

# The Weakening Connection Between Education and Research:

## *A Study of Three University Departments*

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The focus of this article is on the relationship between research and education. The argument is that recent policy developments and the increasing emphasis on commercialisation and profitability of university activities weakens the connection of education and research. In this article, general characteristics of development of universities and university policy in Finland are summarised. Main subjects of the analysis are three university departments that are situated in three different Finnish universities. The concept of connection between research and education is explored and tested in these three cases. The relationship between research and education and its erosion is analysed with the help of four definitions of education's research connection. The article shows that regardless of the definition, the connection between research and education is becoming fragile as a result of practical, instrumental and commercial aspirations of university activities.

In an environment where universities' relations to industry and practical utility of research and education are emphasised, the position, as well as the content, of Finnish higher education is changing. New forms of cooperation between universities and other parts of society in research and education can be seen emerging. Finnish universities are encouraged to sell their knowledge and competencies. However, education is at the same time considered to be a welfare state function and its equal availability is still emphasised. Universities

are facing a situation where they have to respond to various demands, having to function simultaneously according to the welfare state model and by responding to market demands. As a result, research and education are under threat of being segregated and the basic idea of university, where education and research are connected to each other, is in danger of eroding.

At university departments the connection between research and education can be seen eroding and fading in many ways. In this article I shall examine how

the relationship between education and research is under strain at three Finnish departments at three different universities. The universities and their departments under scrutiny are the University of Helsinki's Department of Social Psychology, Helsinki School of Economics and Business Administration's discipline of Organisation and Management and the Helsinki University of Technology's Laboratory of Work Psychology and Management. All of these units represent social sciences and they have similar research and educational interests between them. They are, however, situated in universities with very different operating mechanisms and connections to society. This paper aims to show, how simultaneous interests and especially commercialisation of university activities create tension between research and education – the two main functions of university – in each of the units, but with respect to their different activities and structures.

My analysis is based on personal interviews conducted at each of these departments and written documents. Documents were used to map the Finnish situation and policy developments while the interviews were the main source of information of the departments. A total of 31 interviews were made during approximately a one-year period. First the heads of the units were interviewed and then other staff members. They were partly picked by snowball method and partly by including all levels of staff to the research data. Department staff from various levels were interviewed. The opinions of professors, other post holders, teachers and researchers were heard and recorded. Interviews were loosely structured and

they were moulded to suit each individual's position and special interests. Additional interviews were made at university administration and management levels.

After a short description of the three universities and a look at what is meant by the connection between research and education, I will discuss relevant policy developments in Finland that have contributed to the problematic relationship between education and research. I will then deal with the problems and tensions that are present at the three departments, in terms of combining research and education.

### **The Universities and the Connection Between Research and Education**

It is important to note, that all 20 Finnish universities are state run institutions. State support enables cost-free higher education to all students. Providing free education is considered to be a function of the welfare state. The three capital area universities, examined here, are all leading universities and the biggest in their fields in Finland. These universities are, however, different in their history, disciplinary background and relations to society. The University of Helsinki is a traditional and multidisciplinary university. It is the oldest in the country, founded in 1640. It remained the only university until the 20<sup>th</sup> century. It still has some special privileges, but mostly its relatively high influence is based on its size. It educates about 20 % of all university students in Finland in its nine faculties. Research in the university is regarded to be of high quality. Of the 25 national centres of excellence in research 12 are located or have partici-

pants from the University of Helsinki.

Helsinki University of Technology is more homogenous by its disciplinary structure and its disciplines are more easily applicable to the use of industry. The university is connected to the frontline of high-tech development in Finland. Relations to the high-tech branch have enabled the share of funding from outside the state's budget to grow rapidly, reaching almost 80% in 2000. This figure includes also resources from the Academy of Finland and the Technology Advancement Centre. The respective numbers for the University of Helsinki and the Helsinki School of Economics and Business Administration were lower, amounting however, still to over 50% of total funding. (KOTA database.)

Helsinki School of Economics and Business Administration has been throughout its history a university focused more on vocational training. Lately, however, there have been serious attempts to support and promote its academic research. It is also aiming to increase its share of outside funding to enhance its financial autonomy. Helsinki School of Economics and Business Administration has adopted a market-driven attitude more profoundly than the other two universities. The Rector has for example defined very precise categories of customers and markets for the university. Relatively easy adaptation of the attitude has much to do with the fields of study and research at the Helsinki School of Economics and Business Administration.

In the university law that binds all Finnish universities, the connection between research and education is emphasised. Education in universities should be based on research (Act on Universi-

ties 645/1997, § 4). The connection is often articulated also in the missions and strategies of the universities. In the University of Helsinki's (UHEL 1998, 2) action plan, it is stated that only research-driven education will motivate the scientific thinking that is a condition for a successful career as a scientist or as a holder of any other job. The Helsinki University of Technology's (HUT, 1994) plan for development of undergraduate education states that one of the key development issues is that education should be connected to research and students need to be engaged in research as early as possible. Only in the Helsinki School of Economics and Business Administration's goal setting is it difficult to find formulations of the research connection. Education is targeted to serve the needs of the business sector (HSEBA, 1999). However, both in the interviews and in university policy, the research-education connection is regarded to be central to the identity of the universities. It serves as a distinction between universities and other educational institutions.

### **Defining the Link Between Research and Education**

When talking about the eroding connection between research and education, the meaning of connection has to be defined first. Connection between research and education can be interpreted in various ways. Björklund (1991) has distinguished the interpretations in the following way.

One interpretation is that education should incorporate latest research findings. This means that education must be up-to-date in relation to research and that it is connected to actual research

done at the university. Another way to think about the connection is that there is a connection if research methods are taught as part of the education. Ideally students are engaged in research already in the early stages of their education.

A third way of defining the connection is that teaching of scientific attitude or motivation is an essential part of education. This means that students are taught that knowledge should be sought for its own sake, not for its instrumental value. According to Björklund if one wants to talk about the research connection of education, the content of education cannot be subordinated to practical utility.

I have added a fourth interpretation to the list. The link between research and education can also be interpreted as a reproductive connection. From the educated students some will become the next generation of researchers and teachers at the university and thus help to sustain the functioning of the university and its departments. The concept of reproduction does not imply mere repeating of old patterns. Change is inherent in reproduction, but it still requires some continuity and stability. (See Morrow & Torres, 1995) The concept of reproduction has been used in studying higher education, but the analysis has concentrated on how education reproduces class, gender and other divisions in society (Bourdieu & Passeron, 1990; Ahola, 1995). I'm interested in how universities are able to reproduce themselves.

I will use all of these four interpretations of the connection to construct an analysis of the three departments. The departments vary in their activities and goal setting, as well as traditions. Therefore the way research and education

have been, or can be connected, also vary. Some interpretations of the connection are thus more characteristic to some units than others. There are also several important questions about the actual existence of the connection that need to be looked at. Has there previously been a connection between research and education, if it is now deteriorating? Has there really happened a change? Is the connection only a product of rhetoric? My argument is based on an idea, that there is and has been some connection between research and education at all of these departments. The link might not have been strong before, as growing student numbers effected the relationship already in the 1960s and 1970s, but the pressure to seek outside funding and commercialise department activities make it even harder to sustain a connection. (See also Clark, 1991; Kivinen, 1995)

In models such as Triple Helix, Mode 1 and Mode 2, the relationship between research and education has not been properly addressed. Gibbons *et al.* (1994) do discuss how the massification of universities has enabled research to become more like Mode 2. The way changes in research practices effect education and the reproduction of university functions has not been dealt with. The Triple Helix (Etzkowitz & Leydesdorff, 2000) model concentrates also on the research side, rather than incorporating education into the model.

### Recent Policy Developments

Three major university and university policy developments in Finland during the last ten to fifteen years can be detected. They have all contributed to the

growing tension between research and education. First, evaluation of university activities and accountability have become an integral part of university policy, as well as the universities themselves. Second, universities have encountered increasing pressure to commercialise and market their products and become more market-focused in their activities. Third, higher education has been expanded to cover a larger amount of the population, research fields and educational institutions. New competitors for universities have come to fight for the same resources and opportunities

Evaluation activities began when the notions concerning university's functions and societal responsibility started to change at the end of 1980s. In addition to producing relevant research results and prominent employees, universities were expected to be financially accountable and come up with profitable products and operations. With the help of the recession, in the early part of 1990s the emphasis on accountability was given an extra push. (Häyrinen-Alestalo *et al.*, 2000) State funding to universities was cut considerably. But at the same time student numbers grew. Despite the end of the recession, the financing did not return to its previous levels.

Simultaneously evaluation and different performance indicators were integrated into the university funding structure. The most important indicator in basic funding has become the number of graduates, as it counts for 60% of the funding. The remaining 40% comes from research activities. Additional performance indicators include centres of excellence in research and education and the employment ratio of recent graduates.

(Ministry of Education, 1999a) Thus the Ministry of Education encourages universities to produce graduates at a quick pace and provide them with practical skills. This has raised criticism from the universities in terms of the quality of education, when the emphasis is on short graduation times and diminished resources for education (Raivio, 2000; HUT, 2000; HSEBA, 1998). The centre of excellence policy on the other hand is creating segregation between losers and winners in the competition for resources. Furthermore, it enhances the differentiation of education and research as the centres are chosen by different instances and with different criteria.

#### *Innovations and Commercialisation*

The second development is evident in Finnish national policies, where universities have become part of the national innovation chain. Universities are encouraged to commercialise and market their knowledge and products and to increase cooperation with industry. (Häyrinen-Alestalo, 1999) More and more of the resources are targeted to fields that are considered strategically important for economic development i.e. information technology and biotechnology. The direction of education and research are defined by economic growth and competition. Emphasising utility is seen as a positive development in state policies. (Science and Technology Policy Council of Finland, 2000; Ministry of Education, 1999b) Much of the policies contradict the third definition of the research-education connection where education should not be subordinated to instrumental needs.

Universities are becoming more en-

trepreneurial by commercialising their activities and developing various forms of partnerships (Clark, 1998; Grit, 1997). Cooperation with industry and commercialisation of knowledge, however, increase concerns over secrecy and publicity. As all universities in Finland are state universities, their research is therefore public by nature. When cooperating with companies, their economic and commercial aspects have to be taken into consideration. This can cause conflicts between public and private knowledge. (Kuipers, 2000; Tupasela, 2000)

In addition to research, students' master's thesis are becoming more commercial. At Helsinki University of Technology and the Helsinki School of Economics and Business Administration a large part of the thesis are done for or in cooperation with companies. At the University of Helsinki cooperation with industry is present only in some fields. There has been debate about how this development leads to classified master's thesis and that this is against the principle of public science. Some have even argued that master's thesis are not real research but rather product development or studies that do not fill the scientific criteria.<sup>1</sup> Either way this development supports the deterioration of the connection between research and education.

University research is being concentrated in separate research institutes because they are more flexible in conducting commercial research. These institutes, however, have often little connection with the undergraduate teaching at the universities. Research projects founded by enterprises also bring about the increase of contract researchers. These project researchers, just like sepa-

rate research institutes, have no obligation to participate in teaching. They are employed for short periods and don't have the enthusiasm to commit themselves to the development and activities of the department they are working in, because they might work somewhere else in couple of months time. (See Jacob, 1997)

### *Vocational and Adult Education*

The expansion of higher education has been a two-sided development that includes the introduction of polytechnics and the rapid growth of continuing and adult education. Basic education or undergraduate education has received competitors from new forms of education during the 1990s in Finland. Higher education was expanded as the first temporary polytechnics were established in 1992. This happened rather late in comparison to many other European countries, where they were established during the welfare state period and the main motive was to open higher education to all. (e.g. Wagner, 1995) In Finland the polytechnics were created in another ideological environment with emphasis being also on efficiency and utility. Polytechnics are seen as good tools in combining education and practical needs of industry. The goals and duties of polytechnics have been designed to differ from those of universities. For example research is subordinated to education. (Act on Polytechnics 225/95, § 25) However, scientification of the polytechnics can be detected. More and more resources are directed to research in polytechnics and teachers have to have at least a licentiate degree. There are also plans to develop postgraduate degrees

in polytechnics (Ministry of Education, 1998b). Polytechnics are experiencing an academic drift (Clark, 1983) as they are becoming more scientific in their activities, but at the same time universities are going through a practical and commercial drift.

Adult education in the universities has also expanded rapidly from the beginning of the last decade. Student numbers have more than doubled in ten years (KOTA database). In national strategies concerning lifelong learning and the information society, the importance of education as the key factor of economic growth and national well-being is stressed. (Ministry of Education, 1998a; Science and Technology Policy Council of Finland, 2000) But the emphasis of these strategies has been placed on continuing and further education, that is education after a degree. To ensure the competitiveness of the country people should update their skills regularly. Basic university education has thus become only one phase in the citizens' life of learning. This can also be seen in the funding of universities. The funding of undergraduate studies has decreased at the University of Helsinki and the Helsinki School of Economics and Business Administration, while adult education resources have increased. Helsinki University of Technology has not experienced similar developments. The technology boom of recent years has guaranteed more resources to technical education.

