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Cultivating responsiveness: learning and development in complex environments

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Inaugural speech
Given on October 28, 2015 at the official inauguration as professor of Learning and Development in Organisations at Inholland University of Applied Sciences.

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1 Introduction

The book before you is meant to serve different purposes. One is to sketch my vision on the research theme called Learning and Development, one of six research streams in the Business Research Centre of Inholland. At the same time, this book forms the basis for my inaugural speech as professor in a University of Applied Sciences. Finally, the book is meant to present my vision on learning and development in organizations in regards to my role in education, practice, society and science and how I aim to impact each one of these.

The principal task of a professor in a University of Applied Sciences[1] is to develop actionable knowledge aimed at improving practice. This is done through collaborative research with internal and external partners such as teachers, students and businesses. Research results should also contribute to improving curriculum. These points are illustrated below in Figure 1, which I call "The HBO Trinity".

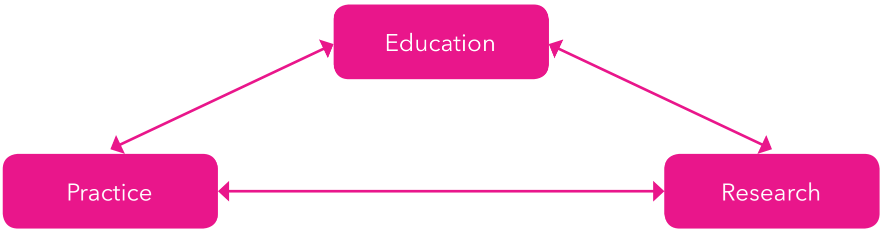

Figure 1. The HBO Trinity

My duties as a professor at Inholland are aimed at contributing to the learning and development of the stakeholders shown in Figure 1. I am also expected to develop and facilitate the relationships between them. A professor must at all costs respect the HBO Trinity by doing research and development that has a clear connection to improving professional practice in his or her field: not an easy thing to do for reasons I explain later, but certainly an enriching one. By working with different and diverse groups, new ideas and possibilities arise. Experiencing and seeing phenomena from different perspectives deepens our understanding of learning and development in organizations and this is the key to success for any professor: creating synergy between the groups by using knowledge and skills from one world to complement the other. Doing research together is the process that facilitates the exchange of knowledge and helps create the synergy. Learning also plays a large role here; doing research together is learning together.

[1] In Dutch, a professor at a University of Applied Sciences is called a *lector*.

'Cultivating responsiveness' typifies my vision on learning and development in knowledge-intensive organizations. These types of organizations are in my opinion the backbone of the Dutch economy and the focus of my research. Being responsive is how individuals and the systems they are in can thrive in environments that are complex, unstable and unpredictable. The dandelion in the picture on the cover symbolizes for me the concept of responsiveness: how an organism absorbs shocks, adapts and thrives in a hostile environment. Below I use the dandelion as an illustration of what responsiveness is.

Nobody really wants dandelions in the garden, so they are continually being sprayed with poison, or pulled out or burned away[2]. But they always come back and do well, even in difficult places like a crack in the sidewalk (see Picture 1 below). Dandelions, like the one on the front cover, assure their continued existence by being pro-active and sending out new seeds. Some seeds will probably be eaten by birds, or just die, but some will find a new place and carry on or even transform into a hybrid. A dandelion is a great example of an organism that is responsive. However, I do wonder how much more beautiful dandelions would be if they were cultivated with a little care and attention. This is much like learning in organizations. It happens anyway because learning is a natural process, but must be cultivated in order to reach its full potential – in the case of dandelions by blowing on the seeds if there is no wind. That is what this book and my research is about - helping to cultivate learning in ways that increase its potential impact on individuals, organizations, the economy and eventually society as a whole. I use the term 'cultivating' because it implies an organic approach to learning and aspects of regularly caring for something so that it grows over time.

You will notice I use the word effectiveness rather often. I define effective as 'that which has the power to, or actually does, produce a result'. The reason behind my use of the word is that it fits well with the prescriptive research we do here at Inholland. We try to improve practice by developing new knowledge; knowledge that for example can be used to solve problems or contribute positively to learning processes by making sure they are effective in order to have the greatest impact.

The book is structured as follows: after a short introduction explaining the crucial role learning and development has in our society, I discuss the background and positioning of it. This is followed by a presentation of the research agenda that will guide our work in the research stream for the coming years. I finish with a short discussion of my ambitions and vision on doing research collaboratively.

[2] Google showed 133,000 hits for the search term 'eradicating dandelions' and 173,000 for 'pesticides for killing dandelions'.

2 Research issues in learning and development

In this section I develop the practical and theoretical perspective for the research stream within the Business Research Centre that I lead. I start off quite broad by examining a more viable future-earning strategy for The Netherlands. While at first this might seem a little strange for a book focusing on what in essence is human resource development (HRD), it's actually quite logical considering I work in the Business Research Centre, which is embedded in the Faculty of Business, Finance and Law. So my domain must be, and is, business. Following this, I propose that for The Netherlands to maintain its high standard of living, we need to cultivate responsiveness in our businesses and especially the people who work in them, very carefully. This is not an easy process and our work on the topic is meant to ensure that this in fact happens.

I use the concept of responsiveness as a common thread throughout the book, starting at the macro level and weaving down through various levels of analysis to the individual. In my opinion, the point of business - and business studies - is to help The Netherlands increase its capacity and capability for sustained economic growth. The main theme of my discussion is of course learning and development in work organizations and in schools. Learning and development is the lens I use to help understand how we can promote this economic growth in a sustainable manner, while respecting the people who actually do the work.

2.1 The crucial role of learning and development in the greater whole

The basic premise of my argument in this part of the book is that learning and development (L&D from now on) is a crucial factor for assuring societal well-being. Space here limits my discussion on this, but basically in order for Dutch society to enjoy a high level of well-being, there needs to be sustained economic growth. I argue in this book that sound investment in L&D is an important strategy for promoting economic and social well-being. These links are illustrated below in Figure 2 and shows the path of reasoning and logical framework behind my argument.

Figure 2. Graphic illustration of the basic premise of this book

In November of 2013, The Dutch Scientific Council for Government Policy ('Wetenschappelijk Raad voor Regeringsbeleid', *from now on WRR*) published a report called *"Towards a learning economy. Investing in the Netherlands' earning capacity"* (Naar een Lerende Economie). In this report they discussed the idea that although The Netherlands has enjoyed more than 50 years of steady growth,

> "…there are no guarantees that this situation will continue. The global balance of power is changing. Many emerging economies are developing from low-wage countries into knowledge-driven economies and by 2020, two thirds of the world's middle class will live in Asia. These changes are creating all sorts of new opportunities – but also putting established positions under constant pressure. Production processes are changing more rapidly all the time, and market leaders are soon toppled from their position. Innovation is no longer a short-term activity undertaken by a few inventors; it is a permanent process of fine-tuning and adjusting that involves everyone across the board, from shop floor workers to senior executives, suppliers and even customers. The question is how the Netherlands can thrive in these new circumstances." (WRR, 2013, p. 7)

Several important issues arise from this quotation. The first is of course that we (the Dutch - and I include myself here) will need to adapt our way of earning, or lose our current high standard of living. We know land and capital- heavy investments are no longer a viable strategy for sustaining growth. Natural resource wealth for The Netherlands, such as the natural gas in Groningen, is declining rapidly. As a reaction to this we are becoming more and more a knowledge-based economy, where human and intellectual capital in organizations play critical roles. However, the labor-base of The Netherlands will start shrinking rapidly around the year 2020, forcing individual workers and the organizations in which they work to become more productive. Stimulating L&D is an important policy for achieving this.

Another notion in the quote above is that for The Netherlands to maintain steady growth, innovation must become an ongoing process. Without continual social and technical innovation, the ability of The Netherlands to keep their competitive advantage will diminish, eventually negatively affecting the social well-being we enjoy. Furthermore, the WRR stresses that everyone involved in the economy, regardless of their role, will need to contribute to helping make changes in the current system, e.g. innovate. Here too can L&D play an important role by helping people and organizations to learn to innovate and change effectively and efficiently. The world we live in is changing continually and becoming at the same time more and more complex. For us to have a viable economy, we need to be prepared for this. We need to be responsive to our environment and understand that we either learn and adapt or suffer the consequences of a diminished economy; fewer jobs, poor healthcare, little social security - the list goes on.

Before discussing specific challenges facing L&D, I first look at two general strategies for dealing with a changing world. The first strategy, which is based on forecasting, is fine for dealing with a linear and predictable world. The second strategy, which is based on learning and development, is the one we'll need to adopt in order to deal with the complexity we are increasingly being faced with. While the WRR positions these strategies at a macroeconomic level, they can be easily mapped onto meso and micro levels. In other words, transferred to the level of the organization and the individual.

