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Towards better
education

Jan Riezebos | March 21, 2017

Towards better education

Inaugural lecture Prof Jan Riezebos, University of Groningen, March 21, 2017

Members of the Executive Board, ladies and gentlemen,

It is not obvious that a permanent chair on Educational Innovation has been established in the Faculty of Economics and Business of the University of Groningen. First of all, this concerns a new chair. No one else has been holding this chair previously. Second, the chair is not related to a Faculty that offers educational programmes on Educational Innovation, but it is established within the Faculty of Economics and Business. Third, the chair holder is not an Educational Specialist, but an Econometrician and Business Scientist. Given this, I expect you are eager to know how this chair will be filled. Perhaps it does surprise you, but me too. Later in this lecture I will come back to this, but first I will explain you how I plan to fill this chair, both with respect to education and research.

Isn't it strange to do research in Educational Innovation from within the Faculty of Economics and Business? It might seem so, but the Faculty of Economics and Business in Groningen is not unique in this respect. Other research-driven business schools in Europe do address this topic in a similar fashion. E.g., University of St Andrews, Scotland, and Copenhagen Business School, Denmark. We belong to the top business schools in Europe, which requires that we keep developing, also in education. We have to develop our thinking on how to provide education in Economics and Business for future generations of students.

There is a second reason why the Faculty of Economics and Business addresses the topic of Educational Innovation through a new permanent chair. Researchers in this faculty do not limit their research to commercial businesses and economical systems. They address other organizations and systems as well, such as health care systems, sustainability issues, and legal processes. These researchers have not been positioned in the faculties of this University that would normally count these fields as their fields of expertise, such as Medical Sciences, Spatial Sciences, or Law. The same holds true for Educational Innovation. Similarly, researchers on Educational Innovation may work from within the Faculty of Economics and Business, as long as they are open towards cooperation and provide added value through specific knowledge and research methods from their field within Economics and Business.

An example will illustrate the added value of business research to the field of educational innovation. We use computer simulation to redesign logistical processes. This research method is normally not used by educational specialists. Using computer simulation, we are able to investigate changes in the organization of educational processes before we actually implement these changes. A school for secondary education asked us to help them in a change towards personalized education. They would like to offer students the opportunity at the start of a day to specify whether they would like to have their knowledge or skills assessed and in what courses/fields they needed more instruction or supervision. Such a change will have huge implications for the educational organization, for teachers, coaches, as well as the capacity of the lecture halls. A research team of our faculty has built a simulation model to support the school and provide an advice on the consequences of such a change¹. Using simulation, we are able to visualize some effects of changes in the educational processes ahead of time, discuss these effects with the people involved, and propose and evaluate measures that prevent some problems to occur. In this way, business research provides added value to the field of educational innovation.

Hence, it is not that strange for the Faculty of Economics and Business to establish a chair on Educational Innovation. But how should this be filled? The first thing you might have noticed is the style of this lecture. It is not supported through powerpoint visuals, but it is a very traditional

¹ Spronk, C., Alvarez, J.L., Dam, J., Hahn, J., Vermeulen, R., Riezebos, J., Kokx, W., Vis, I., (2016). Lean in het voortgezet onderwijs: een overzicht van eerste projectresultaten, Onderzoeksrapport Rijksuniversiteit Groningen.

discourse. You did not have to prepare through homework assignments or video tutorials. When you entered this room, you did not have to make a test that would have allowed me to assure readiness. This is not a flipped classroom at all. Neither do I use an online video connection with an overseas university, nor team based learning or a serious game to help you acquire the learning goals that I determined for today. Perhaps you had hoped to encounter such a demonstration, as I have been actively involved in all of these areas, either as a teacher, facilitator, or as a committee member in our faculty or university. But I do not think that using new educational methods or technology is the essence of educational innovation.

What would be the essence of educational innovation? The insight that we need to do better! That we have to use a critical perspective towards the education and educational processes that we offer, because

Because of what? Why shouldn't we first use an empathetic perspective and observe our education and the ones who are teaching with heart and soul? The first step in educational innovation that I envision is to observe how people are actively engaged in education and to appreciate what they are aiming at. Even though the pressure to perform in research and valorisation has dramatically increased at universities, teaching staff are putting a lot of efforts in providing high quality education and aim to improve their effectiveness. They address problems that are never listed in policy documents, just because they observe that their students encounter problems in learning and they would like to further their field. If we would promote educational innovation without having attention for the problems observed by staff or for the improvement areas they identify, we would not realize educational innovation at all, but only some window dressing. That would lead to nothing.

