

# Current Developments at Higher Education Institutions and Interview-Based Recommendations to Foster Work Motivation and Work Performance

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## 1 Introduction

Investigating how scholars' work motivation and work performance may be fostered at different organizational levels of higher education institutions is relevant for several reasons. First, such knowledge is essential to properly adjust the introduced governance mechanisms in, for example, German higher education institutions (i.e., New Public Management, output control) at different institutional levels (chair, faculty, institution). Second, it is important to examine how scholars' work motivation and work performance may be enhanced because scientific achievements can strengthen knowledge-based industries and economies through networks connecting science and industry (Luo et al. 2009; Rosenkopf and Almeida 2003). Scientific and creative knowledge is considered a key resource of knowledge-based global economies (Altbach and Teichler 2001; Cooke 2002). By fostering innovation potential through interlinking science and industry, knowledge-based industries and economies may gain a competitive advantage (Cooke 2002; European Commission 2010), which, in turn, may lead to economic growth and social progress, i.e., the third mission of higher education institutions (Brennan 2008; Roper and Hirth 2005).

To derive informed recommendations on how to foster work motivation and work performance in higher education institutions, knowledge on current developments in higher education institutions is required. Previous literature has indicated undesired developments in higher education research (Binswanger 2011; DORA 2012; Osterloh et al. 2015; The Economist 2013). For example, recently, The Economist (2013) published an article titled "How science goes wrong." The undesired developments in higher education are (at least in part) claimed to be a result of

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New Public Management (Osterloh et al. 2015). New Public Management was widely introduced in many higher education institutions worldwide to increase, among other things, efficiency (Geuna and Martin 2003; Lange 2008; Melo et al. 2010; Wissenschaftsrat 2014) in reaching higher education institutions' characteristic strategic goals, for example, excellence in research and teaching (Franceschini and Turina 2011; Rabovsky 2014). Increased efficiency is sought by transferring existing performance management tools, such as performance-based payment, competition and target agreements (Binswanger 2011; Hicks 2012; Jaeger 2006a, b; Wissenschaftsrat 2014), from business organizations to higher education institutions (Miner 2003; Ringelhan et al. 2013; Wilkesmann and Würmseer 2009).

Previous literature investigated determinants of research performance (Bland et al. 2005; Gu et al. 2011; Ringelhan et al. 2013) and raised the concern that scholars' work motivation and, thus, work performance may be crowded-out or over justified by extrinsic incentives (Deci 1971; Osterloh 2010). Now, many years after the introduction of New Public Management to higher education institutions, it is important to evaluate the specific effects of this strategic managerial change (Schimank 2005) on scholars' work motivation and work performance. Previous literature in this regard has revealed that the performance management of higher education institutions is confronted with serious problems (Osterloh et al. 2015; Ringelhan et al. 2015), which could, however, be resolved in different ways. For example, prior work has suggested resolving the current problems by concentrating on input control (Kieser 2010; Osterloh and Frey 2011; Ouchi 1977, 1979) and by trusting in scholars' intrinsic work motivation (Ringelhan et al. 2013), especially in the recruiting phase, or by relying on informal-interpersonal acknowledgment (Ringelhan et al. 2015; Wollersheim et al. 2014). Until now, however, to the best of our knowledge, there have been no empirical studies that relied on an open-ended answer method to assess and compare (1) current (undesired) developments at higher education institutions from the perspective of different individuals working in higher education institutions and (2) the interviewees' recommendations on how to foster scholars' work motivation and work performance at different organizational levels. In this article, we pursue the objective of addressing this particular research gap. In particular, our explorative research questions are (1) what the largest current undesired developments are in higher education institutions and (2) what can be done to foster work motivation and work performance at different organizational levels of higher education institutions.

It is essential to address these research questions by relying on the different perspectives of individuals working in higher education and research institutions because judgments can vary depending on the perspective and experiences of the individual. Thus, integrating information sources from different perspectives adds information value. Internal information about potential problems in higher education institutions represents a fundamental basis for recommendations about how to adjust the governance of higher education institutions on each organizational level such that the aim of (efficiently) increasing performance is actually met and is not undermined. Additionally, it appears to be an important prerequisite for a participative management style to consider different perspectives. A participative management

style aims at increasing communication in all directions in an institution and offers members of the institution the opportunity to participate in decision making (Pouliakas and Theodossiou 2012; Somech 2005). A participative management style may be essential for successfully adjusting the governance mechanisms that were introduced in the course of New Public Management because highly educated employees usually strive for autonomy and some sort of control over the work that they do (Dilger 2010; McCormack et al. 2014; Melo et al. 2010; Minssen and Wilkesmann 2003). The strive for control is similar to the aim of procedural justice, which is perceived when one receives the opportunity to voice one's opinion in the process of decision making. Procedural justice has been shown to be an important factor for accepting decisions that affect oneself (De Cremer 2006; Thibaut and Walker 1975; Van den Bos and Spruijt 2002).

We address our research questions by conducting a qualitative exploratory study. Specifically, to gain in-depth knowledge, we conducted semi-structured interviews with twelve experienced individuals working in different positions in higher education and research institutions. Based on our interview data, we first extract undesirable developments at higher education institutions. Second, we shed light on factors that motivate and foster the performance of scientific staff. In particular, we highlight potential actions that chairs, faculties, or institutions can take to foster scholars' work motivation and work performance. We thereby contribute to the literature on the prevailing governance of higher education institutions.

The remainder of our paper is structured as follows: in the next section, we present the relevant theory for our study, i.e., we elaborate on developments in higher education institutions and existing recommendations to foster work motivation and work performance in higher education. In section three, we describe the research method. In section four, we report our interview findings. In the concluding section five, we discuss the results and their implications and recommendations for action.

## 2 Theoretical Background

### 2.1 *Current Developments at Higher Education Institutions*

The effects of New Public Management have been discussed in recent literature (Kieser 2010; Lange 2008; Whitley 2011). For example, it has been argued that output measures such as rankings are detrimental for the intrinsic motivation of scholars (Kieser 2010) and that New Public Management leads to tensions between managerial control and traditional professional autonomy (Lapworth 2004); however, such research addresses the topic from a theoretical perspective and does not assess empirical data.

Prior work has also considered New Public Management from an empirical perspective. First, in an interview study based on scholars from economics departments, Schneider and Sadowski (2010) investigated how New Public Management

affects Ph.D. education. The authors found that different governance mechanisms can be effective, e.g., the increased competition for resources leads to successful Ph.D. education. Second, Holyoke et al. (2012) reported in their survey of American faculty members a trend to hire non-tenured faculty, which has the effect of greater turnover among these scholars, for example, when budgets are cut and because of transient work force norms that may lower job commitment. Third, Wilkesmann and Schmid (2012) reported survey results concerning the influence that New Public Management had on academic teaching in Germany. Based on a sample of professors from different disciplines, the authors observed no direct influences of the new incentives (e.g., merit pay, performance-related budgeting, Management by Objectives, teaching awards) on teaching performance. Fourth, Melo et al. (2010) interviewed internal stakeholders of higher education institutions in the United Kingdom (i.e., academics, non-academic staff, students, and lay members) on how performance has been measured in the central activities of employees and customers and in the service and financing of higher education institutions since the introduction of New Public Management. Additionally, the interviews assessed current developments. The authors observed that the interviewees were highly concerned with finding appropriate job candidates. Furthermore, the interviewed academics reported that they fear having lost autonomy and decision making power to some degree. In addition, non-academic staff voiced the concern of increasing top-down management. At the same time, the interviewed non-academic staff reported that they work closely with academics to ensure that the academics were committed to the managerial decisions of the institution. With respect to positive developments, the authors further noted that students' opinions seem to be increasingly considered in higher education institutions. Fifth, in an Australian survey by Fredman and Doughney (2012), academics reported lower job satisfaction than was found in a survey that the authors had conducted two years previously. The authors found that the low job satisfaction primarily resulted from the management culture (i.e., organizational and managerial practices) and from concerns about the workload; in contrast, autonomy and personal development opportunities were positively related to job satisfaction. In the literature, scholars' increasing workloads have been associated with the reduced government funding of universities (Harman 2003) and have been named as a problematic issue for faculty members in empirical studies (Yan et al. 2015). Additionally, in a study of Chinese faculty members, Yan et al. (2015) observed that pressure stemming from evaluation and promotion pressure, in addition to many trivialities that are unrelated to academic work, represent problems at universities.

Although the mentioned empirical studies provide valuable insights regarding the effects of New Public Management and current developments in academia, they are limited for several reasons. Some studies, for example, only consider effects on certain major tasks of higher education institutions (e.g., Ph.D. education) and neglect other major tasks or interview only professors, thus disregarding individuals who hold other positions in higher education institutions (and not including and

comparing their concerns). None of the previous studies provide empirically informed recommendations on how to improve work motivation and work performance in higher education institutions.

## ***2.2 Possibilities to Foster Work Motivation and Work Performance in Higher Education Institutions***

There are theoretical articles that discuss factors influencing scholars' work motivation (Rowley 1996) or provide recommendations on what needs to be changed at the institutional level to restore public trust in higher education institutions (Schimank 2005).

Additionally, there are empirical studies on the topic (Hakala 2009; Wollersheim et al. 2015). For example, Wollersheim et al. (2015) showed that when a university was involved in the German excellence initiative, highly extrinsically motivated scholars performed worse than highly extrinsically motivated scholars working at universities not involved in the excellence initiative. In an American survey, Bland et al. (2005) observed that the appointment type (e.g., tenure-track faculty) can influence research performance in terms of the number of high-level publications. In particular, the authors found that tenure-track faculty members were more productive than faculty members who held another position. In addition, the study by Bland et al. (2005) indicated the importance of fostering external networks, which have been shown to be positively associated with high research performance. Likewise, in the study by Gu et al. (2011), the importance of social networking was noted as an essential factor for Ph.D. students' research performance. According to this survey, the status of the academic origin of the Ph.D. student, the status of the advisor and the advisor's scientific experience and allocated energy (i.e., the time and energy spent) are strongly associated with Ph.D. students' research performance. However, some of these factors (e.g., the academic origin and status of the advisor) are hardly or not influenceable and, thus, not really useful as a tool to increase motivation and performance of Ph.D. students. Lam (2011) investigated what motivates scholars from the United Kingdom in research commercialization and suggested relying on the reputational and intrinsic motivation of scholars. Similarly, based on a survey, Ringelhan et al. (2013) showed that intrinsic work motivation and job satisfaction are associated and positively related to self-reported research performance (while extrinsic work motivation had a direct effect on self-reported research performance). Furthermore, interviews with young scholars in the areas of regional studies, health science, electronics, and biomaterial science revealed that the usefulness and applicability of research results, which represent a central characteristic of creativity next to novelty (Amabile 1983; Hennessey and Amabile 2010), strongly motivate young scholars at work (Hackett 1990).

To the best of our knowledge, however, there are no empirical studies that have assessed and compared recommendations from different individuals working in

higher education and research institutions on how to foster work motivation and work performance on different organizational levels: the chair, the faculty and the institution. Thus, our study pursues the objective of providing empirically informed recommendations on how to foster scholars' work motivation and work performance at these three different organizational levels. The current undesired developments at higher education institutions, which we empirically assess in a first step, serve as a basis for deriving empirically informed recommendations.

### 3 Methodology

#### 3.1 Data and Sample

We conducted twelve semi-structured telephone and face-to-face interviews on the topic of “factors influencing the performance of researchers and lecturers.” Semi-structured interviews have “the advantage of being reasonably objective while still permitting a more thorough understanding of the respondent’s opinions and the reason behind them” (Borg and Gall 1983: 442). In other words, the semi-structured interviews allowed us to collect broad information, and the previously determined interview questions ensured some degree of objectivity. The assessment of our interview data allowed us to investigate the explorative research questions and to shed more light on *current* (undesired) developments in higher education institutions seen from the perspective of individuals working in different positions. Results of previous studies are incomplete, because they disregard individuals with different positions. Due to the timeliness of the topic, due to the incompleteness of previous studies and due to the fact that findings in this field are highly system and region specific, solely relying on factors observed in previous research might not be adequate. Thus, we feel confident that qualitative interviews represent a highly appropriate research method to address our research questions.

Our interviewees were individuals working in higher education and research institutions in the German-speaking area and held different job positions: three of our interviewees were professors, three were postdocs, three were Ph.D. students and three interviewees indicated another position (e.g., research assistant). We chose our interviewees according to judgment sampling (Blumberg et al. 2005). Specifically, we selected interviewees who worked in different higher education and research institutions<sup>1</sup> (seven interviewees were working at a university; three were at other institutions, such as a non-university research institution; one interviewee

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<sup>1</sup>We included interviewees from research institutions in our sample because they can provide valuable information about the current developments and factors that influence scientific working just as interviewees from higher education institutions. Thus, including them in the sample enriches our sample and provides a broader overview of the current situation for all individuals working in the area of science and what could be done to improve working conditions.

was self-employed<sup>2</sup>; and one was working at a university of applied sciences). The interviewees were working in the field of business and economics (eight interviewees) or the field of social sciences and sociology (four interviewees) and thus had in-depth knowledge on working in a (higher education) research context and professional experience in the field. Depth of experience is named as an important selection criterion for qualitative samples in the literature (Hill et al. 1997); another important criterion is an evenly distributed cell size, with each cell having several cases (Mayer 2009). Thus, we ensured that the number of cases for each job position was equally distributed (here, three cases per position) and that the number of males and females in our sample was evenly distributed. Six of our interviewees were female, and six were male, with the ages ranging from 31 to 56 and a mean age of 38.33 years ( $SD=7.61$ ).

We conducted the semi-structured interviews between July 2013 and August 2014 at the Technische Universität München, Germany, and at the 18th International Conference on Science and Technology Indicators in September 2013 in Berlin, Germany. The interviews lasted between 15 and 83 min ( $M=41.08$  min;  $SD=17.64$ ). The research team that conducted the interviews consisted of one to two researchers, one of whom was in charge of asking the questions and was, at times, assisted by another researcher who was responsible for taking minutes in addition to a voice recorder. Based on our minutes and the recordings, we systematized the interviewees' answers in a protocol that was—if requested—provided to the interviewees afterwards so they could check whether the meaning of their answers was maintained.

In each interview, we asked the following questions (among other questions): (1) Currently, what are the largest undesirable developments at higher education institutions? (2) What can a chair, a faculty and a higher education institution do to foster motivation and performance? (3) Which incentives from the industry (e.g., target agreements, (quantitative) performance evaluations, performance-based payment) should definitely be transferred to science? (4) How motivating would a reduction in teaching load be for you personally on a scale ranging from 0 (*not at all motivating*) to 6 (*highly motivating*)? (5) How motivating would the opportunity to hire further employees be for you personally on a scale ranging from 0 (*not at all motivating*) to 6 (*highly motivating*)?

### 3.2 Analyses

We based our data analyses on the consensual qualitative research approach (Hill et al. 1997). