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Breaking the Boundaries between Academic Degrees and Lifelong Learning Designing demand-driven lifelong learning processes for employees

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Abstract

Many educational institutions 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 previously acquired. Students with working experiences are mostly skilled in self-regulated learning processes, which education has to benefit from. 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-customization 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 Cruyff University, the Center for Post initial (Adult) Education (CPE) and the Network University, all three vested in Amsterdam.

Keywords: educational design, didactics, lifelong learning, innovation, collaborative technologies, assessment tools, personal development, demand driven

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Breaking the Boundaries between Academic Degrees and Lifelong Learning

Designing demand-driven lifelong learning processes for employees

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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-customization 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 Cruyff University, the Center for Post initial (Adult) Education (CPE) and the Network University, all three vested in Amsterdam.

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1. 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 & 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. Such employees have other learning goals, related to the job they have or the position they want to acquire. For these employees 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 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 lifelong 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 chapter, it is restricted to situations where employees are working on their employability. Therefore, an employer is involved in most of these cases. Employers and employees 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 or her 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 the home front as a separate role, that involves the relatives and friends of the learner whose social lives are influenced by the time the learner invests in his/her learning. The three value chains and the role of the home front are explored in order to find the research questions that would help us address tomorrow's problems. This chapter 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 of conflicting interests and problems. At the end of Section 1, we will formulate the design goals. In Section 2, we describe three value chains of the learner, the company and the educational institution. In section 3 we will introduce a framework for designing demand-driven lifelong learning for employees. In Section 4, we will share some insights on experiments with new educational design, and in Section 5, we will 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 institution and explore how this value chain fits the needs of the other two value chains. Based on this analysis we can formulate our design goals.

2 Three value chains

In this section we describe the demand-driven value chain of a lifelong learner, the role of the home front, the supply-driven value chain of the employer and the confrontation between demand and supply. Further we describe the supply-driven value chain of educational institutions and conclude with a summary of conflicting interests and problems.

2.1 The demand-driven value chain of a lifelong 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 learning opportunities that fit

in with their capacities and aims. From this perspective, 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 perspective, 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 lifelong learning.
- The learner is in control by self-regulating the learning processes.
- The learning process must fit in the constraints of time, money, and energy.
- The learning process 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 analysis can be made of the phases of the value chain of demand-driven lifelong learning.

1. *Performing self-assessment*

- 1.1. Identify talents in relation to self, career, and work..
- 1.2. Identify desired career steps and the learning requirements.
- 1.3. Identify required adjustments to the changing working conditions.
- 1.4. What do I want to learn? (Affective)
- 1.5. What do I need to learn? (Cognitive)
- 1.6. What do I choose to learn? (Conative)
- 1.7. How much can I afford in terms of time, effort, and money?

2. *Designing a personal development plan*

- 2.1. Which competencies do I choose to improve?
- 2.2. What do I hope to achieve related to my current and future work at my current company?
- 2.3. What do I hope to achieve from the point of view of employability?
- 2.4. How much time, effort, and money am I willing and able to spend?
- 2.5. How will it effect my relations at home and with friends (the home front)?

3. *Searching for learning supply*

- 3.1. What is available on the job?
- 3.2. What is offered by a branch organization?
- 3.3. What is offered by professional organizations?

- 3.4. What is available on the World Wide Web?
- 3.5. What can I find in libraries (articles, books)?
- 3.6. Which (short) training courses are offered by commercial and non-commercial organizations?
- 3.7. What do educational institutions offer? Is that demand driven or supply driven?

4. *Matching learning needs and learning supply*

- 4.1. What is the best match between learning needs and available learning supplies?
- 4.2. How much room is there for negotiating the gap between learning needs and learning supplies?
- 4.3. What will get me to my desired learning outcome best and fastest?
- 4.4. What inspires me most?
- 4.5. How much money do I want to spend?
- 4.6. How much money will my employer provide for studies?
- 4.7. How to make a choice?

5. *Executing a learning process*

- 5.1. Gather knowledge and experience.
- 5.2. Apply and practice the knowledge.
- 5.3. Monitor achievements in terms of competencies gained and performances increased (job promotion).

6. *Evaluating learning achievements*

- 6.1. Evaluate periodically time and effort put in against results obtained.
- 6.2. Estimate the value learning represents.
- 6.3. Prepare for new future choices.

2.2 **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 him/herself in a time squeeze. He or she will be more interested in time-effective learning programs.

The home front can also contribute by making suggestions for lifelong learning, that is, friends may share their experiences and offer suggestions to the learner. If the learner achieves new competencies, he or she 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 for the home front to 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 lifelong 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.

2.3 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 analysis can be made of the phases of this chain.