Regardless of the market-oriented atmosphere, undergraduate education has been kept outside commercialisation, to some degree. Undergraduate education is funded from the state budget and the equality and availability

of education are seen as worth preserving. The situation between undergraduate education and other activities at the universities is therefore somewhat contradictory. Universities are expected to find outside resources for their research and service activities while marketing their results and products. My findings will show, however, that it is difficult to operate with two different logics. All these developments have put strain on the relationship between education and research. The impact of the policies can also be seen at the departments.

### Three Departments

I will now explore the relationship between education and research in three university units – Department of Social Psychology (University of Helsinki), Department of Organisation and Management (Helsinki School of Economics and Business Administration), Laboratory of Work Psychology and Management (Helsinki University of Technology). These particular departments<sup>2</sup> were chosen because they all represent social sciences and developing similar research and educational interests, but are located in different academic and commercial contexts. An example of rapprochement between the departments when it comes to research and education interest, is the development of their names. The Laboratory of Work Psychology added management to its name only recently and at the Department of Social Psychology there have been discussions about changing the name to Department of Social and Organisational Psychology. As the departments are located in different universities, however, with very divergent histories and disciplinary

Table 1 Research and education at three departments according to their primary orientation.

Department	EDUCATION		RESEARCH	
	Scientific	Practical	Academic	Commercial
Social Psychology	+	+	+	–
Organisation and Management	–	+	+	+
Work Psychology and Management	–	+	–	+

structures, they each have their own ways of functioning and conducting their activities. The units form a good basis for comparative research as they resemble each other enough to be analysed and classified using the same methods. In order for solid comparative analysis they need not be identical, however, and indeed the differences make them interesting cases. (Ragin, 1997; Goldstone, 1997.)

I have classified education and research activities according to their principal orientation in each department (Table 1). The classifications are based on the interviews and how the activities were described and defined in them. Education is divided into scientific and practical orientation. The former comprises teaching of research methodology and has no clear instrumental aims. The latter is used to describe education that offers tools and vocational skills and has a close connection to employment aspects. Research is divided into academic and commercial research. Academic orientation consists of non-instrumental research that is not aiming for direct financial profit. Some might prefer using concepts like Mode 1 to describe this class of research. Commercial research is used to describe research that is com-

missioned or industry driven or Mode 2 knowledge production.

The Department of Social Psychology conducts mainly academic research. Education includes both scientific and practical orientation. The practical side is present foremost in the applied specialisation studies started at the department. The researchers of Organisation and Management are involved both in academic and commercial research. Education on the other hand is mainly purely practical. In the Laboratory of Work Psychology and Management there is very little time or interest to do academic research. Both education and research are steered by commercial and practical interests. I will present each case more thoroughly in the following sections.

#### *Social Psychology – in Search for Identity*

The Department of Social Psychology belongs to the Faculty of Social Sciences at the University of Helsinki. Social psychology is one of the most popular minor subjects in the faculty and indeed in the whole university. In the introductory courses sometimes only 10% of students are majoring students. The large number



of students places pressure on teaching. (UHEL, 2000; Pirttilä-Backman *et al.*, 1998). Courses are forced to be held using non-personal methods, however, the staff are not willing to reduce the number of students, because they are a valuable source of income to the department in the internal resource allocation of the university. Students are not seen only as sources of income. Some of the staff at the department stressed also that it is important to teach social psychology to people from other fields.

Social psychology at the University of Helsinki has been balancing between social sciences and psychology for a long time. Constant definition and redefinition of the identity of social psychology is seen to be inherent to the discipline. On the other hand it is seen as problematic, especially to the students. Students are said to be insecure about what social psychology is and to what kind of jobs it gives qualifications. Encouraged by the idea to clarify the discipline's identity for students, a new study package "Applied Specialisation Studies" was created in 1996. The aim of this package was to enhance the occupational identity of the students by providing courses on specialised fields. During the years of operation, these fields have comprised subjects like crisis work, expertise and evaluation, social psychology of marketing and work and organisation psychology. Money for the operation has come both from the Ministry of Education and from the funds of the university's Rector. The Ministry of Education has in recent years participated in the funding of many vocational projects at universities that try to enhance the possibility of student employment.

This study package has been received

well by the students, but the staff of the department is divided on the issue. Some feel reserved towards the whole idea of applying social psychology. At least, it should not be applied too loosely. Everybody agreed that the identity should not be connected to some specific or only one field of application. Other aspects of the study package are also regarded to be problematic. The university's role in giving vocational education has been discussed at the department and it is generally thought that it should be the duty of vocational institutions like polytechnics and continuing studies, not that of the university. In addition, some doubt whether the staff of the department is at all qualified to teach the subjects taught in specialisation studies. Academically oriented staff have very little experience with the practical issues dealt with in the courses. Thus the department has had to resort to outside assistance in education.

Specialisation studies have brought a major addition to department's resources, but the future financing of the package is uncertain. According to the staff, the money for Applied Specialisation Studies has to come from outside the normal budget. It is feared that otherwise, the package will take attention and resources away from basic education. Some see, that this has already happened. Providing basic education that is based on research is seen to be a main function of the university by all of those interviewed. The connection to research in specialisation studies is seen to be weak if not non-existent. The package was an experiment and some of the staff would like to keep it that way and not have it continued.

The connection between education

research is seen as the basis of the department's activities while vocational or practise-oriented functions of education are dismissed by many, although it is recognised that education has to be somewhat commercial or at least attractive. By getting students from outside the department and university, crucial extra money is received. An idea that the name of the department would be changed to Department of Social and Organisation Psychology has been discussed. This is seen as a possibility to lure more students in, and out to better jobs, and to sell the expertise of the department.

Currently, the research at the department is not heavily commercialised. In fact, when asked, much of the staff remembered only one major project that was commissioned. Most of the resources that come outside the regular budget come from the Academy of Finland, which funds mainly basic research. The leadership of the department acknowledges that in the future the department might have to search for more resources from outside sources and outside the Academy of Finland, as the financial situation is tight. Still, connections to enterprises are becoming more present in the educational side than in research. Master's theses are done increasingly about work and organisations and thus in cooperation with companies. The general view is, however, that the theses are not done to serve the companies and are not commercial as such.

The staff members at the department emphasise the importance of the connection between research and education. Even though it is said that in much of the education the connection can be found, many see the relationship threatened. The main factor contributing to

this is the growing emphasis on vocational and practical education. Pressure to offer practical education comes from many directions: the students, the Ministry of Education and the professional organisation of social psychologists. The latter is aiming at legalising social psychologists as a separate profession.

When looking at the four definitions of the research connection we can see that the first one – education is connected to actual research at the department – is threatened by the Applied Specialisation Studies. Other parts of education are less vocational. However, because students and staff have different conceptions of the goals of the education, the future direction of education is under pressure from practical interests. Insufficient resources force education to be commercialised. The second and third interpretations – teaching of research methods as part of the curriculum, as well as teaching of scientific attitude – are realised at the department. But if vocational aspects would be integrated more to education they too could be in danger. Reproduction of staff, which is the fourth definition, is not a major problem at the department. Despite growing practical interests of the students, there are still those who want to become researchers.

#### *Organisation and Management – Aiming at Science and Practice*

Organisation and Management is a discipline in the department that carries the same name. The discipline is, as the Helsinki School of Economics and Business Administration is, very practical and focuses on vocational training. Unlike at the department of Social Psychol-

ogy where students are selected directly through an entrance examination, students select their major subject during the second year of their studies. This means that all the disciplines at the university are competing for the same students. The number of majoring students is crucial to the disciplines and departments as it is the most important criteria of resource allocation inside the university.

The general view of the staff of Organisation and Management, as well as elsewhere in the university, is that their students come to Helsinki School of Economics and Business Administration to secure a place for themselves in the private labour market. They are said to be interested in well-paying jobs, not research or science. The students are drawn and introduced to the discipline by offering them tools for the work place. This can often mean that the content of education differs greatly from the research done at the department. The students and staff have different knowledge interests. Despite the lacking connection, the staff feels that both education and research would benefit from an existing link. A teacher is more capable of teaching if the subject is familiar. However, students are seen as clients. The staff sees that they should be taught what they are demanding.

Undergraduate studies are said to give a poor starting ground for doing research and postgraduate studies. At the time of the interviews there were no method courses in Organisation and Management. The goal of undergraduate studies is not to train academic researchers. The gap between under and postgraduate studies is seen to be wide and the transition to doctoral studies to be diffi-

cult. Some of the interviewed also said that this correlates with the level of doctoral dissertations. Even though the education does not prepare students for a career in research, it cannot be said that the education is of a poor standard. Students enjoy the courses and those who participate in teaching work hard to make the courses meaningful and coherent. Teachers have also received rewards inside the school for their teaching.

As students of Organisation and Management do not show immense interest for careers as researchers, many staff members have come from outside the boundaries of their own discipline and the Helsinki School of Economics and Business Administration. Reproduction of the staff is dependent on outside help. Some see this as a good way to refresh the department and bring forth new ideas. Others regard the large number of outsiders as discrimination towards their own students. Because much of the staff comes from outside and have not learned the basics of organisation and management as part of their education, they are missing the competence to teach subjects taught in basic courses. There are therefore only a few people willing to take responsibility of basic courses. In some cases there has been no other alternative than to resort to the help of consultants. Similar problems do not exist in more advanced courses where researchers can actually combine their research to the teaching.

There have been, however, serious bids to strengthen the academic research at the department, as well as the whole Helsinki School of Economics and Business Administration. The number of doctoral dissertations has grown in re-

cent years (from 3 dissertations in 1990 to 16 in 2000) and efforts to increase publishing activities have paid off. The attention is targeted to research and postgraduate studies and not directed to make undergraduate studies more academic. In addition to the raising of academic standard, the university's strategy is to increase its share of funding from outside of the state budget and to try to answer the needs of the business sector (HSEBA, 1998). Commercial, commissioned research and cooperation with industry, however, brings insecurity to the department. Research projects are of short duration and so are employment contracts. Contract researchers are insecure about their future employment and are thus less interested in committing to the department's education and other activities. Even if there were interest, it is often impossible to participate in education because research projects, their organisation and continuous search for the next source of funding take up so much time.

Separate research institutes are seen as one solution to the over stressed staff's employment. In these institutes the researchers have no obligations to participate in teaching and salaries can often be kept higher. This, however, brings no solution to the eroding connection between research and education. If research and education are separated into different units, the connection will be even more difficult to sustain.

On the whole it can be said that the relationship between research and education is frail. Research and education have different goals and members of the staff admit that it is not necessarily wise to teach students what is researched at the department. Research methods are

not part of the curriculum and the attitude or way of thinking needed in academic research is not being transmitted to students. Reproduction of staff has been difficult. Students are not interested and they are not prepared with the education they have received to proceed to postgraduate studies. Much of the staff has come from outside and they lack the connection to the teaching.

#### *Work Psychology and Management – Serving Sponsored Students and Industry*

Work psychology and management has very few majoring students. It is one of the least popular disciplines at the Helsinki University of Technology. Interviewed staff members said that students interested in technical subjects are not interested in work psychology. Courses on work psychology and management, however, are usually crowded. This is because students from other universities, mainly the University of Helsinki's psychology students, fill the lecture rooms. Often over half of the students are outsiders. This is possible because of an exchange agreement between the capital area universities. Student mobility, however, is one sided. Students from the Helsinki University of Technology do not take courses in other universities as eagerly.

As a result of the lack of students, much of the faculty has to be recruited from outside. From the seven who had a teaching post, only one had a background at the Helsinki University of Technology. The Head of the Laboratory calculated that 32 of the total staff are graduates of the university and 23 come from outside. The staff is not being re-

produced from its own students, although many of the outsiders have taken courses at the laboratory. The lack of students is seen on one hand to be problematic for the laboratory and its legitimisation as a separate unit. On the other hand, some researchers said that having or not having students has no implications to their research activities. One researcher characterised teaching as a side business. He was unwilling to increase his teaching because it does not bring in resources like the other activities he was engaged in.

70% of the funds to the laboratory come from outside resources, mainly from Finnish companies and the Technology Advancement Centre, Tekes. Of the 55 people working in the laboratory only 10 got their salaries from the university's budget. Laboratory activities are organised around research projects. Projects are independent financial units at the laboratory. They are in charge of their recruiting and finances. The laboratory has developed a new strategy to try to involve research projects into teaching. Because teaching is done without payment, not all researchers see it as profitable business. The strategy, however, has paid off and many projects have their own courses. Since engaging the research staff into the teaching, the Head of the Laboratory is planning to rationalise course supply by eliminating overlappings and enhancing cooperation. This would mean that people would not necessarily be able to teach what they are currently researching.

A large number of the staff are employed in various research projects, but very few have ambitions in requiring a post in the laboratory. There is little continuity as people come and go, staying

only a limited time in projects. This brings uncertainty to the laboratory, but mostly this harms the development and recruitment of the academic faculty who are responsible for teaching. Research projects offer much higher salaries than academic posts at the university. The mobility of the staff to the private sector is also considerable. This is problematic for the whole Helsinki University of Technology: qualified people do not stay at the university.

In addition to commercial research, the laboratory's activities comprise of commercial education. In fact, most of the education in the laboratory is more or less commercial. Most of the undergraduate students come from outside the laboratory and the laboratory receives payments for educating them. A study package has also been made for students in polytechnics. The Head of the Laboratory boasts by saying that their laboratory offers in fact better practical education than polytechnics (Teikari, 1999). Also in postgraduate education there are students that are sponsored, but this time by industry. A doctoral programme has been founded to educate employees of companies. Recently, there has been a scandal concerning the financing of the programme, clearly indicating that there are a number of problems in combining private and public funding and that clear rules of conduct are lacking.

When looking through the four definitions of the research-education connection it can be seen that the laboratory's research and education do have a connection. This is only possible because both of the activities are commercialised and instrumentalised. Even this situation, however, causes fractions be-

tween the activities and makes the connection weak. The first definition of research connection is the one that is present in the Laboratory of Work Psychology and Management. Teaching reflects the actual research done at the department. However, all of the following three interpretations of the connection are neglected. There is very little emphasis on teaching of methods. Education, as well as research, is subordinated to instrumental goals and to a great degree the staff have come from outside the laboratory itself.

### Conclusions

The connection between education and research can be seen to be eroding and weakening to some extent in all of the departments that were studied. The connection is not totally lost, but the pressures to perform various functions at the same time and the attempts to commercialise university activities – practical, customer-oriented education and commissioned, commercial research – appear to put a strain on the link.

When looking more closely at each of the definitions of the connection between research and education, we can see that no matter which way the link is defined, current university policy also places pressure on it.

1. Education should incorporate the latest research findings. Education must be up-to-date in relation to research and be connected to actual research done at the university.

In the case of Organisation and Management and to a lesser degree in Social Psychology, research and education have different goals and contents. Academi-

cally oriented research collides with practical and vocational aspirations of students. Students are seen increasingly as clients and thus their needs have to be filled. Academic researchers often lack the qualifications and interests to teach practical skills. The absence of motivation and incentives to engage in practical education has also led to a situation, where teachers have to be employed outside the regular staff. These outsiders have in most cases no connection to the research done at the departments.

In Organisation and Management, a notion that there is no need to teach students all the research result produced by the staff, because they are of no use to the students prevails. In Work Psychology and Management many projects have their own courses and the staff state that there is a direct connection between research and education. Outside help, however, is still needed to teach the basic courses. Many projects have been enthusiastically involved in education and course offering has become too uncontrolled and overlapping. The plan is to rationalise the course supply and teaching. This might not be a working solution. Researchers are willing to teach if they feel the connection themselves. If they have to teach subjects that are not connected to their actual research activities, they feel less willing to participate. This has been the case at Organisation and Management. In the Department of Social Psychology the link works for the most part in the normal courses. With applied specialisation studies however, the situation is almost opposite and the weight of the study package has become notable.

Cooperation with industry has also

brought with it the problem of secrecy. As much of the research is only meant to be communicated between the researchers and the company in question, not all results are mediated to the students through education. Because a large part of commercial research is done in separate research institutes or by contract researchers with little connection to the department, this too hinders the transmission of research to the students.

2. Research methods are taught as part of the education. Ideally students are engaged in research as soon as possible.

Research methods do belong to the curriculum in Social Psychology. The staff members considered its methodological teaching to be of good quality. Work Psychology and Management also offered one research method course, but more precise teaching was to be left to postgraduate studies. Organisation and Management offered no method courses at the time of the interviews. The difficulty of transition to postgraduate studies and doing research was mentioned repeatedly in the interviews. In work psychology, similar problems were not mentioned despite the relatively small role of method teaching. This can be explained by the nature of research done at the laboratory. Research is to most parts instrumental and commercial and methods are what one researcher described "what you have time for". When a department's research is mainly characterised by commercial interest, teaching of scientific research methods is not seen to be important. If education is also vocational and practical by nature, research methods are not seen as useful tools.

