



Professional Autonomy in English and Dutch universities: the Influence of Reforms on the Research Practices in Public Research Universities

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1. Introduction

Recent decades have major reforms in higher education and research systems throughout Europe. Some have been inspired by New Public Management (NPM), which deliberately alters the structure and policy-development process in public-sector organizations with the purpose of making them more efficient and effective (Pollitt, 1996). The management models of the 1980s and 1990s entailed a much more direct ideological and political attack on institutional and professional autonomy of universities that could not be covered by political rhetoric (H. F. de Boer, Enders, & Leisyte, 2007). At face value, there has been an emphasis to increasingly steer the academic research agendas from outside the academic community. Taking into account the lessons of implementation studies that show that the ultimate outcomes of reforms can differ greatly from the initial policy goals (Sabatier, 1999), it is interesting to explore to what extent the changes in the English and Dutch higher education and research sector filter through the system from the top to the bottom, i.e. from the state to the research unit level within universities.

This paper presents the findings of an international comparative study of higher education policy influence on the basic units of knowledge production in biotechnology and history at public research universities (Leisyte, 2007a). The aim of the paper is to explore how higher education and research reforms in England and the Netherlands have influenced professional autonomy of certain basic research units. The paper uses the interview data collected in 2005, supplemented with the document and secondary literature analysis. In order to understand change in the professional autonomy we look at research practices of basic research units, such as, their freedom to choose lines of research.

The paper starts with the overview of the higher education and research reforms in England and the Netherlands since 1980s. After setting the context, the theoretical and methodological underpinnings are presented. The paper proceeds with the exploration

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of the professional autonomy of basic research units in biotechnology and medieval history in both countries looking at stability and change in their research practices. The major findings are summarized in the last part followed by a reflection on the comparison between the two fields of research and two countries.

2. Changing context of the basic research units

2.1 English reforms

Following the 1985 Jarratt Report on university management, some patterns of change spread across research universities in England: moving decision-making away from the centre to the work-floor level, putting in place mechanisms for strategic management, introducing transparency in financial matters and having clear management lines with fewer committees. However, the conservative academic guild attitudes still prevailed. (Smith 1999:169-170) With the radical reforms of the 1980s, the dictate by the centralized policy control of the government and funding councils could be traced in the leadership practices of vice-chancellors, which arguably reduced the academic oligarchy security, and as some claim, even threatened their autonomy, academic values and culture (Leisyte, 2007b)

With the advent of 1980s reforms, the “quasi-market” of higher education and research has been established in England. The ultimate aim of the policies was to produce an efficient higher education system with a belief in the market as an effective and efficient regulating force. As a result of the governmental scrutiny a mass and quasi-market system was created. However, it was centrally regulated by the government with the ever increasing number of white papers, intermediary regulatory and advisory bodies.

The major issues of the policy agenda were financing, quality and structures. Until now it is agreed that universities live in challenging times with “continuing downward pressure on resources.” (Benjamin, 1996, p. 77) As it was noted before, a sizeable income of universities is from allocations from public sources, such as HEFCE for teaching according to formulaic method based on the number of students, research councils’ funding for research as well as third stream money from industries and other bodies, such as endowments, donations, residences and catering and academic fees. Research funding is distributed selectively to those institutions that demonstrated excellence in research. Here the RAE results have been influential. This part of funding and its allocation within institution is one of the most debated issues. A similar driver for quasi-market orientation of universities has been governmental programs targeted to facilitate better fund raising at universities. These programs would reward universities, for example, through providing new laboratory equipment as matching funds.

The management of universities has been strengthened following the managerial pressures from outside introduced principally by government policy agendas and funding regimes. (Deem 2003:66) Perhaps one of the major policies influencing internal governance structures and institutional management was the Jarratt report of 1985, which put pressures on universities with the rhetoric of the modernization of university management. The major issues that were in the report induced the abolition

of academic tenure, selectivity and strategic research, quality control, fewer committees within universities, bringing transparency requirements of financial matters and placing mechanisms for strategic planning.

These and other policies, like Dearing report (1997) and the Further and Higher Education Act of 1992 brought in pressures for more accountability, efficiency, quality and standards into the higher education system in England. Following these reports, the power of the Councils and Courts at universities was strengthened as well as the need for accountability to public bodies for performance of institutional governance and management with the help of externally decided benchmarks and performance indicators. One of the major instruments for this has been the ever increasing in size Research Assessment Exercise. The question still is what changes did it bring for the behavior of institutional senior and middle management as well as academics in universities when it comes to deciding on what staff to employ, what type of research should be carried out, which disciplines should be at the forefront and full support of the university.

“Users” have to be involved in every level of policy formation in higher education (Senker & al., 1999, p. 22). External “stakeholderism” is visible in university co-operation with other institutional actors in provision of teaching, research and services in the community as well as the involvement of external “stakeholders” in university decision-making processes.