1. *Performing assessments*

6.4. Identify human talent needed for the near future.

6.5. Assess the gap between competencies needed and current competencies available.

6.6. Decide on hiring new talent or training current talent.

6.7. Compare with financial resources available.

2. *Prioritizing learning*

2.1. Decide on the topics that need to be addressed first.

2.2. Decide on in-house training or outsourcing.

2.3. Decide on budget and time.

2.4. Select content of training/course and method of training.

2.5. Allocate requirements to individuals.

3. *Searching for learning supply*

3.1. What is already available in the company?

3.2. What is offered by a branch organization?

- 3.3. What is offered by professional organizations?
- 3.4. What is available on the World Wide Web?
- 3.5. Which (short) training courses are offered by commercial and non-commercial organizations?
- 3.6. What do educational institutions offer? Is that demand driven or supply driven?

4. *Convincing individuals to increase their competencies*

- 4.1. Communicate personally on career planning and function requirements.
- 4.2. Agree on content and planning of training/course.
- 4.3. Enroll employees in training/course.
- 4.4. Monitor progress of training/course.
- 4.5. Monitor performance on the job.

5. *Evaluating increases in competencies and performance*

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

2.4 **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 lifelong learning, related to adapting people to changes in working conditions, are a source of common interests. As far as personal interests are concerned, conflicts may arise between the value chains. If the career planning of the employee fits in with the company's 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 his or her own way to improve competencies outside the company.

2.5 **Supply-driven value chain of educational institutions**

One of the phases in the value chain of both employees and employers is the search for learning supply. One of the possible resources are traditional educational institutions, such as colleges and universities. To explore common interests and possible conflicts between this third value chain and the combined value chains of the learner and the employer (company), a thorough investigation is required into the value chain of the traditional institute (Bates, 1997). Therefore, a description of this third value chain will follow in order to explore how it 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 of them use problem-based learning (Arts, Gijsselaers, & Segers, 2002) or aim at the development of competencies (Otting, Zwaal, & Eringa, 2002). Moreover, the introduction of the Internet can have a profound influence on distance education as part of lifelong learning (Itzkan, 1994; Vernooij, Thijssen, & Schermerhorn, 2001).

Just like with the employee and the employer, educational institutions have their own characteristics of the value chain. Although our research is restricted to the Netherlands, we assume the value chains of educational institutions in other countries are similar, as they work under similar conditions.

- Traditional educational institutions have difficulty in capturing the market for lifelong 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 lifelong learners are the same as processes for regular students.
- The lectures are separate from the working context.
- The institute has few benefits from the students' ability of self-regulation.
- The institution regulates everything in detail.
- Costs are very high in terms of both time and money.
- The flexibility is low as bureaucratic measures are inevitable to keep control of the whole organization.

The value adding steps an educational institution undertakes, can be described as follows:

1. Identify a generic market need for a particular course.
2. Investigate whether an existing course can be offered to meet the need.
3. If not, select (top) teachers to design a course, if possible, the best teachers.
4. Decide on themes, topics and the order of topics with regard to time and space (i.e., whether the course will be given off-line and/or on-line).
5. Gather literature (the best content) and design each module in terms of knowledge transfer by the teacher and learning tasks by the students.
6. Execute the course by offering the best content by the best teachers.
7. Assess students' learning results through examination.
8. Award the results with a diploma or certificate (Vermunt & Verschaffel, 2000).

2.6 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 institution. Each value chain serves a different interest:

-The *learner's* interest in terms of time, effort, and money spent in relation to benefits gained.

-The *company's* interest in quick returns on investment and the contribution to the company's results.

-The *educational institution's* interest in standardization as opposed to costly tailor-made courses.

Now that we have looked at the various value chains, we can formulate the design goals of demand-driven lifelong learning: design-innovative learning programs for lifelong learning, matching the interests of the learner, the home front, the company, and the educational institution. This implies process-oriented teaching (Vermunt & Verschaffel, 2000). It should also save time, effort, and money, and increase the value of the lifelong learning process for all actors involved.

3 A framework for designing demand-driven lifelong learning processes (DDLL)

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

3.1 Design criteria

1. *Relevance to the learner*

- a. Address the specific learning need at a specific time (competencies for increased performance).
- b. Fit in the context of actual work and career within the actual company.
- c. Fit in possible future jobs at companies or institutions (employability).
- d. Keep time, effort, and monetary expenditure as low as possible.
- e. Inspire and appeal.
- f. Fit the personal learning style and be totally flexible.

Relevance to the home front

- g. Fit in the personal circumstances of the learner (family, friends, hobbies, etc).
- h. Demonstrate potential benefits to the home front.
- i. Leave time for family activities; maintain life/work/learn/family/friends balance.
- j. Make sure that the home front enjoys the rewards of increased competencies of the learner in terms of happiness and in terms of higher income.