The first strategy for dealing with a changing world is called forecasting, which is a type of prediction or estimation usually based on past performance and events. Linear forecasting is a common method applied as a means to understand future trends, for example in political change, economic growth or even technological developments[3]. The idea behind forecasting is that if one can accurately predict trends using quantitative methods and economic models, then investments can be made that achieve desired results. However, forecasting is far from an exact science and history has shown that predicting the future by using modeling is not very accurate and more often wrong than right (Spence, 2011). This is especially true for long-term trend forecasting where too many unknown variables can influence how things actually go. I remind readers of Keynes' prediction in 1930 that thanks to technological advances everyone would be a lot richer and need only work 15 hours a week (Keynes, 2013). I am a little disappointed that his prediction, made using linear forecasting methods, was wrong. While we are in general much richer, like the average European I still need to work 40 hours a week[4].

The point here is that forecasting is based on a linear world. In linear worlds it's possible to make accurate predictions, even far into the future. However, critics of forecasting (like me) consider it to be an ineffective and even misleading way to deal with a turbulent and complex environment (Byrne and Callaghan, 2013). Forecasting in complex situations can be misleading because it gives a false sense of security. Organizations and individuals also sometimes rely on forecasting, which may lead to problems in dealing with change.

A second and more viable strategy, is to assure that the country's earning capacity is boosted. According to the WRR, earning capacity is "…the sum of its ability to exploit future opportunities and overcome future threats. The aim is to develop infrastructure, institutions and human capital to the point where they can adapt smoothly to changing circumstances." (WRR, 2013. p. 5)

[3] For more, see http://www.oecd.org/eco/outlook/forecastingmethodsandanalyticaltools.htm#.
[4] http://epp.eurostat.ec.europa.eu/statistics_explained/extensions/EurostatPDFGenerator/getfile.php?file=145.107.163.121_1413393593_96.pdf)

The goal of a strategy aimed at boosting earning capacity is to develop an economy that can learn – one that has the ability to quickly and easily adapt and flourish in an unstable and highly competitive global environment. This in turn will boost Dutch earning capacity and capability. The ability to adapt relatively easily quickly and to new circumstances the WRR calls 'Responsiveness', and is a key characteristic of the learning economy. Having a learning economy is crucial for successfully organizing Dutch earning capacity so that continued economic growth is guaranteed.

2.1.1 Conceptualizing responsiveness

In the following section I break down the concept of responsiveness into its interrelated components of resilience, adaptive capacity, proactive attitude and feedback.

Resilience. Resilience in an economic sense of the word is the ability of an economy to absorb and minimalize the impact of external shocks. In other words, is the economy able to recover from an economic downturn in a relatively short period of time and with no widespread 'damage'? The current Dutch economy is vulnerable to economic shocks because it is open, has a concentration on exports and depends on strategic imports as a main source of gross domestic product (GDP). But a policy-induced ability to deal with shocks is possible by for example assuring heterogeneity and diversity. These two traits assure that shocks are spread out among different economic activities (Pike et al., 2010). Another important characteristic of a resilient economy, and one central to my argument, concerns the existence of a flexible, multi-skilled labor force. Such a labor force allows for flows of important resources from the 'damaged' section of the economy to another (Briguglio, 2008). This includes human resources. Highly skilled workers supported by structures that assure learning and development is a crucial aspect of this flexibility, as rapid skill changes are typically needed. Other policy induced responsiveness involves things such as sound macroeconomic issues, good governance, social cohesion, good health-care and good education at primary, secondary and tertiary levels.

Adaptive capacity. The world is a complex and non-linear place with many actors. Uncertainty and discontinuity are the rule rather than the exception. Social systems are in constant flux and change and are not predictable. For years governmental (and organizational) policies were focused on trying to control uncertainty and slow the processes of change. But more lately, there is a realization that policies aimed at promoting ways to deal with it, (e.g. adaptive capacity) are much more effective. Adaptive capacity is the ability of a system to effectively adapt and change in response to new circumstances. For example the structure of predominant industries or occupations undergo change, or firms find a way to improve their competitive position. This they do for example by adopting better technologies or organizational forms or producing new products.

Picture 1. Dandelions have a lot of adaptive capacity

Folke *et al*. (2002) argue that building adaptive capacity requires understanding of systems that incorporate local knowledge and users who are directly influenced by policy. Made-to-order solutions, using a bottom-up method of development, will need to be promoted much more than current practice. This also means that policy makers (and managers in organizations) will need to open up to other types of knowledge when developing policy and that they will need to experiment with what works in a specific situation, learning continually from their mistakes and from other stakeholders.

Proactive attitude. A proactive attitude empowers a long-term vision in regards to understanding future problems and current mistakes, as well as the search for new possibilities. Folke *et al*. (2002) define this characteristic of responsiveness is the "…degree to which the system can build capacity for learning and adaption." (p. 440). Proactivity is important to change threats into opportunities.

Processing Feedback. Although the WRR does not specifically position the ability to process feedback as a component of responsiveness, I think it is a vital part of it and worth its own discussion. Feedback is 'information on the results of actions' and a necessary part of learning because it guides future actions. For example, becoming proactive is in itself a learning process, where policy development is done along the lines of learning and feedback. For these processes to occur, structures that allow learning from mistakes need to be put in place. Many poor reactive and ad hoc solutions are made without processing or acting on feedback. This is often the result of short-term planning and policy (which do not enable proactivity). Unfortunately, investing in long-range policy aimed at anticipating problems is difficult, especially in a political landscape where four years is the average term of a politician.

Let me recap at this point. In order for The Netherlands to keep its current level of social and economic well-being we need to develop its earning capacity in such a way as to assure continued economic growth. The most effective way to do this is to develop a learning economy. A learning economy is responsive: it bounces back from shocks, adapts smoothly and relatively easily to changes in its external environment and is prepared to search for new possibilities.
It follows logically that the first step towards a learning economy is to cultivate responsiveness by instituting structures that facilitate the process. While sound governance and effective macroeconomic policy are critical factors for cultivating resilience, other structures are needed for assuring the adaptive capacity and proactivity: structures related to learning, feedback and a long-term vision.
This is true for each of the actors shown in Figure 2; from the economy to the individual.
The purpose of the discussion above is to illustrate that we - and by 'we' I mean L&D researchers and practitioners - are part of something bigger and need to understand our role as contributors to society. In fact, L&D plays a pivotal role in helping assure the continued economic growth of The Netherlands because it is linked directly to organizations through the individual. My vision on L&D is that it encompasses and contributes to the well-being of different actors at different levels, namely individuals, organizations, the economy and ultimately society.
I see these four different levels being intertwined and interdependent; one level cannot function effectively without the other. Following this line of reasoning, the economy reacts and changes with stimuli from society; organizations react to and interact with their environment and individuals function in a relationship with the organization in which they work. Globalization and the Internet have contributed to the complexity of this system by adding a multitude of relationships and interconnectedness to society. Understanding this complex web of relationships is thus crucial to understanding learning and development in an organizational context.
It is my belief that individual learning is where it all starts, and is in fact the cornerstone of a learning economy. Individuals, working in organizations, need to continuously learn and develop in order to help the organization to learn and develop which in turn contributes to the growth of the economy, which in turn adds to the well-being of society. Stimulating the continual learning and development of individuals – in both work organizations and educational institutions - is thus crucial to Dutch society. The relevance of L&D for education in general, and Inholland in particular, is that we need to educate students in a way that contributes to their own responsiveness, or in other words help them to learn and develop so that they become happy and productive members of society. Education, in all its forms, is the key to a prosperous economy and a progressive society. In the next section I bring the discussion closer to home by looking at organizational responsiveness; what it is, how it looks like and how it can be cultivated.

3 Organizational Responsiveness

Responsiveness is an important topic for most modern organizations, including Inholland. We too are part of the complex and unstable world, and just like any other organization need to be as responsive as possible. The literature on organizational science doesn't explicitly use the concept of responsiveness, but rather 'organizational learning' or 'learning organization', or some combination of the two. In this way the idea of responsiveness goes a step further by combining the terms into a more holistic concept. Let me illustrate this:

Resilience for organizations is the same as for any system and the ability to absorb unexpected shocks is important for the short-term viability of an organization. *Adaptive capacity* is the ability to change along with the environment - key aspects of a learning organization. And finally a *proactive attitude* combined with the effective use of feedback stimulates learning and innovation.

The idea of *cultivating* responsiveness can be applied to organizations too. The field of organizational behavior has been promoting the concept of learning organizations for many years. There it is shown that in order to be effective in the volatile global marketplace, organizations need to learn to adapt easily to drastic and lesser shocks. So even though the discourse of economics and organizational behavior differ, the parallels in the context of my discussion here should be clear. Both literatures argue for the need to create a learning *system*, made up of (learning) individuals working in (learning) organizations. My vision on L&D is that creating learning systems is a major goal of both practitioners and researchers in the field: it is about contributing to a greater whole by working with individuals and organizations. In the following discussion I look at how organizations learn and what conditions need to be in place to assure learning occurs. In the textbox below you can read my idea of what learning is.

Conceptualizing learning

Webster's dictionary defines 'learning' as 1) Knowledge obtained by study or instruction; scholarship; erudition. 2) The act of acquiring knowledge or skill. 3) The modification of behavior following upon and induced by interaction with the environment and as a result of experiences leading to the establishment of new patterns of response to external stimuli. Important to note for later is that all learning originates with the individual in relation with their environment (Illeris, 2002). Note that learning is a process as well as an outcome. (Through learning – process- you have new knowledge that you may act upon– outcome.) Evident in these definitions is the idea that learning can be approached in different ways: as a cognitive process of acquiring knowledge or skill or as a change in behavior.

Conceptualizing learning, continued
Approaching learning from this broad perspective also allows us to transcends the individual level and apply learning to groups, organizations and even – as I tried to show - the economy.

Textbox 1. What is learning?

3.1 Organizational learning

Organizational learning is ordinarily conceptualized along the same lines as individual learning. For example, organizational learning can be said to have occurred (i.e. learning as outcome) if there has been a change in the cognitive structure of the organization (like a new strategy is developed), or if knowledge is being transferred between organizational actors (learning as process).

In organizational learning theory, the psychological processes of learning connect individuals - who may or may not be working in groups such as teams or communities of practice, etc. - with the organization as a whole. As an outcome, organizational learning is typically understood as changes in organizational practices such as a new strategy or procedure for working. Changes are arbitrated through an individual's learning, for example during problem-solving or collaborative innovation. One important point is that an individual's learning is a *necessary but insufficient* condition for organizational learning to happen (Ellström, 2001).

In their groundbreaking work on organizational learning, Crossan *et al*. (1999) developed an integrative model showing the dynamic learning relationship between individual and organization. In their model, organizational learning is portrayed as an active, two-way process. One way the process goes is forward from the individual to the greater whole. This is called 'exploration', and considers an individual 'feeds' new knowledge forward to the organization where it is then assimilated and eventually transformed into new strategies, new ways of working, or new products. Others call this type of learning developmental or innovative learning, as it implies innovation - breaking with the past and doing something new (Ellström, 2001).

The other direction the process takes originates at the greater whole, moving its way to the individual. This is called 'exploitation', and is the way existing knowledge and learning, found in systems, products, services, etc., is used by groups and individuals. I call this type of learning 'adaptive learning', even though this breaks somewhat with the ideas put forth by Crossan *et al*. (1999). Furthermore, I consider adaptive learning to be the processes involved in the formation of competencies and doing one's job better within the given frameworks of the organization, thus not necessarily doing something entirely new.

The section above describes exploration and exploitation processes. These processes require similar and specific conditions in order to occur. For example absorptive capacity (the capability of integrating external knowledge), the existence of structures that enable the social and psychological processes involved in exploration and exploitation (such as open communication for knowledge exchange) and the ability to institutionalize learning (by transforming new knowledge into new strategy). Only when there are structures present that promote and facilitate learning at individual, group and organizational levels, can exploration and exploitation processes occur. In the next section I look at cultivating responsiveness as a way to help develop a learning organization, which has the structures needed for exploration and exploitation to occur.

3.2 Learning organizations

The ability to learn and create new knowledge is essential to modern organizations in a complex and turbulent world. Learning is often considered a major contributor to the success or failure of an organization because through learning, new or rare competencies are developed that helps to create competitive advantage (Muthusamy and Palanisamy, 2004). Organizations that are exceptionally good at creating new knowledge and successfully turning it into marketable products or services are called learning organizations.

Organizations are under pressures from the changes globalization has brought with it. The need to innovate and to change for maintaining competitive advantage is becoming more crucial due to technological as well as social developments. It logically follows then that a critical competence of a learning organization is the ability to change and develop, in other words to be *responsive*.

Link to practice

'Business trends: consequences for organization and work'

In the first half of 2015, the Business Research Centre conducted a large scale qualitative research project called 'Business trends: consequences for organization and work' in order to help define a joint research agenda for the five different research streams in the Centre. Lectors, research fellows, teachers and students interviewed in total 58 scientists, entrepreneurs, managers and politicians working in all different fields and sectors. With the research outcomes we gained much insight into how 'practice' expects the business world to develop.

Link to practice, continued

Our research shows that organizational structures, jobs and various kinds of existing borders will become vague or disappear. Globalization, digitalization, professionalization and individualization are increasing at a high rate. While these results are not surprising in themselves – one finds similar developments in both the scientific and popular literatures – what is surprising is that we found them in such a wide range of diverse sectors. The results are also novel because of the way we structured them. We make clear the relations between the separate developments and use them to give insights for new research themes (like what you read in this book) and possibilities for curricula that increases knowledge and cultivates responsiveness.

The complete report (in Dutch and English) is free to download at www.inholland.nl/BRC.

Link to Practice 1. BRC research results

Organizations are made up of people and so logically we can assert that learning and development of individuals plays a crucial role in assuring an organization's responsiveness. We also know that employees have a pivotal role because in our knowledge-based economy, organizations rely more and more on their human capital as a means of adding value as well as for production. Consider, for example service organizations such as financial institutions or website designers. These firms do not use land or capital in order to generate value, but rely solely on knowledge. Try to name someone you know who works in a factory, or on a farm. This will probably be difficult for most of us because generally organizations in The Netherlands are knowledge-intensive and service-based. A shift away from land and capital towards knowledge-based resources brings with it a shift in how organizations focus their development. One essential focus for organizational development is on stimulating learning at the organizational and individual level.

Continuous learning (or sometimes called lifelong learning) by employees is an important issue for both researchers and management alike because it is a powerful way for organizations to deal with the challenges posed by a highly competitive and dynamic environment (De Lange et al., 2009). Through adaptive learning, employees are able to adapt to new roles and acquire new skills that help them remain effective in organizations that are in constant states of change. The crucial role of lifelong learning by all employees is discussed expansively in the literature on organizational learning and knowledge management (see Beck, 2012).

According to the guru of the learning organization concept Peter Senge (1990), a learning organization is characterized by a culture in which there is lifelong learning and development among employees. Again we see that organizational learning is directly related to individual learning. This is most likely the reason behind the large number of organizational development strategies based on improving individual performance through various types of learning initiatives (Harrison & Kessels, 2004; Watkins & Marsick, 1993).

Berg & Chyung (2008) point out that a learning organization is most often conceptualized as a strategy that focuses on process design and as such "…is defined by the nature of the organization's processes and the extent to which they enhance employees' learning and facilitate the transfer of learning to others." (p. 230) This leads us to the next section that looks at cultivating the learning organization.

3.2.1 Cultivating a learning organization

Following Berg and Chyung (2008), I propose that a learning organization is a practicable strategy for promoting responsiveness. This means cultivating a learning organization is a conscious – and consistent - set of interventions by management in order to improve internal conditions for learning (Goh, 2003). Management intervenes in different ways for different reasons depending on organizational culture, available resources, vision on learning, etc. In order to cultivate a learning organization, management needs to promote what is known as a positive learning climate. According to Hellriegel and Slocum (1974), "Organizational climate refers to a set of attributes which can be perceived about a particular organization and/or its subsystems, and that may be induced from the way that organization and/or its subsystems deal with their members and environment." (p. 253) Translated to more general language, a learning climate the way individuals perceive the organization in regards to their learning.

Mikkelsen and Gronhaug (1999) found that employees experience a learning climate as positive if the factors shown in Figure 3 are considered by employees to be positive.

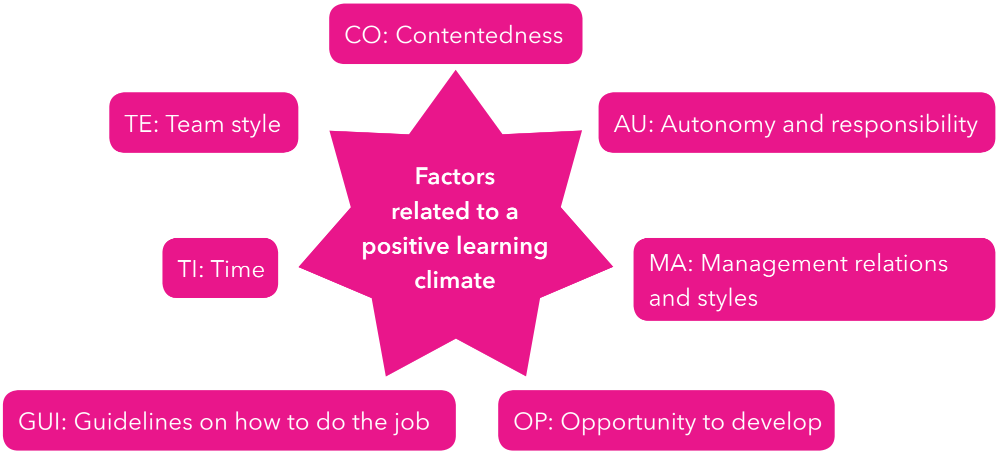

Figure 3. Factors in a Learning Climate

Here is a short explanation of the factors that make up the 'learning climate scale' developed by Mikkelsen and Gronhaug (1999) and pictured in Figure 3 above.

- **MA**: Management Relations and Style, where high scores reflect perceptions of management as being supportive.
- **TI**: Time, where high scores indicate that individuals perceive sufficient time to do their job and learn.
- **AU**: Autonomy and Responsibility, where high scores indicate perceptions of control over organizational events, initiating action and making decisions.
- **TE**: Team style, where high scores indicate perceptions of opportunities to learn from expert colleagues.
- **OP**: Opportunity to Develop, where high scores reflect perceptions of opportunities to learn new jobs and do a variety of types of work at the workplace.
- **GUI**: Guidelines on How to Do the Job, where high scores indicate perceptions of easy access to relevant written information and guidelines.
- **CO**: Contentedness, where high scores indicate perceptions of a general feeling of satisfaction with the workplace.

For practitioners, the scale Mikkelsen and Gronhaug (1999) developed is a powerful instrument for understanding what interventions need to be implemented in order to cultivate a learning organization. For researchers, the scale is useful for measuring effects of interventions or eliminating rival explanations for any observed effects (Ropes, 2011b).

3.3 Learning at work: cultivating employee responsiveness

Employees cultivate responsiveness through learning. Think about it like this. You are a teacher here at Inholland. Monday morning your boss asks you to teach a new course. And by the way, the first lecture is Friday morning. This is quite a shock. However, you delve into the new subject matter, learning as much as you can, and give great lectures. You were *resilient*.

Being *adaptive* at work means being able to easily adjust to new ways of organizing your work and taking on new roles. For example, in the Business Research Centre (BRC from now on) we decided on reorganizing to a more project- based structure. This means different ways of working and organizing but it also means that members need to fulfill different roles, such as researcher, project manager or chair of the BRC, *at different times*. This is an ongoing process of changing roles and functions, typical for knowledge-intensive organizations. The ability of employees to adapt and be successful in new roles is extremely important as it facilitates organizational success as well as organizational change and development (Ropes, 2015).

A *proactive* employee is one that has the ability to create and act upon new knowledge in order to innovate, using feedback from the environment as a stimulus. As we saw above, organizations learn on the basis of assimilating new knowledge from external sources, which happens through individuals who learn, explore and experiment with new ideas. This is also how innovation occurs.

Through learning employees are able to thrive in changing environments. Workplace learning occurs in many different situations and is organized in different ways. I propose that the most *effective* learning at work is not based on formal training, but rather occurs during participation at work. There is an ongoing trend in management learning to move away from formal training and development towards informal, situated learning (McGuire & Gubbins, 2010). We see this in both the research and the way L&D practitioners design their programs for organizations. This seems to be happening because 1) organizations are investing less and less in formal training and development and 2) formal training and development programs are being questioned as to their effectiveness (Kyndt et al., 2009).

Formal learning activities are those taking place in educational and training institutions outside of the workplace and lead to some type of formal qualification or recognized diploma. Formal learning is a structured process with planned activities theoretically leading to defined outcomes. Here's an example from personal experience. I recently took a course on developing a budget for European Union Erasmus+ subsidy requests. When I signed up I new exactly what the learning outcomes were and that, if I paid attention and did the assignments decently, I would be proficient in drawing up such a budget. After completing the course successfully, I received a certificate stating my competence in that task. Formal training and development like this is an important way that employees maintain or improve their competencies and firms invest considerably in it. While I'm not arguing to eliminate formal learning from organizations, I would argue for a decrease in its importance. I go further into this below, but basically I see formal learning as more of a supplemental strategy that can be used when specific skills are needed, such as preparing a budget, or learning how to deal with a new type of software program. However, formal learning is not effective as a main strategy for employee learning in complex and environments undergoing rapid change because important competencies change rapidly as well. And most human resource managers would agree with me. Consider the popularity of the '70:20:10' framework of human resource development Charles Jennings developed in 2002 (Jennings and Wargnier, 2011). Essentially, Jennings' framework explains that 70% of all learning takes place in the daily activities of work, 20% by observing others and 10% in formal training. Literally every time I meet a human resource manager (which is quite often) they mention this framework. The idea behind it is logical and underpinned by research.

We know that much learning at the workplace is in fact unplanned, taking place in the natural activity system of the workplace, where employees participate regularly in organizational group activities such as team meetings, formal and informal discussions, etc. (Ropes, 2013). From this perspective, workplace learning is largely a byproduct of participation in the daily activities of the organization, rather than formal, planned training activities.

My conclusions about workplace learning are the same as Jennings' and my research supports this. However, critics of the 70:20:10 model maintain that it has been adopted as a cure-all for managers who either 1) use it as way to support their lack of investment in formal training or 2) don't understand or just neglect the fact that not all work environments lend themselves to learning[5]. However, the fault lies not by Jennings. He emphasized that his framework was just a guide to understanding and thinking about learning in organizations and not a blueprint, as many managers think. In any case, workplaces are not by definition powerful learning environments, they need to be designed as such (Skule, 2004). Thus, L&D doesn't just happen, it needs to be cultivated.

Link to practice: the Non-Formal Learning Accelerator (NFL-A)

Together with Vibeke Ferree, a student at our Master of Learning and Innovation course, we are working on developing what we call the Non-Formal Learning Accelerator (or NFL-A for short) as a reaction to the need for more tools L&D professionals can use to boost the effectiveness of their program designs. The purpose of the NFL-A will be to accelerate, or speed up, the processes surrounding non-formal learning that take place while employees participate in more formal learning trajectories.

We incorporated our research into an existing teacher professionalization trajectory (more on this later) to make sure we had context. The research is qualitative and delivered a set of design principles reflecting both theory and practice. We will be testing the design principles in a pilot trajectory at another course.

Link to Practice 2. Accelerating non-formal learning

Workplace learning is mostly non-formal, linked to daily work activities and "… predominantly unstructured, experiential, and non-institutional." (Marsick & Volpe, 1999). However, as one can see in Table 1 below, non-formal learning is not necessarily unplanned or unintentional. This is an important distinction with what is called incidental learning, which is unintentional, unplanned and results in tacit knowledge, not measurable learning outcomes (Watkins & Marsick, 1992).

[5] See , for example http://www.te-learning.nl/blog/mijn-bezwaren-tegen-70-20-10/

Examples of planned, non-formal learning activities with identifiable outcomes are mentoring or participation in a performance review or taking part in a project aimed at new product development.

The table below illustrates the differences between non-formal learning that usually takes place in the workplace and formal learning that usually takes place in an educational setting. At the same time characteristics of non-formal learning are also presented.

Table 1. Differences between formal and informal learning (Tynjala, 2008)

Learning in formal education	**Learning in the workplace**
Intentional (+unintentional)	Unintentional (+intentional)
Prescribed by formal curricula, competency standards, etc.	Usually no formal curriculum or prescribed outcomes
Uncontextualized – characterized by symbol manipulation	Contextual – characterized by contextual reasoning
Focused on mental activities	Focused on tool use and mental activities
Produces explicit knowledge and generalized skills	Produces implicit and tacit knowledge and situation-specific competences
Learning outcomes predictable	Learning outcomes less predictable
Emphasis on teaching and content of teaching	Emphasis on work and experiences based on learner as a worker
Individual	Collaborative
Theory and practice traditionally separated	Seamless know-how, practical wisdom
Separation of knowledge and skills	Competences based holistically, no distinction between knowledge and skills

Non-formal learning is considered by most L&D scholars (and practitioners) to be the most effective type of learning for workers in knowledge-intensive environments. This is how professionals increase their expertise while contributing to the knowledge base of the organization:

> Effective workplace learning is often portrayed as a situated, social experience with elements of competence development and knowledge transfer as well as collaborative knowledge building (Boud and Middleton, 2003; Eraut, 2000; Fenwick, 2006; Poell and Van der Krogt, 2003). This fits well with Engeström and Kerosuo's (2007) theory of learning at work as an expansive process in that the ability to participate successfully in social knowledge-building processes is an important aspect of expansive learning, and actually a type of meta-competence closely related to the idea of creativity and knowledge-based problem solving. (Ropes, 2013. p. 720)

The following are key aspects of learning at the workplace that build on the quote above:

- Workplace learning is situated, i.e. takes place in a specific context which means any expertise developed will be expertise specific to that context (Farrington-Darby and Wilson, 2006). This is important for understanding how expertise and competence is developed and can inform learning design.
- Workplace learning is a social process that occurs in groups, such as work teams or communities of practices (Ropes, 2010), or even mentor-pupil relationships. Understanding that social processes are important to facilitating learning means looking to other theories on learning, such as activity theory (Jonassen and Rohrer-Murphy, 1999).
- Workplace learning is about knowledge building and creating new knowledge, which is an important meta-competence learned during participation in various group activities at work (Illeris, 2002).
- Creating new knowledge is the link to organizational learning and as such needs to be stimulated and facilitated. (Ropes, 2010)

I think we can see now that learning in the workplace is, among other things, closely related to the creation of knowledge. In the following section I discuss this idea further.

3.3.1 Learning as a process of knowledge creation

Employees have an important role in contributing to organizational responsiveness through new knowledge creation (Nonaka and Takeuchi, 1995). The process of 'exploration' is one of new knowledge creation that starts with an individual acting on some kind of signal picked up from the environment. For the process of knowledge creation to actually occur assumes that individuals - usually working in groups - are capable of seeing this new knowledge and understanding its possibilities. In order for an individual or group to pick up new signals, they need to have an existing knowledge base in that area. This is a fundamental aspect of learning. The more knowledge you have, the more capable you are of assimilating and creating new knowledge.

Directly related to this is the concept of 'absorptive capacity', a specific term found in much of the management literature on innovation and is considered to be "…a set of organizational routines and processes by which firms acquire, assimilate, transform and exploit knowledge to produce a dynamic organizational capability." (Zahra and George 2002. 186) While often used to describe processes at the organizational level, absorptive capacity is also applicable to individuals. In fact, most of the literature agrees that the absorptive capacity of an organization depends on the absorptive capabilities of individuals (see, for example Cohen and Levinthal (1990) or Jones (2006)). Expertise and prior knowledge are crucial to absorptive capacity as they help the individual first to understand new knowledge and second to use it in combination with existing knowledge. Understanding and combining new knowledge are psychological processes of learning that rely on prior knowledge (Farrington-Darby and Wilson, 2006). Individuals with a diverse knowledge base and strong assimilative powers are important to the innovative process, as these people are able to make unique and novel associations between ideas. Through continuous learning, employees broaden their knowledge base and in turn their assimilative powers, which in turn allow them to understand new possibilities.

Link to practice: Schiphol Outside In

In this project Rudy Snippe (professor of Creative Business) and I are researching how Schiphol Group can develop as a learning organization further by increasing their absorptive capacity. The title of the project is Schiphol Buitenste Binnen (Schiphol Outside In)

The following excerpt is from an internal Schiphol Group newsletter.

The project Schiphol Outside-In started on October 6th under the leadership of two professors from Inholland UAS Don Ropes and Rudy Snippe. The goal of this action-research project is to gain insight into the barriers and mechanisms within Schiphol Group in regards to its ability to react quickly to external developments. The project consists of a series of workshops and interviews.

Workshops are divided into three phases. In the first phase a group of 'pioneers' (15 managers from different business units-DR) are trained to develop new concepts. In the second phase, the new concepts are introduced into the organization. In the final phase the research focuses on which barriers or mechanisms were triggered that either helped or stymied the process of new knowledge assimilation.

Link to Practice 3. Research project with The Schiphol Group

Like most learning in organizations, knowledge creation is often a collaborative learning activity that may occur sporadically and naturally in organizations, but typically needs to be cultivated in order to be effective. For example teams need to be facilitated in their learning. Time is an important factor, but even more so coaching on how to create a team environment that is safe for experimenting and new knowledge creation. Coaching is especially important for new teams, yet this is often neglected.

Stephen Billet, one of the leading scholars working in the field of workplace learning, argues that all learning in organizations is dependent on structures that shape how people do their jobs (Billet, 2002). This suggests a challenge for structuring the workplace and the jobs people do in such a way as to assure that non-formal learning occurs. The challenge for L&D is not just to understand how to increase the learning potential of the workplace, but the learning potential of the work itself (Onstenk, 2011). Realizing this is the task of L&D researchers and practitioners working together with professionals from Human Resource Management. The former two groups can give insight for helping employees change and develop while that the latter group has a responsibility to help employees do their job better.

Let me sum up what has been discussed so far. First, I showed that cultivating responsiveness is crucial for societal well-being. After this, I conceptualized the idea of responsiveness and positioned it in the field of organizational learning. This included a discussion on the theoretical underpinnings of how learning organizations are cultivated. In the next section I present what we still need to learn about it from a theoretical and practical perspective. Part of this is a discussion on how we in the research stream *Learning & Development* will contribute to theory and practice in the field. I also examine the issues and trends that will give specific focus to our current and future research.

4 Becoming Superman and other L&D challenges for people and organizations

Hopefully at this point I've shown that organizations will need to be responsive or face their demise. I have argued that investing in employees' learning and development plays an important role in helping organizations to become responsive, a task of both employees and managers. The results of our research in the BRC on business trends is closely linked to the need for responsiveness and point to several coming challenges for people and organizations. One trend that really sums up much of what I have written is called "The employee must become superman" and is described as follows:

> The environment in which the employee works is becoming increasingly dynamic, changing more frequently and more rapid. Organizations need to change continually in order to be competitive. Working in knowledge-intensive organizations like here in The Netherlands demands much from employees. On the one hand they need to continually develop and expand their expertise. On the other hand they need to be willing – and able – to work in these demanding and instable environments. These developments have large consequences for organizing new learning environments in both work and educational organizations (Business Research Centre, 2015, p13).

According to our research in the BRC, which is backed up by several other studies[6], employees will need to be 'super smart' (and able to remain so), 'super social' and 'super flexible'. Essentially, employees need to be responsive in the same ways as the economy and organizations need to be, thus cultivating employee responsiveness is a main goal of L&D research and practice. However, while we know what types of learning environments are theoretically effective for workplace learning in general, we do not know if specific types of learning environments can be made effective for a broad range of learning needs and/or learners (D'Amato and Herzfeldt, 2008). This means we need to map out what types of learning environments are effective in which contexts, considering the different variables (*what* needs to be learned *when* and by *whom*). While taking these variables into consideration means organizing complex learning environments human resource development initiatives are often one-size fits all with little thought to the complexity of learning. This is especially true in regards to motivation for learning and the different cognitive styles of learners have (Nieuwenhuis and van Woerkom, 2007; Ropes and Ypsilanti, 2012).

[6] For example see http://www.wrr.nl/fileadmin/en/publicaties/PDF-Overige_uitgaven/2015-06-24_WRR-werkprogramma_Engels_06.pdf

Another challenge for L&D research and practice is how to organize learning in a way that is beneficial to the organization as well as to the employee. This is an important consideration because we also need to take into account the human aspect of learning, not just a utilitarian one. People learn for reasons other than to help the organization they work in to develop, and may not be motivated to learn if they do not see the added value in learning. For example self-actualization is a powerful motivation for learning, yet learning in organizations is often seen as a utilitarian instrument for making business processes more effective, and has no connection with the employee self. Järvensivu and Koski (2012) state that "Learning has been mobilized to legitimize and reinforce a neo-liberal ethos as an inescapable answer to changes caused by the knowledge society and the globalized economy. As learning discourse is conquering the world, it has reached a point where learning is in different connections un-problematically assumed to be a good thing for everyone." (p. 7) It is just not possible to be against learning and be taken seriously, yet we need to look critically at how and why it takes place. We need to be careful that learning does not become a tool for management to oppress or alienate certain groups or increase workloads in the name of becoming a 'learning organization'. Not being aware of these issues could lead to employees refusing to participate in learning, or stymie their continuous learning, which would negatively affect both the individual's and organization's responsiveness. Thus, why employees do not partake in learning activities is an important point that needs more research (Cunningham and Hillier, 2013; Järvensivu and Koski, 2012).

Learning at work should be organized in ways that contribute to the effectiveness of the organization and at the same time to the well-being of the employee. This view on learning fits with the vision on sustainable organizations we developed in the BRC and is a guiding factor for our research. Finding a good balance between what organizations and individuals want and need in regards to learning is a big challenge for L&D researchers and practitioners, one that will only get bigger in the coming years due to pressures from technical and social changes. However, finding this balance is easier said than done. Neither organizations or individuals typically know exactly what they need in terms of competencies or knowledge (Ropes, 2015a) in order to be effective and thus the contextual prescriptive research we do is important for practice. At a theoretical level, understanding how learning at the individual level is linked to the organization - and vice-versa – needs much more research (Lozano, 2014; Lyles, 2014).

Finally, we know that organizational resources for employee learning and development are shrinking[7]. In the sector of small and medium enterprises,

[7] http://mens-en-samenleving.infonu.nl/opleiding-en-beroep/79221-opleidingsbudget-via-je-werkgever-cijfers-feiten-en-tips.html; http://www.gitp.nl/nieuws/detail.aspx?id=%7B8539DED8-A8FF-4EC0-AB8E-E9D068DB6047%7D

L&D budgets are stable, but have never been high in comparison to larger organizations[8]. The challenge for us is to help organizations of all sizes to develop L&D programs effectively, considering the specific context and budget constraints.

