regional papers and professional journals.

However both approaches failed to attract large bodies of students. Even research into the needs of teachers in cooperation with teacher unions dedicated to specific categories of students did not result in large numbers of participants. Teachers mentioned some courses they wanted to have but once the required courses were there, most of them didn't apply.

Still the CPE became a successful institution, as they switched their policy. They no longer approached the individual teachers but their employers. Instead of offering complete courses or seminars, they negotiated with school officers and teacher representatives about the needs amongst teachers at school and the way the CPE could come in to fulfill those needs.

This led to courses that were less knowledge oriented and more skill oriented. Between learners, school representatives and CPE a common interest accrue. Each adopted accommodations in its value chain in order to build a common process. Each was aware that only a cooperative strategy could develop a new approach for the benefit of all.

Network University: fully demand driven
The Network University is part of the University of Amsterdam and experiments in total freedom with demand driven networked learning processes. It reversed the value chain completely and provides for on line collaborative tools, suitable for networked learning. Anyone sharing an interest in the same topic can participate in Learning Snacks at an on line session of not more than 1 ½ hour.

If the appetite is aroused Learning Lunches may be provided, covering knowledge exchange over a longer period of time. If the hunger for learning is substantial the Network University designs a Burgundian Learning Dinner on demand. A call centre where individuals are matched and supported to still their learning hunger, supports the network.

What can be learned from these experiments?

From the DDLL Framework and the experiments some interesting things can be learned.
 - It requires a 180° paradigm shift for educational institutions to come to the alternative approach of demand driven lifelong learning.
 - It requires new design competencies.
 - It requires customer intimacy with learner and company.
 - It requires operational excellence from personnel and systems 24 hours a day seven days a week.
 - It requires access and immediate response as well as distinctive support to add value to both learner and company.
 - It requires dedication to transforming oneself and the learner.
 - It requires money to pay for time and facilities.
 - It requires breaking through existing boundaries.
 - It requires an animator to oversee the total change process.

Conclusions and recommendations

Since there are very few educational institutions providing truly demand driven learning that can be studied at this very moment, it is to early for conclusions. Demand driven learning is clearly still in the experimental stage. It is however possible to make a few recommendations for further exploration. By studying the practical experiments we learned that an additional role of support is vital, the role of *animator*.

The innovation process is complex and breaking through boundaries requires an individual who oversees the change processes and animates all actors to perform at the right time and with the appropriate support. The animator stimulates and guards the learning processes in the interest of the learners. The animator sees the learner and the company as clients to be served and collaborates with the staff from the educational institute to deliver knowledge and skills just in time.

It is recommended to explore more experiments, to describe and explain these experiments and question learners and companies (mentors, trainers and line managers) as well as assessors, coaches and teachers. The next step will be to improve the framework and build a more elaborate design tool for truly learner driven lifelong learning.

Literature

Argyris, C., Putman, R. & McLain, Smith, D. (1985). *Action science.Concepts, methods and skills for research and intervention.* Jossey-Bass Inc., San Francisco.

Argyris, C. & Schön, D. (1978). *Organizational Learning,* Addison-Wesley, Reading, MA.

Arts, J.A.R., Gijselaers, W.H., & Segers, M.S.R. (2002). *Measuring Expertise Effects of Authentic Computer Supported and Problem-based Course.* article submitted for Cognition and Instruction.

Bates, A.W. (1997). *Restructuring the university for technological change,* The University of British Columbia, Vancouver, Canada

Bennebroek Gravenhorst, K.M., Boonstra J.J., & Werkman R.A. (2000). *Change capacity of organizations: five configurations,* University of Amsterdam, Amsterdam.

Cornelis, A.(1999), *De vertraagde tijd:revanche van de geest als filosofie van de toekomst* Stichting Essence, Amsterdam.

Itzkan, S.J. (1994). Assessing the future of telecomputing environments: implications for instruction and administration. *The Computing Teacher*, 22(4), 60-64.

Lingsma, M & M. Scholten (2001). *Coachen op competentie ontwikk*eling, Uitgeverij H. Nelissen B.V. Soest.

Livingstone, D.W (1998). *What is informal learning?* National research network for new approaches to lifelong learning, Ontario Institute for Studies in Education, University of Toronto

Nevenjan, C. et al (2001). *Synchroom*, *onderwijsvernieuwing in de informatiesamenleving,* Hogeschool van Amsterdam.

Otting, H., Zwaal, W., & Eringa, K. (2002). *A constructivist approach to competence development and assessment.* Paper for the 9th Edineb conference, Guadalahara, Mexcio.

Parry, S. B. (1996). The quest for competencies. *Training.* July, 48-56.

Porter, M.E. (1985). *Competitive Advantage; creating and sustaining superior performance*, The Free Press

Simons, R.J., Van der Linden, J. & Duffy, T. (2000). New Learning: Three Ways to Learn in a New Balance. In: *New Learning.* (ed. Robert-Jan Simons, Jos van der Linden and Tom Duffy). ICO. Dordrecht / Boston / London: Kluwer Academic Publishers.

Stoof, A., Martens, R.L., & Merrieënboer, J.J.G. (2001). *What is competence? A constructivist approach as a way out of confusion.* Heerlen: Open University (in print).

Thijssen, Thomas P. T., Maes, Rik, & Vernooij, A.T.J. (2002). Learning by Sharing: a Model for Life-Long Learning. In: *Educational Innovation in Economics and Business VI.*)Ed.: Tor A. Johannessen, Ansgar Pedersen & Kurt Petersen). Dordrecht / Boston / London: Kluwer Academic Publishers.

Thijssen, T.P.J. (2001). Case study: *Network Universit*y, University of Amsterdam, Amsterdam.

Vermunt, J.D., & Verschaffel, L. (2000). Process-oriented teaching. In R.J. Simons, J. van der Linden & T. Duffy (Eds.), *New Learning* (pp. 209-225). Dordrecht, Boston: Kluwer Academic Publishers.

Vernooij, A.T.J., Thijssen, J.P.J. & Schermerhorn, R.H. (2001). *New media and their role in education*. Paper for the 8th Annual Edineb International Conference in Nice, France.

Vernooij, A.T.J. (2001). Case study: *Centre of Post initial Education*, University, Hogeschool van Amsterdam, Amsterdam.

Vernooij, A.T.J., & Thijssen, J.P.J. (2001). *New media and the role of teachers, A report on new practices at the Johan Cruyff University*. Paper presented at the 8th Annual Edineb International Conference in Nice, France (zie www.incasa.nl).

Werkman, R.A. & Boonstra J.J. (2001). *Lessons in Survey Feedback: interactive reflection, sense making and learning in organizational change processes,* University of Amsterdam, Amsterdam

Wierdsma, A.F.M (2001). *Leidinggeven aan co-creërend veranderen:balanceren tussen broosheid en maakbaarheid*, Universiteit Nijenrode, Breukelen, Netherlands.