In the English case, evidence suggests that the research practices have been influenced by higher education policies. After 1980s reforms, university management gained importance which brought an interventionist and less trustful approach to the university in England that challenged the practices of academics. The loss of control of academics here meant the restriction on their academic freedom and autonomy to some extent. The segmentation of academic activities showed an increasing emphasis on strategic research. This has led to the further separation of teaching from research and certain restrictions of the research themes, since due to financial pressures, researchers have to adhere to the research council’s or other donors’ strategic themes and be accountable to them for the results of the research. The increasing selectivity of research staff and further stratification of universities have been clearly visible in the English university system in the past twenty years. However, the adherence to disciplinary norms and acknowledgement of the importance of basic research have remained fairly strong in the academic self-governance in England. (Leisyte, de Boer, & Enders, 2006)

2.2 Dutch reforms

In 1985 the government introduced the concept of ‘steering from a distance’, in which beliefs about the virtues of regulation and planning were meant to set “the boundary conditions within which the higher education system is to operate” (Goedegebuure et al., 1994, p. 196). The idea, made generally known in the white paper ‘Higher Education: Autonomy and Quality’ (“HOAK”), was to position the national government in the role of catalyst, coordinator and (financial) facilitator and to enhance the autonomy of the universities (De Vijlder & Mertens, 1990; Maassen & Van Vught, 1988).

Since then this idea has been developed further in several laws, strategic plans, and government white papers. In 1993 the core elements of the steering philosophy 'steering from a distance' were codified in a new general law on higher education ("WHW 1993"). During this period of drafting this new national bill for higher education the then minister argued that a 'selectively interfering government' was a more appropriate description for the new steering approach towards higher education than 'a government steering from a distance'. The latter could be interpreted as a government 'being absent' and this was absolutely not the government's intention. Apart from setting the parameters for the university sector the government would certainly intervene if deemed necessary.

In the national strategic higher education and research plan of 2000 ("Hoger Onderwijs en Onderzoeksplan") (MOCW, 2000) governmental deregulation and self-regulation of the higher education sector were still being stressed. The national government made clear its intention to continue along the same lines: enhancing institutional autonomy and strengthening market orientation (MOCW, 2000, p. 36). In the same document the minister also briefly suggested that the future relationship between the national government and the universities should be characterized more as contractual (MOCW, 2000, p. 37). After 2004, further deregulation, enhanced institutional autonomy, and increased accountability remained the buzzwords. The government intends to exercise its powers in relation to institutions' outputs and the societal consequences of the universities' performances. In 2005 the government launched its ideas for a completely new national act on higher education 'Legislation Note'; "Wetgevingsnotitie" (MOCW, 2005). According to the then minister, due to fundamental changes in the world of higher education the 1993 national higher education act was outdated and needed such a thorough revision that a completely new Act was justified. The underlying rationale of this and related white papers, however, seamlessly fit the HOAK steering philosophy: government steering from a distance while granting the universities substantial institutional autonomy. The government wants to encourage the universities even further to act as societal entrepreneurs. Universities should become real corporate organisations, being prompt in responding to the needs of the economy and the labour market. It seeks to remove restrictions on the capacity of universities to behave as if they were business firms (H. de Boer & Goedegebuure, 2007). It also stressed that groups with stakeholder interests should play a more prominent role in setting their directions; this is referred to as horizontal accountability. In 2007 however, a new cabinet came into power and, at least for the moment, the ideas for a new national act will not be put into practice.

Nevertheless after more than twenty years the 1985 steering philosophy still forms the core of the way in which the government steers Dutch higher education and research. In this period many reforms have been implemented to 'put the philosophy of steering from a distance into practise. New national funding schemes, the introduction of quality assessment procedures for teaching and research, the devolvement of authorities from the state to the universities on 'matters of personnel', and the introduction of a new internal governance structure for universities are examples of 'HOAK-related' reforms that significantly changed the institutional arrangements surrounding Dutch researchers.

Also with respect to research policies, the government has changed its approach over the years. Since the late 1970s the governments showed an increased interest in research affairs and since then it has taken many policy initiatives to rationalize academic research and to increase the internal efficiency of science production. Public research should increasingly become nationally programmed, more transparent and in

harmony with social needs, evaluated in terms of quality and accounted for (Leisyte, 2007). Apart from these policy goals, over the years there has also been a growing emphasis on competition, innovation, valorisation and partnerships with industry.

The implications of the policy changes for universities have been widely discussed (H. de Boer, 2003; H. de Boer, Denters, & Goedegebuure, 2000; H. F. de Boer, Enders, & Leisyte, 2007). There is, in other words, no doubt that the landscape within which Dutch university researchers work has changed (Leisyte, 2007). As these studies reveal, the redistribution of authorities from the state to the universities has had many consequences, which are likely to affect the research practices at the shop floor level in universities. We observe for instance a strengthening of the managerial powers within the universities, an increasing monitoring of performances and outputs and a growing emphasis to program science production. Over the years the internally defined criteria for research were complemented by externally defined criteria (Blume, Spaapen, & Prins, 1985; Hazeu, 1989; van Rossum, 1987). In universities, strategic research planning has increasingly come to the fore. It seems that by empowering institutional leadership and by providing these leaders with information on performances research agendas are no longer entirely controlled by individual academics. However, it is unclear to what extent these changes on the national and the institutional level really have impinged on the autonomy of academics to decide what research topics to pursue. There is little evidence on the implications of the governance changes for the shop floor level activities (Jongbloed & van der Meulen, 2006; Leisyte, 2007a)

In the remainder of this paper we explore to what extent university researchers of English and Dutch universities still control their research agendas. Traditionally research themes were determined on the basis of idiosyncratic preferences of individual professors. Researchers had and used academic freedom to undertake research of one's own choosing (Ziman, 2000).

We assume that academics in principle want to design their own research questions and keep their professional autonomy as much as they can. External interference should be minimal. However due the changes in the institutional environments – some of them explicitly focused on externally defining research agendas, programs and themes – this may no longer be the case. In the next section, we will provide a theoretical underpinning to help explaining the interaction between the research units and their changing institutional environment.

3. Theoretical considerations

The famous laboratory studies within the sociology of science in 1970s produced a conceptual understanding of how scientists function within their institutional environment. In particular, the credibility cycle model introduced by Latour and Woolgar is very helpful in understanding how the research practices starting from inputs (ideas, problems, methods) and turning them into outputs (funding and reputation) build academic credibility (Latour & Woolgar, 1979). The attention is drawn to the importance of reputation and credit within the academic community. The credibility cycle is continuous, in which recognition, prestige and resource play an important role. The extension of this model in later accounts points to the shifting audiences that academics address and the possible conflicts this may cause. The changing institutional environment may mean different expectations from academics of what and how to research. In essence, what counts in the end is the ability of the academic to convert the work to make it count for different audiences (Knorr-Cetina,

1982; Lehenkari, 2003). Thus the creation of credibility occurs in several areas that interact with each other – research sponsors, the scientific community, regulatory authorities, university management (Leisyte, 2007a). These audiences are important in the institutional environment as they exert the rules, norms, values, and beliefs that facilitate and possibly obstruct the credibility building process of research units.

With the changes in the higher education and research as discussed in the previous section, the audiences and institutions governing basic research units changed, which means, that the credibility cycle of research units may be affected. One of the possible interpretations is that with the changing higher education and research governance arrangements, these new audiences, such as regulatory bodies or industry, may influence the research agendas of academics. In other words, the new audiences as well as the old ones may have an impact on the inputs of the academic credibility cycle.

To understand how the research units react to the changes in their institutional environments, Oliver's (1991) typology is useful (Oliver, 1991). According to her, based on the resource dependence and the neo-institutional theories from the organizational sociology, research units act through strategies created and implemented in response to the changes in the institutional environment. These strategies can range from passive compliance and conformity to external rules and norms and interests of stakeholders, to symbolic compliance and to pro-active manipulation and negotiation of the environment. The compliance strategy means the adherence of research units to the myths and ceremonies within their institutional environment even if it means changing their core activities. The symbolic compliance strategy means the buffering of research units' actual activities from the formal structure. Finally, the manipulation strategy is seen as a high level of resistance to an institutional environment and even influencing the environment according to the research unit's preferences. The type of strategy implies the ability to maintain the status quo or necessity to change the activities of the research unit. In the current study, the autonomy of research units therefore can be indicated by the type of response they use to react to their institutional environment. If research unit uses compliance strategy, this means it may need to change its core activity, such as setting the research agenda according to the requirements of the institutional environment. On the other hand, if the research unit uses the manipulation strategy, this means that it can determine its own research agenda and even influence the agenda setting within the institutional environment.

4. Methodology

The multiple case study design was employed in the study. The rationale for selecting cases was based on theoretical sampling of basic research units in research universities in the Netherlands (Yin, 2003). The contrasting cases were selected to account for the different institutional environments of research units. Here two criteria were employed: the contrasting disciplines as well as estimated research quality. Medieval history and biotechnology were chosen to address the variety of the cultures of the 'soft' and 'hard' sciences as well as traditional mode of knowledge production, such as Mode 1 and more fluid and application oriented Mode 2 type of research (Biglan, 1973; Gibbons et al., 1994). The second criterion of the estimated research quality of the research unit is based on the assumption that the credibility of research unit based on its quality may influence the response to the institutional environment

Therefore, we distinguish between 'high achievers' and 'middle achievers' among the research units in both disciplines. Thus the selection of the basic research units as cases was purposive based on the research performance of the basic research units.

The data collection implied using multiple sources of evidence under the rationale of triangulation (Yin, 2003). The study used documents, literature, and semi-structured interviews. The documents and the literature address the period since the 1980s. During 2005, the following interviews were carried out: 16 interviews in four basic research units in England and 16 interviews in four basic units in the Netherlands, as well as 8 interviews with the top and middle university managers in England and 6 top and middle university managers in the Netherlands. Further 18 interviews were collected with the national policy makers and administrative staff of the universities in England and 15 similar interviews in the Netherlands to gain further insights into the context of the higher education reform in both countries. Altogether 6 public research universities were visited.

5. Case study evidence

5.1 Problem choice in English biotechnology units

All senior and junior biotechnology researchers in English research units report that they still have a lot of freedom to decide what and how they want to research provided they have funding for it. Therefore both external funding bodies and university management are important in steering problem choice in research. Funding bodies can in fact influence what area to research according to a professor in a high performing unit:

You have a certain amount of room for manoeuvre insofar as nobody actually comes in and says: "you will work on this protein" But if you cannot get the funding to work on this protein, because the charities or the research councils or whoever it is doesn't provide you with a grant and you don't have the ground funded, then you had it, see you don't have that, you don't have a massive room to manoeuvre. Nobody comes in and says go and work on protein X but if you are not working on protein Y, that someone will fund, then you won't work on anything. So in a way there is someone, the funding bodies guide it. I don't have a little pot of money that the university provides me with, so just go away and do your own thing.

In this way, the freedom to choose research topics is somewhat restricted by external requirements. For English biotechnology units the main concern is how to fit the priority areas of external funding bodies to enhance the fundability of their projects. Strategies for increasing fundability and fitting project proposals into thematic priorities include the adjustment of topics, the strategic writing of proposals, and the repackaging of ideas.

All researchers report that the choice of research topics usually is related to the likelihood of funding. If there is no funding, there is a threat to that particular research line and a researcher has to go where there is funding available. They often play 'percentage games' and strategically decide which funding initiative is most suitable to meet the basic research unit's interests. A professor for example, goes only for the highly probable funding, and diversifies the funding base:

When these initiatives come up, I think more so now we are taking a strategic view on looking at what the topic is, if we see that this is something that we are really involved in and we can really put together a good bid, then we go for it. You are just playing simple percentage games, you are looking at your likelihood for funding through different routes and that is partly down to just simply doing the numbers; how much money is there in this initiative, how many people are likely to apply, what's your percentage of getting it. But it's also looking at your belief in your ability to put together a really good proposal.

Applying for funding to him is about what is most efficient, weighing the pros and cons of the likelihood of funding of the research topic. He aims at less competitive grants due to a low application success rate. Similarly, in another unit a senior researcher draws attention to the fundability and ability to pursue topics of interest:

It was my agenda insofar as I started working in an area which I thought was interesting to me and I've been fortunate on the whole until perhaps very recently, that it has also been fundable, so I carried on down that line until someone comes along and it gets worse.

There is a change in terms of making strategic decisions if the topic fits the funding bodies' themes as researchers have to be realistic about funding and their ability to carry out research. If the research problem is not suitable for the funding priorities, then they try to be strategic and creative about how to find some other initiative to maximize the chances of success by adjusting the theme. But this does not mean real change in their research direction, just "you put a different spin on it, on what you are doing". Thus, researchers in both groups strategically decide which research council theme fits their own research. Here they also follow certain strategies of using "fire words such as relevance, innovation" in the proposals and even repackaging the ideas. In other words, in the grant proposals they emphasize what the reviewers of the grants want to hear:

Actually what they are doing is that they are probably getting the same research in, but they are just getting the people to write it in a rather different way. And I have, just from a pure research funding policy point of view, I do have some problems with things they are saying; they are going entirely for things which are terribly innovative and you know, you get this lie a lot.

The importance of considering fundability is also for the sake of maintaining credibility. A professor from a high performing unit emphasizes that it is dangerous to always lose, since it harms your prestige and therefore your future funding opportunities: "If you lose the edge in your field, you will not get your grant renewed in that area if you're not at the cutting edge of that area". A researcher with a number of bad experiences in terms of good reviews but no funding is very concerned about it since this is an indication that funding bodies did not regard the topic as fundable. His strategy to improve the situation is to actually change the topic area, which he thinks is a difficult thing to do and what he does not regard positively:

I am trying to look and see whether I can swap what might be regarded as a more attractive funding area. That's not all that straightforward to do. But yes, that is what happens whether you like it or not. And you have to try and shift the emphasis of what you are doing and trying to get my PhD students in my group to move on a biochemical basis rather than a structural basis, to do more x-rays, to do more lab work that is not directly related to structures, synthesis, put value added into our grant publications and output. This is the way the funding bodies wanted to pay, and that's fine. It's public money.

Finally, as discussed in the section on funding, both groups follow diversification of funding via grant proposals that helps to offset the effects of competition.

Funding is crucially important while there is a question of how to balance between curiosity driven research questions and fundable research questions. Researchers in both groups still predominantly think that the ideas are coming from unanswered questions from previous research and only then researchers do try to fit into the theme of the funding initiative as seen from a professor from a lower performing unit:

As a scientist I feel most comfortable with driving the next phase of research from what you have previously done. Now the danger of that is what people say, oh, it's incremental.

Similarly, a researcher from another research unit reports that the process of selecting his topics is "organic evolution".

These strategic considerations help both research units preserve their problem choices. They are not willing to change their research areas easily because "it's hard to shift your thinking". They find ways to adjust to the demands of external funding bodies by taking strategic steps in choosing the research topic.

At the same time, it is not only external funding that may influence problem choice in basic research units. University management in the case of lower performing unit tried to do this as well by centrally appointing the group leader whose job was to change the direction of research within the group:

When asked about the guidance in problem choice, the group leader thinks that he is the facilitator for research themes, while the funding bodies are the ones that are directing problem choice. He admits that he could influence the research agenda of junior researchers but less so the research agenda of senior researchers:

Actually in research it's very difficult for people to turn the right hand corner. What happens is like a big ship, just turn slightly and to say well it's turning because of anything you've said or anything that is happening externally is hard to judge. What I think is probably correct is to say that the research leaders are very clever and they have their own minds; they know what they doing and they will adjust a bit but they are pretty mature individuals who need I'd say discussion but very limited advice. It's the more junior staff who are coming through the ranks who kind of witness what I say and how I say it and are potentially influencable (sic). I think that's a key code: to develop and influence. Of course you do that in your own research groups but you also need to it with the other juniors.

While talking to junior researchers, they admit that they contribute to discussions but the research topics are decided by the senior researcher, in this case, the group leader.

The exception was the junior researcher who had an independent fellowship and could follow her own research line, but still had to fit into the overall research theme.