The following question is meant to guide our work in the research stream Learning and Development. It is meant to give direction for helping develop new practicable knowledge that can be used to help organizations become responsive.
"How can L&D researchers help organizations to effectively cultivate responsiveness through organizing and stimulating continuous learning among employees so that the organization learns and develops in a sustainable way?"

In the next sections I illustrate specific topics of research we will focus on in the near future. I do this by returning to the results of our BRC research and reflecting on my own past and current research. Each topic has a set of research questions aimed at developing practicable knowledge about cultivating responsiveness through learning in different contexts.

4.1 Focus: Intergenerational learning

In the 'Business Trends' research project (see Link to Practice 1) we found that demographic change will have major consequences for organizations. In literally each of the sectors we interviewed, people mentioned negative effects an ageing worker population could have on organizations. This is not too surprising, considering the large amount of coverage in the press and in government reports on an ageing worker population[9]. Another theme that emerged from the research was diversity. While diversity was usually seen as a cultural issue, there were also references to age diversity.

Diversity is an increasingly important issue for organizations. Managers typically approach diversity in one of two ways. One way is as a problem that needs to be 'worked through' (Vangen and Winchester, 2014). For example, generational diversity on the work floor is often seen as a cause for disturbed social relations and processes, which in turn inhibits collaboration and learning (Ropes, 2013). In order to minimalize the problem of generational diversity, management might try and implement a mentoring program, or organize workshops on generations (Ropes, 2015b).

But diversity of all types is sometimes approached in a more positive manner, as something that adds value. In their evaluation report on an organizational program aimed at creating openness for diversity, Çelik, Vos, and DeVries (2014) propose the term 'value in diversity'.

[8] https://www.ing.nl/media/ING_mkb-crisis-heeft-weinig-invloed-op-opleidingsbudget-mkb_tcm162-70392.pdf
[9] Some of these are even alarmist, like "The Great Exodus". http://www.rijksoverheid.nl/documenten-en-publicaties/rapporten/2010/04/14/rapport-de-grote-uittocht.html

Approaching diversity this way changes it from a problem to a possibility that should be capitalized on. In this case, diversity is managed in order to improve organizational effectiveness.
For example by organizing intergenerational communities of practice as forums for learning and innovation (Ropes, 2012).

4.1.1 Ageing workers and generational diversity

Recent studies in the European Union point out that the general European population is aging (see for example, European Commission, 2009; Giannakouris, 2008). The Netherlands is no different. Our government, like so many others, is concerned about financing the growing older population and as a result has raised the legal age of retirement. This means that people can either work until the official retirement age or face a decreased pension. Rational choice theory predicts that most people will remain working until the legal retirement age and so the average age of workers within organizations will rise. Alongside of this the birth rate is declining which translates to a lack of new workers, which will in turn raise the demand for labor. Organizations will then be forced to keep older workers longer in service. Result: a lot more older workers, which is actually the case here in The Netherlands[10]. While older workers are not in themselves a problem, the way managers typically deal with them is. Managers sometimes experience older workers the same as gardeners see dandelions – as something to get rid of.

Human resource strategies for dealing with older worker are typically aimed at easing them out of the organization instead of investing in their continued development, or using their capabilities to the fullest (Fenwick, 2012). Managers are unwilling to invest in older workers for different reasons. One is financial: investing in an employee who is approaching retirement age doesn't make good economic sense. Another is the perception that older workers are less capable than younger workers and have less to contribute to the organization (Van Dalen et al., 2009; Kooij, 2010; Ropes, 2011b).

In our survey on ageing workers, middle and top-level managers from 13 Dutch industrial sectors (n=1100) responded that the biggest threat an ageing worker population brings with it is the ability of the organization to change and develop. In other words, older workers are seen as a threat to organizational responsiveness. Yet only 16% of the respondents indicated having any type of proactive policy on older workers learning! On the other hand, 75% had programs aimed at reducing stress of older workers, which usually translates to working less, or fewer challenging tasks. This waste of human capabilities has been found in other work as well (see, for example Hennekam and Herrbach, 2013).

[10] http://www.cbs.nl/nl-NL/menu/themas/arbeid-sociale-zekerheid/publicaties/artikelen/archief/2014/2014-4078-wm.htm

As part of the European Union project SILVER (see Link to Practice 4) we interviewed 36 human resource managers about issues surrounding ageing workers. Three dominant themes emerged from the data that we want to research: 1) stimulating older worker learning will be a major challenge 2) wasting valuable human resources is a threat and 3) high levels of (reverse) ageism leads to work-floor strife.

Stimulating older worker learning

Lack of participation in lifelong learning is many times due to the older workers themselves. They may be unwilling to participate in learning activities because they don't see the value if they are to retire soon. But a more compelling reason is because of poorly designed L&D initiatives that fail to motivate (Commission, 2006; Fuller & Unwin, 2005). Most L&D programs are designed for a generic group and don't consider why or how older workers learn. Learning motivation and learning styles of older workers are areas that we need to do more research in for helping L&D programs to be more effective.

Wasting talent

One way that older worker's talents and extensive field knowledge can be used is for knowledge creation. Knowledge – intensive organizations, such as those that make up the context of this research, rely on people for sustained competitive advantage and will need to adjust their current human resource management policies by assuring all talent found in each employee is used strategically and to the fullest extent. Currently, the talents of older workers are used neither efficiently nor effectively (Beck, 2012). In our research during Project SILVER, we were finding evidence that organizing intergenerational teams is an effective way to stimulate new knowledge creation and thus the learning of older (and younger) workers. However, we still need to develop methods for evaluating these teams from an intergenerational perspective to see if in fact diversity adds value to the process or outcome[11].

Generational frictions disrupt crucial organizational processes

Frictions between generations are a result of different value structures and the unique world-perspectives each generation has. This friction inhibits critical organizational processes such as knowledge sharing, innovation and capacity for change (Deal, 2007). Evidence shows that ageism is higher in organizations with large numbers of older workers for different reasons (Kunze et al., 2011). For example, older employees are often better paid and receive better secondary benefits, causing envy in the younger employees. Reverse ageism, which means older employees discriminate against younger ones, is also more likely to occur in organizations with older worker populations.

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[11] Diversity in teams is an under-researched area, especially in regards to it having any added value. See, for example Mannix and Neale (2005).

Link to practice: Project SILVER

This project developed the Intergenerational Learning Toolkit. The purpose of the Toolkit is to help organizations maintain and develop capacity by utilizing the knowledge and capabilities of older (55+) workers. The toolkit is essentially a flexible system comprised of workshops that stimulate learning between the generations (intergenerational learning or IGL) as a way to: stem the loss of critical knowledge and skills, improve older worker mobility, increase older and younger worker competence and stimulate innovation. The toolkit was tested for two years in more than 40 different organizations in Finland, Germany, Greece, The Netherlands, Romania and Scotland. The final toolkit is flexible and easily adaptable to different types of organizations and cultures. The last time we checked was in May 2015 and there were more than 1200 downloads of the toolkit.
See www.intergenerationallearning.eu for more info.

Link to Practice 4. Learning between the generations

Ageism is also rooted in the different approaches younger and older workers have towards change and renewal. Younger workers experience the 'old guard' as maintaining the status quo while older workers on the other hand see younger ones as disrupting established practices. But important natural changes in the organization are stimulated by new generations of workers and the different worldviews they have. Bontekoning (2007) found that it is vital for new generations in organizations to work together with older ones to create feasible innovations and maintain sustainable change and development.

However in organizations with a high percentage of older workers, innovation and change is less likely to occur because due to a lack of interaction among the generations.

The SILVER project research turned up some preliminary signs that stimulating interactions through organizing intergenerational learning environments helps organizations to achieve several goals such as promote older (and younger) worker learning, capitalize on older worker competencies and improve intergenerational relations (Ropes, 2015b). However, there still needs to be more work done on intergenerational learning (IGL) and its effects (Iweins et al., 2013), as well as how it is effectively organized. In the following section I present specific research questions that help to illustrate and guide the research we'll be doing on IGL.

New directions for business research on intergenerational learning

In two of our last big research projects (SILVER and Knowledge Valorization Rotterdam) we developed what was called the Intergenerational Learning Toolkit (see *Link to Practice 4*). We found that stimulating learning between the generations was widely accepted by employees of all ages, and that management was positive about the approach because they thought it could help the organization by stimulating older worker learning, using talent effectively and minimalizing ageism (Ropes, 2015b). These projects were a great start and laid the foundation for many possibilities, but there needs to be much more work done: we need to have a better understanding of when - i.e. in what contexts - and why intergenerational learning is effective. We need to measure the outcomes of learning in a systematic way that reflects both utilitarian and affective aspects of learning, for example if in fact IGL is a way for older workers to become more flexible and deal easier with change (Lammintakanen and Kivinen, 2012; Warhurst and Black, 2015). We also need to look much more closely at the effects of IGL on each of the generations involved (Iweins et al., 2013). We suspect, but do not really know what, how or even if younger generations can learn in IGL-based environments effectively (Baily, 2007). Once we know these things we can further develop the toolkit for L&D practitioners to use. Questions that will guide our research in the coming years are:

- *What is 'value in diversity' in regards to intergenerational learning?*
- *What are effective intergenerational learning environments that engage younger and older workers from a value in diversity perspective?*
- *How can intergenerational learning cultivate responsiveness in older workers so that the organization becomes responsive?*
- *How can intergenerational learning contribute to the ways that older workers give form to their careers later in life?*
- *What types of formal and informal organizational structures are needed to help older workers develop responsiveness?*

This is a rather full research agenda for just one topic, but we are not alone. At the time of writing we submitted two Erasmus+ (European Union) project proposals in order to facilitate our research into the above questions. Although denied, we will submit them again and the international consortia we wrote them with is optimistic about their chances in the new call. We are also starting an international community of practice on IGL that will also explore several of the questions above. The first meeting is in November 2015.

4.2 Focus: Non-formal learning

Considering the role of non-formal learning in cultivating responsiveness, it goes without question that this is a major research topic and will take a central position in our research agenda. We have been working on this topic for only a short time, but the feedback we get from our stakeholders is positive. Informal discussions with externals point to this as do more formal channels, such as a published paper (see Ropes and Rich, 2015) and a presentation and a workshop, both given at an international conference on innovation in business education (see www.edineb.org).

There are two specific aspects of non-formal learning we'll continue to research further. The first deals with the issue of how formal and non-formal learning can be integrated so as to increase the effectiveness of management learning, both for employees in work organizations and students at school. The second aspect is what Vibeke Ferree, a master student working with me on non-formal learning (see Link to practice 2) calls 'The Holy Grail of NFL'. The 'Holy Grail' is actually a way to measure non-formal learning, which many authors would say is pretty much impossible (for example, Beck, 2012). But I disagree. And am not completely alone in my opinion – just look at all the European Union projects on the validation of prior learning (VPL)[12], which has much in common with measuring non-formal learning. I also think the benefits of developing instruments for measuring non-formal learning would be a huge breakthrough for the field of L&D and benefit curricula developers as well by informing educational designs.

Integrating formal and non-formal learning

On the one hand I have discussed that workplace learning is essentially non-formal. However, in certain instances, organizations need to help employees to learn new, specific skills or competencies. In situations like this, having a structured learning environment is probably more effective than the non-formal learning Jennings proposes. However, I am convinced that by certain types of learning environments lead to higher levels of non-formal learning outside of the formal environment. This is what I referred to earlier as the NFL Accelerator (NFL-A). The point of the NFL-A is therefore to help employees to learn non-formally more effectively.

[12] In a Google search using 'validation of prior learning' there were 107,000,000 hits. I consider this a valid sign of its importance.

Link to Practice: the EBAT

Inholland invests in its employees like any other organization. One initiative that we are working on is the pilot called the EBAT, which stands for 'Effective Begeleiding van Afstudeerders Traject'. (Guiding Bachelor Theses Effectively). In this professional development trajectory, we are helping teachers from our Logistics course to improve their guidance of bachelor students writing their final thesis. We have been working together for the last year and have recently started writing a guidebook that both students and teachers can use. This trajectory is being carefully researched and tested (see Link to Practice 2 above). If the pilot is successful, the EBAT will be implemented in other courses.

Link to Practice 5. Internal L&D project

A core process of learning is reflection. Without it, there is no real learning (Illeris, 2002). In the table below, three types of non-formal learning are shown along with the time of stimulus. Deliberative learning is non-formal in nature, but is able to be planned and even evaluated a simple level: the individual can actually structure this type of non-formal learning. In this sense it is close to formal learning. An example of deliberative learning would be doing an after-action review of a project, or preparing for an employment evaluation by reflecting on past accomplishments and future possibilities. Far from formal learning is implicit learning, which is not planned nor structured – it just happens unconsciously (one reason that it is sometimes referred to as unconscious learning). A simple illustration of implicit learning would be when a person can properly use the grammar of their native language without a real understanding of the rules. We don't know much about implicit learning, especially in relation to formal types of learning (Xie et al., 2013). Reactive learning is somewhere between implicit and deliberative learning. It also has elements of both. An example of reactive learning would be the thinking about a fact you heard during a presentation and coming to a new idea that you use later in your work.

Table 2. Typology of non-formal learning (Eraut, 2004)

Time of Stimulus	Implicit Learning	Reactive Learning	Deliberative Learning
Past Episode(s)	Implicit linkage of past memories with current experience	Brief *near-spontaneous reflection* on past episodes	Review of past actions, communications events, experiences More systematic
Current Experiences	A selection from experience enters the memory	*Incidental* noting of fact, opinions, impressions, ideas *Recognition* of learning	*Engagement* in decision-making, problem-solving, planned informal learning
Future Behavior	Unconsious effects of previous experiences	Being prepared for *emergent* learning opportunities	*Planned* learning goals *Planned* learning opportunities

My idea, and we are researching this now in the EBAT (see Link to Practice 5), is that an NFL-A should help people to move from deliberative learning to implicit learning and thus be more effective learners in situations where time and facilitation of learning is minimal – such as it is in many organizations. To be honest we have not been able to observe this yet with the instruments we have, but theoretically it is feasible and our hopes are still high. The guiding question here is:

> *'How can we integrate aspects of non-formal learning into formal workplace learning trajectories in order to increase their effectiveness?'*

Subtopic: Non-formal learning in management education

We at Inholland, like any other higher education institute, need to train and educate students so that they can cope well in the world of work. However, even though we have close ties with many organizations from the field who give input and feedback on our curricula, we still hear signals that there is a mismatch between what competencies organizations expect our students to have and what students actually are equipped with (Ropes, 2015a). Furthermore, as I have been arguing throughout this book, internal and external environments are highly complex and change all the time.

> We would argue that this is the root of the problem; management education is founded on an outdated and misguided conceptualization of complexity and as such forms managers unable to deal effectively with the swampy lowlands they are confronted with in their daily work. In a non-linear and unpredictable environment, managers are faced with complexity that brings along with it high levels of ambiguity, messiness, uncertainty and so on. Yet studies show that managers' education failed to prepare them for this (Ropes & Rich, 2015).

As management educators we need to help students develop the competencies needed to deal with these 'swampy lowlands'. For example by expanding curricula in ways that respect complexity rather than simplifying it (e Cunha et al., 2004). Building non-formal learning into existing curricula is one way to do this (Rich and Brown, 2012). In my faculty, the Business Studies program does this to a certain extent by using non-formal learning didactical techniques such as project-based education and case studies. These are powerful ways to introduce students to real-life ways of working, yet they are still in an institutional context. In our research we found that context is a crucial factor in developing expertise through non-formal learning and developing their expertise is how professionals are able to deal with complexity and change at work (Ropes & Rich, 2015). On the one hand this creates a major challenge for us. If expertise is dependent on the context in which it is developed, then theoretically we can only help students to develop expertise in studying. On the other hand, we now know that approaching management education from a different perspective, namely expertise development through non-formal learning, might be the key we are looking for that can improve management education. This might also give us insight into another problem inherent in our educational system, namely that knowledge developed in an academic setting does not transfer to a professional one (Eraut, 2000). This leads us to the following question that will guide our research on the topic of improving management education through integrating elements of non-formal learning:

> *'How can we develop ways of non-formal learning that can help management students develop expertise and competencies that will help them to deal more effectively with the complexity of the workplace?'*

Link to practice: "Integrating NFL into formal management education"

*This project is still in the stage where we (Inholland and Cass Business School of London) are developing and validating knowledge on how aspects of informal learning can be integrated into formal management education. At the time of writing we had our first round of the Delphi study. Results were disappointing and we are preparing the first round again. Here's an excerpt from the abstract of our first paper in which we develop the theoretical framework.**

"Traditional teaching and learning models employed by business schools result in a mismatch between what businesses expect from graduates and what they are actually capable of. Integrating aspects of non-formal learning into existing models of teaching and learning might be one way for educators to address the problems of unfulfilled expectations.

Link to practice, continued
The paper contributes to the theory on learning and teaching in management education by developing an integrated framework for understanding the interplay between formal and non-formal learning. This framework can also be used by management educators when designing new curricula, new pedagogies or a combination of both."

** The paper is free to download at https://inholland.academia.edu/DonaldRopes*

Link to Practice 6. Non-formal learning in management education

4.2.1 Non-formal learning and the search for the Holy Grail

So far I have presented two research topics associated with non-formal learning. The first was about combining formal and non-formal learning techniques to improve overall learning. The second (sub)topic was also about combining the two types of learning, but then specifically for management students. The last research topic concerning non-formal learning has to do with observing the processes and measuring the outcomes of it. As I mentioned above, many would consider this a search for the Holy Grail because non-formal learning takes place in daily activities of work or school and it produces what it called tacit knowledge. Tacit knowledge is something people have, but don't know it. Michael Polyani (1966) is considered the first to theorize about tacit knowledge, describing it by stating, 'You know more than you can tell' (p.4). Tacit knowledge is linked to the person and is highly contextual. It is a major part of expertise and makes up the largest part of a person's knowledge. Because non-formal learning is considered to develop tacit knowledge (Dealtry, 2009), it will prove a difficult task to actually observe or measure it. However, the importance of having validated instruments for observing and measuring non-formal learning outweighs my skepticism enough to continue researching. That, and the fact that I am not alone in this search for the 'Holy Grail' (See, for example Clayton and Smith, 2009; Colardyn and Bjornavold, 2004; Werquin, 2010). If we find a way to observe or measure non-formal learning the benefits to organizations could be tremendous. For example, the effects of human resource management and human resource development practices[13] aimed at improving learning could be quantified and their added value made explicit. This is an important point, because while human resource departments aspire to have a strategic role in organizations, they usually don't. In fact, although research shows a clear link between human resource and organizational success, companies chose to ignore this and focus on improving other organizational aspects such as operations, processes and products (Alagaraja, 2013).

[13] An interesting point is that the distinction between HRM and HRD are becoming blurred (Alagaraja, 2013). This will have consequences for us, especially in the testing of new HRD instruments because now they need to have elements of both. For example educational design as well as change management aspects.

The research question that flows from this search for the Holy Grail is still needs to be formalized, but is something like:

> *'What does a tested set of instruments look like that can be used by human resource managers and human resource development professionals that will help them to design and manage the non-formal learning processes and outcomes of their organization?'*

This concludes the presentation of the researchs topic we will focus on in the coming years. It is a full agenda, but I am confident that by working through it systematically we can really impact each of our stakeholders. But first a short note on a very pertinent issue we professors in universities of applied sciences have, namely how to develop different types of high quality knowledge.

4.2.2 A short note on bridging the rigor – relevance gap

The outcomes of the research I presented above should lead to two types of artifacts. One type of artifact should contribute to the body of knowledge in the field of human resource development. This is important for advancing theory. Another type of artifact should lead to the improvement of professional practice, which is important for helping practitioners and education. If the research goal is to advance theory, then there needs to be a high level of methodological rigor (which means adhering to strict ways of doing research). Outcomes of this type of research typically have a low level of relevance for practice. On the other hand, research outcomes that are practical (relevant for practice) are often lacking rigour (mainly because one cannot control for complexity of the social context in which the research takes place). My point is that it is not easy to assure both (see, for example Andriessen, 2014). In fact many scholars say it is impossible to bridge the gap between rigour and relevance, and some even call it undesirable (Fincham and Clark, 2009). However, there is a middle road that we will sometimes take, namely that of Design Science Research (see van Aken and Andriessen, 2011 or www.dsrg.nl). Space limits my discussion on this, but it is important to note that Design Science Research is a strategy that develops practicable knowledge and as such may help us to close the gap between rigor and relevance. This vision on research methods is linked directly to my ambition to contribute to both theory and practice, preferably at the same time. In my opinion, this is the way we can create the most impact.

5 Ambitions, synergy and the BRC as a community of practice

My ambition is to develop myself, and the research stream *Learning and Development* into an authority on cultivating responsiveness in complex environments. We will develop new knowledge for practice *and* theory by doing research with external and internal partners. My ambition is thus to have an impact on our stakeholders – those actors in the HBO Trinity I presented earlier - by helping them become responsive. In order to do this, we'll need to generate synergy between our stakeholders. Again, it is my vision, and my experience, that doing research is a natural and effective way for enabling this synergy. However, 'doing research together' needs to be structured. We need to create a space where our stakeholders can come to work and learn and develop. This space should respect the complexity of the social world and the only way to do this is by working with the other BRC research streams[14] in a community of practice.

5.1 The BRC as a community of practice

It is my experience that the BRC is becoming more and more a productive and enjoyable environment where all of our stakeholders - students, teachers, researchers, (associate) lectors, managers and of course people from the field – are working together doing research in order to learn and develop. We are becoming what is called a *community of practice* (CoP). This is very similar to what I proposed above as an effective environment for learning and developing[15].

In my dissertation I defined a CoP as a "…self-directed, social collaborative learning environment focused on situated practice in a specific domain." (Ropes 2010, pp. 15-16) More simply, a CoP is a group of people interested in a similar topic who come together regularly to learn and get better at what they do. In the case of the BRC, we come together to learn about doing research on all aspects of business. Working and learning in this way creates a high level of synergy between the different actors, which is an important factor for helping to deal with the complexity of the internal and external environments of Inholland. However, we also need to cultivate the BRC as a CoP. My research has shown that CoPs are a lot like dandelions. They pop up everywhere without any effort, but without any cultivation they also die quickly[16].

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[14] These are (in no particular order): 'People and Organisations'; 'Logistics and Complexity'; 'Cross-cultural Entrepreneurship'; 'Governance and Leadership'; 'Finance and Accountancy'.

[15] However, the CoP I mean here is different than that mentioned earlier in that a is also made up of people with a range of expertise, from novices (like students) to experts (such as professors) and experts in the field, whereas professional CoPs like discussed above are groups of equals.

Like all CoPs, the BRC is an activity system that has certain structures and processes that make it function. Again, these processes sometimes are in place naturally, but mostly need to be organized for the CoP to be successful (Ropes, 2008). A few critical success factors for a CoP are:

- The ability and opportunity to determine the direction and focus of learning, within the parameters of the greater whole.
- The governance of the group must lie within the group itself, not by an external regulator.
- The CoP must be facilitated and supported by management: time must be allotted for participation and the CoP needs to be recognized as a valuable thing.
- Internal processes such as social connections, coordination, communication, ways of working and knowledge sharing need to be assured.

Besides researching the field of L&D, another ambition of mine is to help develop the BRC further as a CoP that adds stakeholder value. The box below (Link to Practice 7) is a great example of working together in the BRC community of practice. Students, teachers, researchers from different streams and external stakeholders worked and learned together in a project for five months. As I mentioned before, it is my vision that developing and facilitating these types of collaborative research projects is the point of being a professor. The point of the BRC is to serve as a platform that makes facilitation possible.

[16] Surprisingly, my research also shows that management can view CoPs like gardeners view dandelions; as something to get rid of.

Link to practice: eLink

This from the press release

eLink is part of Airlink, a pilot of the project Seamless Connections, initiated by the Amsterdam Economic Board. The Airlink project is aimed at optimizing the alignment between the links in the process chain at Amsterdam Airport Schiphol. The goal is to speed up the checkout process and reduce lead times of inbound and outbound cargo.

After five months of research with seven freight handlers, the students produced an advisory report. The companies are now looking into how they can implement the advice the students developed.

The study took place in the context of an ERDF project (European Regional Development Fund). The students were supervised by the director of ACN (Air Cargo Netherlands, a sector organization) and Cargonaut Netherlands (the cargo community platform at Schiphol Airport, responsible for the eLink software).

For more information please see http://www.acn.nl/projecten/elink/ or http://www.cargonaut.nl/elink/

Link to Practice 7. EU project on digitalization of logistic processes

6 Concluding remarks

Cultivating responsiveness so that people and organizations learn and develop is the goal of my research and those researchers working with me. This is not an easy goal to reach. Modern organizations are currently a complex web of interconnected relationships combined with multiple, and sometimes conflicting, perspectives. These things make it difficult to organize learning effectively. Adding to this is the fact that complexity will increase and expand across different facets of society. Organizational borders will become permeable and ever-shifting as more and more short-term partnerships – especially of small and medium enterprises – are forged among actors operating in networks; contracts between employee and employer will become increasingly ephemeral until they no longer exist how we know them now; man and machines will be interconnected and big data will be watching you. These things and other increases in the complexity of social, technical and organizational environments have serious consequences for both organizations and the people in them. This also means that while cultivating responsiveness becomes more and more vital to society, it also becomes more and more difficult to actually do. The challenge for all those involved in L&D will be to design learning environments that cultivate responsiveness *and are in themselves responsive*. In other words, we will need to organize learning environments that can learn and develop along with society and the people in it. This is a huge challenge for us as there will be much complexity and no stability - in either our design or the contexts we will be researching in. But we should be able to take these challenges on - as long as we are responsive.

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Curriculum Vitae

My background is rather eclectic. I studied International Affairs and Economics at Florida State University, Literature at Leiden University and got my Bachelor of Education at the *'Educatief Faculteit Amsterdam'*. I received my PhD from The University of Amsterdam after writing a dissertation about communities of practice as knowledge management instruments. After a few years of being an entrepreneur and working as a teacher in international communication management, I became associate and then interim professor of Intellectual Capital. That was in 2013. I have also been functioning as interim professor Airport and Aviation, which for the last two years has been an incredibly enriching experience. For a copy of my complete CV and also copies of most of my publications, please see https://inholland.academia.edu/DonaldRopes.