Educational Innovation starts with listening: asking questions, analysing requirements. Listening is in my field denoted as identifying customer value. This identification stage is required before you can start to construct, produce, or instruct. Listening is establishing a relationship with your customer. But who is the customer? In service processes, we distinguish between various roles of customers, such as specification, consumption, quality assessment, and being processed. Requirement analysis of the customer needs to be accomplished from multiple perspectives. In discussions between students and staff as well as other stakeholders, improvement opportunities in the learning process of students may be identified.

An example of an innovation project in our faculty is the support of practical research skills that students need while doing their thesis project. Many students need to combine data sets from various sources before they can start to analyse the data. These data sources are usually not yet in the required format, so the student needs to use some database techniques within spreadsheet software in order to prepare the data for analysis. Some students spend too much time in this stage of the research, just because these skills had not been trained or maintained. Discussions amongst thesis supervisors revealed that many were frustrated and had started to provide repair activities that costed them a lot of time. In my field of research, these are indications of the need for process improvements. In a meeting of thesis supervisors, we have identified a set of frequently encountered problems and we have decided to develop an online training environment where students can learn and practice these research skills. Supervisors will be able to refer students to training modules that they need to manage before the stage of the thesis project where they are actually required.

In the preceding sections, I have identified who are to determine whether education could and should be improved. This is namely primarily a joint duty for student and teacher. Other stakeholders, such as programme management, department members, audit committees, peers, educational specialists, budget providers, sponsors, and the next educational level or labour market all will have their contribution in this improvement process, but students and teacher are the only ones who actually see what activities and events occur during the learning process of a student. They observe what problems emerge, identify waste of time or energy, and notice where opportunities for improvements could be found. The only issue is that this requires active observation, both by lecturer and students. And this is what often is lacking in practice. We as scientists train others how they should come to conclusions and urge them to wait implementing solutions until we have gathered sufficient proof. Without a proper problem identification, we cannot select a research

method. Without research method you cannot start designing an experiment. Without an experimental design, you cannot start measuring and gathering data. Without data no analysis. Without analysis no conclusions. But how do we identify opportunities for improving our education? Frequently, we already skip the first step and do not even discuss with students what could or should be improved. We often already have an idea what could be done to improve, but our ideas are not always based on actual data that we gathered and analysed after we identified a research question and performed an experiment. Our ideas are mainly based on opinions that we have on reality. And we are really convinced that we are right without testing our ideas using a proper research design. And in some cases we even think that we do not need to improve as long as students do not complain. I go along with lecturers that criticize course evaluation systems that do not help to identify improvements. Anonymous course evaluations might signal issues, but prevent to take a shared responsibility as students and staff for course improvements. I would like to make a plea for an open conversation between lecturer and students during and at the end of a course on how to improve the learning process in this course. This requires an investigative attitude amongst both students and lecturer. We do expect such an attitude of our students when they engage in research. I propose that university lecturers should behave according to the same standard when investigating possibilities for course improvements. Research-driven education does not just imply that we expect students to behave according to a high academic standard of rigor, but that we should apply the same standard to our improvement activities. If we as academics would consider this too time-consuming, how can we expect from students and the non-academic world to apply a research-driven attitude in their daily activities?

I envision Educational Innovation as an improvement process. Characteristic of a process is that at some moment in time it starts, and that it will cost time to complete. Hence, it is necessary that you take off, start moving, in order to realize improvements. It is not necessary to reach the final stage, as during the journey you already see results. That is the reason for using as a title for this lecture: **“towards better education”**.

In ancient Greek, to-wards is expressed using the words μετά (to) and ὁδός (way). We recognize the word method. Towards better education can be accomplished by starting a journey and using a method. However, the ancient Greek knew that it is not enough to follow a method, as μετά ἠοδός also means that you have to look after or further than the way before you. Using a method is not something to aim for in itself, the goal is to achieve better education. If we would base our efforts only on knowledge of methods, craftsmanship, experience or intuition, than we are in danger of getting off-road.

The phrase “Towards” from the title of this inaugural lecture contains also a logistical metaphor. Logistics is the field that I have been teaching now for more than 25 years. It concerns the organisation and control of processes that lead to the required customer value. Customer value does not only refer to the delivery of the correct product characteristics, but also to other dimensions of delivery, such as the correct moment, the correct location, the correct quantity, and the correct costs. My colleague prof. Iris Vis denotes this in a teaching letter on logistics for primary schools as follows²: “Logistics concerns all activities that need to be done in order to deliver goods and services to customers. You might think of purchasing parts that you need to assemble a product, planning production, storing products, exchanging information, and delivering products to the customer. (...) Logistics is everywhere.”

Everywhere. In education as well. Educational logistics does not only concern the distribution of study materials. In a recent study³ I show that 75% of the implementations of Educational logistics are limited to administrative and support processes in educational organisations. Very important, but not the essence! Educational logistics should foremost focus on the core: the design and control of the learning process of a student. Are the chain links well connected and tuned towards

² Vis, I.F.A., (2017). Lesbrief Logistiek TKI Dinalog Dutch Institute for Advanced Logistics, Les 1: Fabriek, Rijksuniversiteit Groningen.

³ Riezebos, J. (2017). Lean schools, Chapter 38, 435-448 in: The Routledge companion to lean management, ed. T.H. Netland, D.J. Powell, Routledge, New York, ISBN 978-1-138-92059-0

preventing avoidable fall-back in learning effect of students? Do undesired waiting times occur? Or does the process operate as a black box with an unknown success rate? Last year I provided several workshops for amongst others teachers from primary and secondary education as well as senior secondary vocational education. These teachers denoted it as refreshing to look at education from that perspective. They noted that the way the system of education has been designed unintentionally leads to wastes for students and organisation, even though everyone involved puts in a lot of effort. Together with Kennisnet (the public organization for Education & ICT in The Netherlands) we are developing a method based on these workshops that can be used by teams in schools in their search for improvements.

For some people, a logistical perspective generates images of fear. They fear a view on education as an industrial process or a learning factory. These images of fear are as far as I am concerned not justified. They are based on old day factories from the time of the industrial revolution with steam engines or conveyor belts, on mass production and impersonal systems that are in control. What these people do not see is that their fears are already reality in many classically designed educational organisations. Our educational organisations are frequently designed according to principles that have their origins in the industrial revolution. Before that time, manufacturing was accomplished at home and vocational training and education was the responsibility for guilds for craftsmanship, after which the apprentice delivered a master piece to demonstrate the accomplished level. Quality control was the responsibility of the guilds as well. The entrance of steam engines led to a centralization of work organization. All phases of the production process were located in the same location where they could benefit from the power engine. Nowadays the issue of availability of power is not leading anymore in the design of organizations. However, we still see that educational organizations use the old design principle to combine different phases of education in the same physical location. Faculties or departments provide lessons and students move from one part of the facility to another. The moment of a break or movement to the next step in the production process that the job or student has to undertake is centrally controlled through the steam whistle or school bell. The roster maker and school manager determine when and how frequently a student is offered lessons in e.g. mathematics. Budgets are leading and determine how many hours per student a teacher may spend. Do you see the parallel with the time of the industrial revolution? Do you observe the decoupling from the master and apprentice as systems have become leading? The central control seems to create efficiency, but is that the ultimate goal of education? Does efficiency provide value for the customer?

I would like to plea for a learning exercise for educational professionals: to start learning from companies that use intelligent logistics in order to serve their customers fast, even where the variety in customer demand is huge. Images of fear will prevent us from learning. The responsiveness of modern companies is much higher than educational organizations are able to demonstrate. How do they accomplish this? It starts with a radical choice to put the customer first. Customer focus means that the customer is ultimately the one who determines what level of service should be provided. If you serve thousands of customers, this requires that you distinguish various types of customers with different customer demands. Customer first does imply that it is not the own organization that should be central, but adding value to the customer. A second radical choice that we observe at modern companies is that they focus on responsiveness to the market. A quick response generates a quick feedback mechanism from the market, which helps to fine tune product and improve the process. These two radical choices are the leading principles of Quick Response Manufacturing⁴ and similar approaches, such as Lean, Agile, and Scrum. These approaches aim at continuous improvement of internal processes by teams at the shop floor and they avoid meetings with a lot of detailed plans and no visible improvements. Instead, the approaches prefer high frequency problem solving and reporting by using day starts and sprints that guide the experiments and help to find small but real improvements in a short time. Questions that are addressed are, for example, whether all activities that are accomplished do still provide value for the current customer? Or has their need for support, their information level, or their behaviour changed in the mean time? If we would apply this kind of approaches and principles in educational organizations, then we might perhaps transform education from learning factories into real learning work shops. Work shops in which we

⁴ <http://www.qrmcenter.eu/>

learn together to move frontiers. Experiences with this type of approaches in education are promising, for example with initiatives such as leerKRACHT⁵, eduScrum⁶, Zo.Leer.Ik!⁷, en Lean Six Sigma in Higher Education⁸. They deserve attention from the academic community, both with respect to its educational organization and as a research topic.

Not all education in universities should be considered as based on old days factories. Research labs are characterized by a different atmosphere, where teams of staff and students work to further knowledge. For larger programmes we are looking for a similar ambiance, with flexible organisations, such as learning communities and project-based education, such as in Business Research & Consulting, where multi-disciplinary teams of students are involved in research projects with companies. That's an example of learning work shops, as both students and staff learn while being engaged in these activities. Teachers are not anymore focused on reproduction of knowledge by students, but ask questions to help students develop in the process of knowledge acquisition, skills development, and insight generation. Good questions invite to search for answers instead of providing quick answers. This would bring back enthusiasm for teaching that staff normally experiences when engaging in their own research. They like doing research because they are eager to find answers and the process for finding answers is not regarded as repetitive. The same could hold for teaching. As long as teachers make it challenging by changing assignments regularly, in such a way that teachers are not sure what will be the correct answer upfront. By searching together with the students, and perhaps even sharing the teacher's results and asking feedback from the students will make education challenging again, both for staff and students.

In my role as academic director Career Services and Corporate Relations of the Faculty of Economics and Business, I work with programme directors and teachers to develop innovative education within and next to the formal curricula. In an excellent team of colleagues, we are developing projects such as Master Internship, Business Research & Consulting, Business Challenges, Research Projects in Emerging Markets, and Learning Communities. Our aim is to connect our students, of which many have an international background or orientation, during their time of study in contact with the field of application and their future labour market. This connection provides a reference framework for their study programme and increase the motivation of the students to engage into relevant research. What I like about this type of innovative education is the intrinsic motivation of students and staff. Usually there are no exams, but students develop a portfolio. In some cases they do not even gain credits that can be used within their programme. However, they express that they learn a lot and are really enthusiastic. In a joint effort with staff members, they engage in societal and scientific challenges. A nice example is the Business Challenge with Kentalis, run by my colleague Henk Faber. Kentalis is the Royal Dutch organization for providing education and care for hearing/communication impaired people. Kentalis needs to redesign the type of service offered to children at regular schools, in such a way that care and education on location are integrated. Students, staff, and employees of Kentalis meet during work shops and site visits. This is a good example of inspiring education!

As a professor in Educational Innovation, I experience the Careers Company⁹ as a kind of playground. It connects me to various ideas from businesses, teachers, students, and administrators. I help them to develop these ideas. There is so much going on nowadays: new business development in Africa, computer programming, acquisitions of family owned businesses, army reserves, business plan for the Seal Sanctuary Pieterburen, et cetera. Being involved in innovative developments puts high demands on teachers and support staff. They need to be open minded towards new ideas, identify and chase opportunities, accept disappointments, experiment and try out. I really appreciate the support of so many people to innovate education: career company employees, educational specialists, students of the EBF and its subassociations such as TeMa, and centres of expertise within the Faculty. If I had to play just by myself in the playground, it would definitely be less fun.

⁵ <https://stichting-leerkracht.nl/>

⁶ <http://eduscrum.nl/>

⁷ <http://conceptzoleerik.blogspot.nl/>

⁸ <http://www.leanhehub.ac.uk/>

⁹ Careers Company is the brand name for our Career Services and Corporate Relations department

You probably have noticed that there are many challenges in the field of education that I will have to address. However, I have not yet mentioned challenges at university level in which I will be involved and would like to make a contribution. For example, the Teaching Academy Groningen that is currently under development, teacher professionalization, and e-learning. It is not my ambition to provide a new elective course on educational innovation to our students. I will focus on supervising students that would like to be involved in research themes on educational innovation throughout their honours programme or thesis project in bachelor or master.

The research plan for this chair focuses on three main areas of research:

The first theme is to study the innovation of core processes of education from a logistical perspective. This area will allow me to combine my research expertise in logistics and mathematical model building with my practical experience in process improvement as director of the European Quick response Manufacturing Center. I will contribute to an improved support of processes in educational organisations by using knowledge on response speed, planning, and group composition; areas in which I have made major academic contributions that have been published in top and very good journals. I will continue to publish this type of research in a broad spectrum of academic journals, amongst which specialized journals in the field of Manufacturing and Service Operations Management. This area will be explored in close co-operation with Iris Vis.

The second research theme for this chair focuses on internationalizing higher education. That theme gains nowadays a high interest, but a lot of research still needs to be done in order to enhance and evaluate the implementation of concepts such as international classroom. I know that the field of Business Studies has developed various useful models to understand the process of globalizing companies. We will examine the applicability of this type of models on internationalizing higher education. Franka van den Hende is involved in a PhD research project within this theme, and she is being supervised by Albert Boonstra and me.

The third and last research theme for this chair focuses on the study of education innovations within our Faculty. A team of researchers of our Faculty is this year involved in a research project on the possibility and effects of providing personalized feedback to students in large course with more than 350 students. We are examining the experiences of both students and teachers, and the effect of personalized feedback on midterm tests on the study behaviour towards the final exam. Students of three different courses have agreed to be involved in a repeated randomised experiment with control groups and treatment groups. The process of providing personalized feedback has been automated as much as possible in order to speed up the feedback process and have a maximal impact on their study behaviour. I appreciate that teams of staff members engage in this type of research projects to study the effect of educational innovations in our Faculty.

I have presented you my vision on how Educational Innovation will be studied and practiced by me. But this lecture challenges you to be involved as well. Staff is being challenged to use an investigative attitude towards their role in education. Students are challenged to use an investigative attitude towards the education they receive and look for ways to further their learning process. Others I do challenge to look for ways to improve the connection between education and society.

This makes clear that I plea for a deeper understanding of the concept of research-driven education. In our university, we have based ourselves on Hodson¹⁰, who distinguishes between learning **from** research, learning **about** research, and learning **by** research. In all three types of learning, the teacher determines what the student has to learn. Healey¹¹ has extended the distinction of various types of research-based education by addressing different roles of students and teachers in the learning process. But both approaches of research-driven education lack the dimension that I have

¹⁰ Hodson, D. (1992). In search of a meaningful relationship: an exploration of some issues relating to integration in science and science education. *International Journal of Science Education*, 14 (5), 541-562.

¹¹ Healey, M. (2005), Linking research and teaching to benefit student learning, *Journal of Geography in Higher Education* 29 (2), 183-201.

discussed today: do we research the effectiveness of the education that we provide? Do we involve our students in this research or do we do it ourselves? Research-driven education becomes more credible and valuable if we apply it to our own work as well, in search for areas of improvement.

There is a saying: “everyone is knowledgeable of education”. We all have experienced education, so we are knowledgeable, whether or not we are currently making a living from education. The main point of my discourse today is: let’s turn to reason and use our knowledge to examine our education. Let’s use research methods and an investigative attitude that we value at our University. So: open to opposing views, critical instead of biased, data-driven instead of opinion-driven, multi-perspective instead of single-perspective, jointly with students instead of only staff-driven improvements.

When this is the main point of my discourse, you will understand that the task of innovating education cannot be given to one person only. It requires engagement of everyone with a sense for education. Educational innovation is a core activity for all academic staff.

At the start of this lecture, I made clear that you were not the only ones that were eager to know how this chair will be filled. Me too. At the end of my discourse, it is hopefully clear that I am very eager to hear how you will engage in this challenge. I am willing to support you with enthusiasm and craftsmanship from my academic discipline.

We need to go along on the way towards better education!

Jan Riezebos