The question of the leader's role in research agenda setting and different decision power on problem choice between juniors and seniors was also a point of discussion in the high performing unit. This research unit is not due for re-organisation as it has earned high credibility from its excellent performance in the RAE. In contrast to the lower performing unit, management has not become involved in major agenda setting. Researchers in the high performing unit share strategic considerations regarding external funding. The professor reports that a researcher can do something "completely off the wall", in other words, completely follow his/her own research idea only if he/she is established in the field and has funding for research. Both he and another researcher agree that the majority of researchers do not have this high credibility and no additional free hands to do what they want. A post-doc does not have any freedom to choose his research topic, since it is already funded by the project for which PI applied and received funding. However, he can contribute to writing proposals.

5.2 Problem choice in Dutch biotechnology research units

Academics in both Dutch biotechnology research units in principle have their academic freedom to decide what and how they want to research. Their ideas usually come from unanswered questions from previous research, that is organically following the developments in their discipline. However, both research units indicate they are conditioned by funding for their research and therefore external sponsors can be influential in guiding their problem choice. Due to the nature of biotechnology, academic in both research units heavily rely on their collaborations, thus the problem choice may be a collective endeavour. As a post-doctoral researcher from the medium achieving group has put it:

When you want to write a project proposal, you ideally want to have a proof principal so you can do the work. So that's one. Two, do you have a suitable collaboration, cause it's often needed for a grant proposal. So that's the basis actually. If you have those two and a good idea, you can start writing.

Within the research units the collaborative spirit is maintained by their leaders, where the open discussion of research topics is encouraged and with this respect the problem choice may be regarded as a 'team effort'. For example, the high achieving research unit leader emphasized the democratic and strategic approach they undertake while choosing collective research directions:

There is one other staff member but of course we have strategic discussion within the group. And you rely also on your PhD students and your post-docs and their skills; I value their opinion. So I certainly ask them also about their view to the future; where do you think the chances are in the future? So strategic discussions we have with the staff members, but also as a group. We even have sometimes a day [for this purpose].

However, in the cases of collaboration with the industry, academics maintain their freedom to define research agenda and prefer not to comply with the external agenda's set by the industry.

The respondents of the biotechnology units emphasize the importance of 'fitting' into the overall themes and strategic directions of the group that are "pretty vague" as characterized by the group leader. . This is not surprising given that they are reached through a discussion and consensus among the group members and there is a general willingness to be embedded in the research unit and collaborative work. This applies to both junior and senior academics, although their situation as regards freedom to choose their own research questions differs. Junior researchers tend to be influenced by their professors what topics to pursue, especially if it comes to writing collaborative big project proposals for external funding bodies. In the case of more experience post-doctoral researchers, however, the name of the professor is only added to the project proposal only at the end – there is no real steering of problem choice taking place as noted by a post-doc from high achieving research unit:

All the projects the post-docs have written are completely by themselves. The professor, if you need him or her for carriage then the name is there, the signatures at the end and that's the only thing the professor does.

The influence of professors is also significant in the discussions of the overall research themes of the research units and determining the major areas and directions. The post-doctoral researchers usually fit into this general framework.

The attitude of maintaining own priorities in line with the overall research agenda of the unit is supported by the faculty management. The managers do not impinge on the academic freedom of research units. The group leaders think that as long as the play the game in the right way, that is maintain the quality and attract external funding, the research units can pursue problem choice of their own liking. As expressed by the middle achieving research unit leader the management understands that academics work best when they have freedom for manoeuvre in what and how to research:

You have to keep that door [managers'] closed. If I would go to every meeting where managers tell us how to get into running initiatives, I would never be here. It's probably for the best they do that, they push for new funds, new initiatives, but I just have to make sure we do good research and if there are any opportunities that pop up, you should be able to work on that. I think we get a lot of freedom, and rightly so. It also depends on which people you hired but if you trust that someone wants to do his job properly, you should give him the freedom to do so.

At the same time, the external funding from NWO or EU schemes can be prescribing certain thematic areas that are more likely to get funded. As substantial external funding is indispensable to the research units due to the nature of biotechnology research, the academics tend to be careful in balancing between their own research priorities and those of the external sponsors. Usually, they write proposals in a certain way so as to fit the external criteria and choosing a fashionable topic among the scientific community. Researchers are open about their strategic behaviour in this regard. For instance, a professor from the medium achieving research unit puts it succinctly:

The theme we are working on is very popular. I mean there are many grants you can apply for, so there is a constant possibility to apply for grants. Of course you try to fit in as good as you can in the theme they want. Try to write to some extent what they want to hear.

When talking about the EU funded research project proposals, both Dutch biotechnology research units are concerned about the constantly changing research priorities. They have to focus on specific areas and programmes and that can be a problem as it may require to shifts research agenda. However, researchers do not indicate any examples of such behaviour as they bid usually for funding that fits with their own research problem choice and try to be creative in choosing the right programme. This does not come without real concerns how to balance the two. As exemplified by a professor from the high achieving research unit:

EU priorities change so one has to be creative with themes in order to get proposals through: I mean EU is now focusing mainly on health, so it's all about health. So you have to refocus and if you are in a field where your bacteria are not really health related you have to find a way. Otherwise you cannot make proposals anymore. You have to be creative around the themes they choose.

In many cases this means framing the questions right, but in essence, this does not change the key focus of their research agenda. The problem choice in biotechnology research units is thus a bundle of decisions about a researcher's own research interests, collaboration opportunities, research unit strategic priorities and external project grant requirements.

5.3 Problem choice in English medieval history units

The selection of research topics in both English medieval history units is predominantly driven by the dynamics of their own research inquiry, where the process of individual reflection and consultation with the wider academic community is central. Both senior and junior researchers converge on this matter in the high performing unit: "I think the system is still free enough to allow great changes. Nobody is going to mind if I suddenly start working on financing Latin America in the 19th century, provided I can carry on producing the output on that" . There is a system in place to ensure good outputs are produced, but when it comes to research themes there is a lot of independence from the management:

The overwhelming majority of staff research is simply done in terms of the choice of members of staff as to what to pursue and the department involves itself to the extent that it has a regular annual monitoring of staff's research output and research plans. And clearly its concern is chiefly that the research should be of the international calibre, the international level, rather than having any particular interest in what form, what particular subject the researcher addresses.

There is some pressure from the management in terms of the definition and management of research projects while "deciding what it is we want to do still lies with us as individuals". Here the pragmatics of the researcher is working, where he tries to combine the freedom of choice of topic and keep his employer happy.

In lower performing unit, the policy of the whole group is to pay more attention to academically driven research problems. They strategically participate in the faculty multidisciplinary research themes to earn credibility in the eyes of the faculty management and get the new staff positions as well as to put their own topics on the faculty agenda. In other words, they are proactively influencing the development of faculty themes. The department head still firmly believes that research should be idea-driven rather than guided by funding bodies' demands:

There is an intellectual commitment in the department to move forward, to moving the university forward, but it's not simply chasing the money, that's what we are afraid of to some extent, that our research will, if we are not careful, be resource rather than idea-driven.

Other respondents in this unit note as well that they do not see a lack of room for manoeuvre in deciding what to research. A professor is able to look at a completely new area:

I can't find a green liberal metaphor for this, but it is rather like being the first whaling ship to enter the Arctic; all the whales are around you to pick young prey... or a less horrific image, walking into the new gold fields in Australia as the first person to walk there apart from natives and picking up lumps of gold everywhere, instead of having to refine the gold that has been recycled.

However, in both groups there are indications that researchers need to follow certain considerations when choosing topics for externally funded projects. Such strategic considerations have to do with the application to funding bodies for grants, where certain areas of research are more likely to be funded. Therefore, researchers have to make choices about how to fit into the priority area of the funder without compromising their own research interests too much. Research topics are thus not entirely driven by the academic agenda of the researchers, but are influenced by funding priorities and the perceived likelihood of getting funding for certain themes. The high performing unit considers carefully as a group what to apply for and has a strategy of how to improve research proposals to secure external funding. Their considerations include not only the kinds of research questions that could be requested but also "how we might package what we are proposing most effectively in a way that will attract the interest of outside funding bodies". This careful consideration is not without reason. The experience of a senior respondent shows that the topics of the research projects funded by the funding bodies are related to the priorities of those bodies.

In lower performing unit there are indications of similar influences on problem choice when it comes to funding bodies. For example, while applying for project funding for three years, a junior researcher admits:

I wouldn't possibly immediately have chosen [the research topic] although it's actually very much connected; it's not central to my research. And so it's influencing....Market funding has influenced what my future research expectations would be over a period extending about 2 to 3 year period. I would actually have to say, ok, I will be concentrating on something which I might not concentrate or probably would not concentrate otherwise.

This junior researcher regrets that he had to compromise his research topic: “I’d like to have chosen to do something else which will interest me a bit more”. Similarly, a professor from lower performing unit is not satisfied with the restraints coming from the funding bodies. He reiterates that applying for external funding is “exhausting and limiting”, since the external funding bodies have many rules and restrictions:

I’ve saddled myself with a research project with huge number of rules and restrictions attached that limit me and make my ability to research much less. And when these three years are over I am not going to do it again before another ten years, I should be free again, and have a much better research basis.

This unit emphasizes that they follow practical consideration of the likelihood of funding while applying for the research projects; they employ the strategy of using specific topics that may fit the priorities of the funding bodies:

I think the funding bodies...influence enormously what actually gets done because ultimately any time you might have four or five equally kind of good projects which ...selection you think, good projects which you could look at, and you’ll say ok, those four give good projects, they’ve got lots of intellectual merit but I don’t think a realistic way of getting funded-- whereas this project will actually tap into and this has a good chance to get funded, so I’m going to go with that one. I think actually the funding bodies still actually have an effect on what’s going to come out because ultimately [one has to]...go after the money.’

Obviously funding is very important to both research groups while they try to balance the demands of the funding bodies and their own research interests and agendas. This partial compliance to the rules of the game of project funding is a strategy used by both junior and senior researchers.

An alternative response to the pressure for external funding is the strategy of diversification. A professor from exclusively follows his own research interests while applying for external funding. His strategy is diversifying his funding base and being popular enough to have his own ‘industry’ which brings in money – that is to participate in different TV shows, documentaries, and talks. This is a way to earn money for research that is not heavily taxed and provides some means to carry out research that he likes. He calls it entertainment business as seen in this extended quote:

History and archaeology are hugely popular with the public. And there has been a tremendous growth of programmes on them. Its starting to subside because they got over-funded, overstretched; there are too many bad programmes on archaeology and history, some of which I helped to make. But that is alright, my sources are very diverse, at ground level that means that village history society appears every year at this locality. If I wanted to, I could spend the year going from one local society to another speaking mostly to retired people. But people with grey hair have big wallets, because there is lots of spare time and cash. That’s another way of increasing the income while entertaining people.

5.4 Problem choice of Dutch medieval history research units

Looking at the cases of medieval history in the Netherlands the autonomy of researchers is traditionally high in terms of deciding on their research agenda. Their research is not as resource intensive as it is in biotechnology field, and it is visible that external research funding is more a facilitator of research as it helps to 'buy' time from teaching rather than a determiner of the research topics. So who decides on the problem choice in medieval history units? The responses of academics in medieval history show that their research agenda is predominantly driven by their own research interests. Although medieval historians are concerned about the priorities of external funding bodies and the multidisciplinary themes of their research institutes, in fact they do not touch or influence their problem choice. This is in part due to their ability to use strategies to ensure their academic freedom.

Both research units indicate that the selection of research topics is a bottom-up, activity where the most important considerations are the researcher's academic preferences usually based on the consultations with the academic community and own instinct. It is true both for professors as well as for junior academics. For example, a post-doctoral researcher from a high achieving research unit feels she has a lot of room for manoeuvre in deciding what and how to research:

There is a lot of freedom, really a lot of possibilities to find your own voice; do your own thing and that have led to the most wonderful results. For instance, an AiO here who started two years ago or so, made a major discovery. She found manuscripts that were thought lost and people have been looking for them since the early nineteenth century. And she goes, reads her footnotes, thinks very deep and goes to the archives and finds them. That to us is something 'whaaa', to open your champagne for. In that sense, yes, there is, as long as there is no money involved. And that has not changed in my time.

The professor from a medium achieving research units goes as far as stating that research cannot be strictly organised or programmed.

Researchers from both units mention certain factors that may influence the selection of research topics, such as the overall themes of the research unit or university institute, popularity of the topic and related likelihood of external research funding.

The multidisciplinary nature of the research programmes of the umbrella research institutes that both research units belong to has been mentioned as a possible influence on their research agendas. In general however, medieval historians are not that worried about them since they can easily find an area where their own research topics fit. Usually a rather broad research programme is drafted which "is written in a way that there is plenty of possibilities for people" as shared by the professor of the high achieving research unit. A more important aspect for researchers in this unit is following the traditions of the research unit which has specific research area and a specific medieval history period that it tackles.

When it comes to external funding bodies, both research units emphasize the importance of 'wrapping' their ideas in the priorities and specific thematic areas of the external research funding body, which is usually NWO. These priorities seem not to influence the research agenda of medieval historians as their strategy of wording

the proposals in a certain way seems to be working rather well. Thus, the external sponsors may frame the research questions, but do not direct them. For instance, a post-doctoral researcher who secured external research funding shares his experience that is quite common among medieval historians:

If I learn that NWO is starting a project, we are inclined to do this. Of course you start thinking about well, what could I do with that, so it does influence your thoughts, but in the end, I guess, if you are really at the moment that you are writing a proposal, it's basically how can I sell this. (30)

The strategies for ensuring the higher likelihood of funding include making the topic look relevant for and attractive to the funding body. It can also lead to choosing a broad and interdisciplinary topic that would fit into the preferences of external research sponsor as vividly described by a professor in the middle achieving research unit:

I currently have a research proposal awaiting funding that involves urbanisation and city culture. This is a non-recurring NWO funded programme. My colleague in history has submitted an application for three studies; one for an archaeologist, one for a literature historian, and one for a social economic researcher. They have a research proposal which uses all three research areas. This type of multidisciplinary research is usually very successful in getting funding. (24)

Further, some researchers, especially post-doctoral researchers think that the relevance of certain topics for academic community can influence funding from the external funding bodies:

One sees, for example, something about religion. Actuality of religion they think is something that scores at the ministry and may get funding. That is how the matters are.

Besides relevance, research 'hypes' are mentioned as a possible determiners of the research topic. The junior researchers are particularly conscious of these fashionable topics as exemplified by a post-doctoral researcher from the high achieving research unit:

In my case I grab everything I can get, simple as that. I need to keep a job, but in general when people write research proposals you just have to link up to international sexy research so to speak. Right now its ethnic identities and barbarians...I think that's one of the only ways to get subsidized. There are always these questions: 'How shall we write this?', 'Who might be the international referees?' 'Who might they choose?' There are five options for instance, not more than that. So, it is politics. (31)

In fact, they may determine the problem choice for junior researchers. But the actual implementation and the real problem choice is left up to the researcher once the funding is secured as seen by a post-doctoral researcher: "as soon as the project is awarded, yeah, it's my project. I get all the freedom I want". Thus, in the end, there is

a strategy to keep one's own research preferences even among the junior academics after the funding has been granted.

Such strategies of how to 'sell the topic', to balance between external sponsors' priorities and personal research interests are common to both research units. One of the concerns expressed by researchers concerning such external funding and the strategies related in acquiring it is the ambiguity of real funding criteria and rules and the awareness of internal politics of the external sponsors. For instance, a post-doctoral researcher from the high achieving research unit doubts if excellence is always the criterion:

But to feel this whole machine of procedures, I mean it is so far away, it's a very abstract level. These people in The Hague, sometimes it seems that they just throw dice and reject excellent people. I mean of course you hear stories from each other and colleagues that people who are so good get rejected time and again, and then you think: 'Read his proposal people, come on, think, use your brains for God's sake'. But they don't get it. Somebody who has a go at it as well, they get funded. It is very difficult to understand how this mechanism works. On paper within the theoretical framework, it is all very beautiful, and wonderful, but in practice it's not.

Both external funding bodies and research institutes do not seem to significantly influence the research agenda in both research units. Researchers still follow their own interests in choosing research topics although they are conscious of "relevant" and "hot" topics while applying for the external sponsorship.

6. Reflection

The evidence from all cases suggests that it is not easy to influence academic problem choice since the academic freedom and the norm of disinterestedness are indeed very important (Ziman, 2000). All groups tried to avoid any change in their research topics and most of them succeeded to maintain their preferred lines of research. Keeping professional autonomy was paramount for research groups. Two English groups with high credibility as well as all Dutch groups managed to retain their preferred topics while sealing them off from internal and/or external thematic priorities (or internal re-organisations). They did so mainly by writing project proposals in a strategic way, formulating them according to the exigencies of the funding bodies while following their own idiosyncratic topics at the same time. Not all groups were fully successful in that respect. In England, two groups had to compromise their problem choice. In the Dutch cases, there were no outliers in terms of problem choice.

The research units low performing biotechnology and medieval history units in England were in a highly uncertain environment; their ranking in the evaluations was lower and their dependence on resource providers was so high that they had to compromise their problem choice. The medieval history unit was eager to strengthen their research capacities and reputation and they were encouraged to do so by the university management. In order to do so, they had to 'play the game' of university management and obtain external funding. The unit and especially the junior

researchers in the unit saw, however, less chance to receive external funding with their traditional themes. Thus, they compromised their problem choice.

The English low credibility biotechnology unit also had to compromise its problem choice. The group experienced the halt of a long-standing basic research grant and a sudden substantial need to obtain competitive external funding due to high uncertainty in their institutional environment. In turn, this led to an internal re-organisation including a new group leader put in place by the management to change the research programme of the group. This example stood out as a case of double compliance, since researchers had to compromise their problem choice while applying to external funding bodies and working with industry as well as keeping in line with the new research programme of the unit set by their new leader.

The above examples provide an indication that resource dependence and high uncertainty is a strong lever for the units to change their problem choice. At the same time, the prevalence of the symbolic compliance strategies indicates the persistent routines and norms of academic self-regulation that do not allow the resource dependencies to take full control. Here the amount of credibility of the unit is paramount.

Across the board it is possible to see differences in choosing research topics between junior and senior researchers in high and low credibility units. In all cases senior researchers having high credibility have more leeway to retain their problem choice than junior researchers. Moreover, juniors who work in high credibility units are less likely to compromise their problem choice. However, there is a slight difference between the two fields of research. In medieval history, the juniors are more likely to work on their own research topic and apply for some external funding on their own. In biotechnology field, juniors usually are employed on a post-doc basis to carry out research where the project is already acquired by a senior researcher, thus, the topic is already decided for the juniors.

7. Conclusion

In the English case, the research practices have been influenced by higher education policies. After 1980s reforms, university management gained importance which brought an interventionist and less trustful approach to the university in England that challenged the practices of academics. The loss of control of academics here meant the restriction on their academic freedom and autonomy to some extent. The segmentation of academic activities showed an increasing emphasis on strategic research. This has led to certain restrictions of the research themes, since due to financial pressures, researchers have to adhere to the research council's or other donors' strategic themes and be accountable to them for the results of the research. The increasing selectivity of research staff and further stratification of universities have been clearly visible in the English university system in the past twenty years. However, the adherence to disciplinary norms and acknowledgement of the importance of basic research have remained fairly strong in the academic self-governance in England (Leisyte, de Boer, & Enders, 2006).

In the case of the Netherlands, the last twenty years can be described as the years of change and stability for Dutch universities. There have been two major changes. One

concerns the universities' attitude and second concerns the organizational embeddedness of research. Universities are more tightly managed with a more commercial attitude. The influence on academic work, especially on research has been visible in the increasing evaluation of research, increased transparency with the help of accountability and push for the economic relevance of research. In general, the nature of scientific research thus has been changing. There is a structural transformation towards a team work, towards multidisciplinary research and towards international cooperation and orientation. Interestingly, the traditional disciplinary based research is still important in earning credibility for individual researchers as well as collectives. However, it is increasingly combined with the prestige gained from attracting projects with the third party donors, such as industry or business (H. de Boer, Leisyte, & Enders, 2006).

In terms of research activities, in both countries there has been the rhetoric of the relevant research for the economic development of the country, sometimes accompanied with the rhetoric of relevance to the larger society as well. This rhetoric was transformed into the reality by the change of values, attitudes and lack of trust in academics at universities.

Despite the evidence of changing values and priorities, the academic disciplinary boundaries are still fairly strong in all of the countries. For example, in the case low uncertainty groups in both countries researchers were able to pursue their own academic interests and actively participate in the lobbying activities different external evaluation commissions or funding bodies so that they could influence the decision making processes in research policy by promoting their own disciplinary research interests. Here an interesting difference was noted between biotechnology and history, as biotechnology researchers tended to be more active in influencing their environment.

However, certain funding schemes, especially urge for third party donors as seen in England and Netherlands may be a strong driver for multidisciplinary lines of research. Here England is an extreme example, since the performance oriented funding has been infringing on academic freedom by restricting certain research agendas where research units with high uncertainty were responding by changing their research lines and not only symbolically adapting as their Dutch counterparts by 'adjusting' and 'balancing' between their own research interests and those of external funding bodies.

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