2. *Relevance to the company*

- a. Increase learners performance
- b. Increase the contribution to the company's results
- c. Immediate and long term benefits to the company
- d. Increase company loyalty

- e. Contribute to building the competencies for the future

3. *Relevance to the educational institution*

- a. Open up and access the market of lifelong learning effectively and efficiently
- b. Successful exploitation of current resources (teachers, knowledge base, infrastructure)
- c. Generate additional revenue
- d. Provide for educational experiences for teachers that strengthen current educational programs

4. *Serving mutual interests*

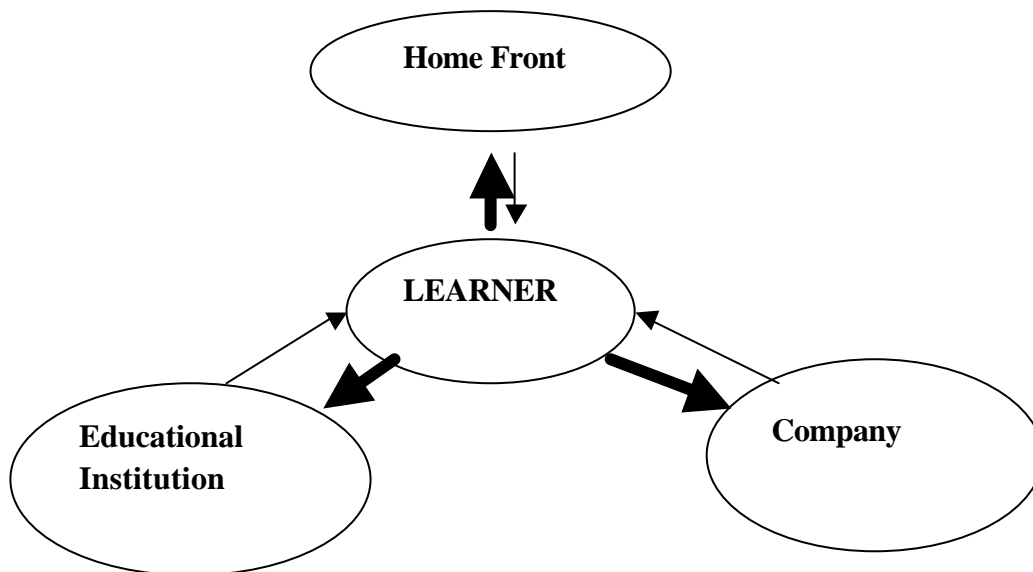
- a. Combine interests of the learner, home front, company, and educational institution.
- b. Share resources.
- c. Save time, money, and energy.
- d. Increase collective value.

In fact, there is a supply-and-demand relationship between all four actors, which needs 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.

3.2 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 thick arrow indicates the demands the learner imposes upon his or her environment. The thin arrow identifies the supply offered to the learner by the environment.

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 he determines personal strategies for learning and advancement. There is a trade-off between time, effort, and money spent on learning, on the one hand, and the benefits gained in each area of the framework, on the other hand. The learner plays various roles in life. Within the home front, the learner plays the role of mother, father, friend, 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 a learner and the role of a person as a 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. To achieve an acceptable balance between personal needs, private life, learning, and work, the immediate family must see the benefits as well. Possible benefits are: a happier learner, increased performance in less time, better income, and more time to share together. It is stated that the balance between work, learning, and personal life will be a very important criterion 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 side of the DDLL Framework

The employer has a dominant role in the DDLL Framework. The employer is placed at the right side of the DDLL Framework. The company pays the monthly salary, provides for interesting work and working environment and, in return, demands a certain amount of loyalty, commitment, and a clear contribution to the company's objectives. In case the company pays for the education in terms of both 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 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 side of the DDLL Framework

If traditional educational institutions play any role in the LL-process at all, they are at best placed on the left side of the model. 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. Courses are usually standardized and not tailor made for the individual learner or company. It is, however, possible to improve this position drastically, if the educational institution is willing to individualize the courses offered; if it decides to support the DDLL process of the learner in a flexible way. That means delivering education to the learner just in time and with relevant knowledge and support from the learners' and company's point of view. This has an important consequence for the educational institution. The institution 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. Educational institutions 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.

Lifelong 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 also Section 4): The Johan Cruyff University, the Center of Post Initial Education, and the Network University, prove that it can be accomplished in a flexible way. Four main requirements are:

- (1) Individualized education addressing learner needs
 - (2) Assessment of the competencies a learner has developed
 - (3) Access to knowledge and support as, if, and when needed, and
 - (4) Distinct value from offering the best assessors, coaches, teachers, and granular content.
- (By “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 institution in a new perspective. In a DDLL process the learner is in control. This means that the learner’s 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 to create learning values in harmony.

3.3 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.

Figure 2: Relationships between value chains.

<i>Roles</i>	<i>Exploration</i>	<i>Orientation</i>	<i>Negotiation</i>	<i>Decision</i>	<i>Consumption</i>	<i>Completion</i>	<i>Exploration</i>
Learner	Assess	Plan	Search	Match	Learn	Achieve	Next Steps
Home Front (Family, friends)	Stimulate (Support or object)	Negotiate	Advise	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/ Mentor	Resources Stimulate OJT Line/Mentor Trainer	Enjoy rewards Promote Line	Personal attention to Career Line
Educational Institutions 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 Teachers, Coach	Competence profiles and performance appraisals Assessor, Coach	Build network, come back and manage relationships Coach, Animator

3.4 Implications for traditional educational institutions

What can educational institutions learn from Figure 2?

- The learner and home front are at the center of attention and are leading.

- The company, as an employer of the learner, represents a potential paying customer for education and training.
- The demands of both the learner and the company for education are used as input for designing and offering courses.
- The assessor provides for objectivity in the assessment of existing 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/her assessment during the learning process. Rewards are provided and celebrations involve the home front.
- An animator is required to stimulate and activate learners to explore the possibilities.
- The educational institution provides for ways to keep in contact and is available for the learner on a DDLL basis - as, if, and when needed.

3.5 Difference with the traditional value chain

What is different from supply-driven and mostly traditional value chain?

- The learner is the starting point, and not the course offered by the institution
- The home front is included and not ignored.
- The employer is a partner and not just a paying customer.
- The program is individualized by assessors, coaches, teachers, and organized by content, through mass customization (no fixed curriculum but granules).
- Access is as, if, and when needed and through any channel (contact, Web, email, readers, articles, books, learning tasks in theory and practice).

The above DDLL framework can be applied to the design of demand-driven educational programs matching the interests of the learner (and the home front) with the requirements of the company. Educational institutes may be able to expand their market if they consider the requirements from both the learner and the company. In the next section several examples of learning practices are described.

4. 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 an assessor, teacher, and coach at the Johan Cruyff University, which is a part of the economics department of the Hogeschool of Amsterdam.

4.1 Johan Cruyff University: the roles of an assessor, coach, teacher, and trainer

At the Johan Cruyff University (JCU), a system of competency-based education has been developed that can be used to break the boundaries between traditional education and lifelong learning in companies (Vernooij, 2001). The JCU is developed to offer elite athletes in all kinds of sports an opportunity to combine their sport activity 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 institution 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 lifelong learning.

The curriculum of the JCU is built on blocks of courses and training sessions, related to functions of a marketer. 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 explores the competencies required to fulfill the role of that period. The *coach* supports the student in formulating the learning goals that would form a bridge between acquired competencies and desired competencies. Then the student submits his/her learning goals and action plans to the assessor to acquire consent for the 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 have to be an economist, because besides supporting the study plan of the student, his or her job is to support the learning process and to make special arrangements if sports and study have conflicting demands.

4.2 Center of Post Initial Education: teacher training

A professional group for whom lifelong learning is important is the group of teachers. To support learning of this group, the University of Amsterdam created a special institution: the Center 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 conducted in cooperation with teacher unions (dedicated to specific categories of students) did not result in larger numbers of participants.

Teachers mentioned some courses they wanted to have, but once the required courses were offered, most of these teachers did not apply.

Still the CPE became a successful institution, when it switched its policy. The Center no longer approached individual teachers but rather their employers. Instead of offering complete courses or seminars, Center managers 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 has accrued. Each made 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 that would benefit all.

4.3 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 online collaborative tools, suitable for networked learning. Anyone sharing an interest in the same topic can participate in Learning Snacks at an online session of not more than 90 minutes. 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 center where individuals are matched and supported to still their learning hunger supports the network.

The above three examples from practice describe early experiments in offering demand-driven learning programs. They provide input for understanding how the DDLL-framework may be applied in designing lifelong learning programs better.

5. 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 learners and companies.
- 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 learners and companies.
- It requires dedication to transforming both the educator 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.

The most important lesson is that the experiments indicate that a 180° paradigm shift is needed from supply-driven to demand-driven education.

6. Conclusions and Recommendations

Since there are very few educational institutions providing truly demand-driven learning at this very moment, it is too 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 support role is vital, the role of an 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 institution to deliver knowledge and skills just in time.

It is recommended to explore more experiments, to describe and explain these experiments and interview 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 a truly learner-driven lifelong learning.

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