3. Teaching of scientific attitude or motivation is an essential part of education. This means that students are taught that knowledge should be sought for its own sake, not for its instrumental value.

This definition applies rather well to the Department of Social Psychology's activities, excluding the specialisation studies. In the Laboratory of Work Psychology and Management and in the discipline of Organisation and Management, the main aim of education is, however, more instrumental. Providing useful solutions to practical problems is the main goal of teaching. Instrumentalisation can be detected both in education, as well as research in Laboratory of Work Psychology and Management. Both activities aim to serve labour markets and the needs of companies. Commercial research is to many researchers a very tempting option. Some at the laboratory thought that education has nothing to offer and has no connections to their commercial research; it could be possible to conduct similar research projects as well, or perhaps even better outside the university. In Organisation and Management it is more education than research that is dictated by instrumental values. Students are said to shun away from scientific ways of thinking. They are seen as customers, to whom education serving their needs should be offered. This is of course positive for career-focused students, but it moves the goals and aims of education further away from those of research.

The staff at each of the departments were not willing to connect teaching to one specific professional or vocational profile. It was seen that the university's purpose is to give extensive knowledge and skills that can be applied in many

fields. On the other hand it was noted, that this is not always enough for students. They demand more precise know-how. This creates tension between the two functions of university – research and education – as well as between the interests of students and staff. Staff are willing to offer students what they demand, but again this is often seen to be even against the university's role.

4. A reproductive connection. From the educated students some will become the next generation of researchers and teachers at the university, thus helping to sustain the functioning of the university and its departments.

When the interests of the students and staff are different, and this segregation is enhanced by the functioning of the activities, the reproductive connection is being deteriorated. This can be seen especially in the discipline of Organisation and Management and in the Laboratory of Work Psychology and Management. In the case of Organisation and Management much of the academic faculty and research staff has come from outside the department and university. It is said that students are not interested in research and the education they receive does not aim at giving competencies to do research. In Work Psychology and Management, the reproduction of academic faculty is problematic. Even if there are people who are ready to engage in various research projects, taking an academic post is seen as anything but a tempting option. Only some of the academic post holders and about half of the rest of the staff are the product of inner reproduction. At the Department of Social Psychology reproduction is not yet a problem. Even though there is a ten-

dency to move towards a more practical mode of education, there are still students who are interested in academic careers.

It can be seen that the content and position of higher education is changing both in the universities and in the policies of the Ministry of Education. The importance of undergraduate education is declining as a result of the idea of life-long learning. More resources and attention is being placed on vocational education, continuing education and various forms of education liable to charge. Other forms of higher education can be financed privately, but undergraduate education is still financed from the state budget. Life long learning also shifts the responsibility of financing education from the state to the enterprises. The goal of the Ministry of Education (1998a) is to raise the level of private funding in all forms of higher education except undergraduate education. The Helsinki School of Economics and Business Administration and the Helsinki University of Technology especially have many educational programmes that have been targeted to serve companies and charge fees.

The importance of undergraduate education can be seen deteriorating also in relation to postgraduate education and research. Undergraduate education becomes unprofitable when other activities of the universities are directed towards getting outside funding. As the logic for undergraduate education is different, the pressure to separate it from other activities grows. Education is left in the hands of departments and research is concentrated in research institutions that have little or no connection to education. Commercial research is



also part of the activities of many departments. It brings with it uncertainty and short life span research projects. Insecurity about the future does not encourage project researchers to commit to the department's educational activities.

What implications does the weakening connection of research and education have on the universities and their activities? If none of the students are educated so that they can successfully continue as researchers and teachers, the level of research is bound to decline. When both education and research become subordinated to instrumental needs and tight schedules, the readiness to come up with new and exciting results and findings deteriorates.

### Notes

- 1 The issue has been discussed on the opinion pages of the leading newspaper in Finland, see Helsingin Sanomat (2000a, 2000b, 2000c).
- 2 I use the term department to describe all of these units, even though one is called a laboratory and one is a smaller unit than department.

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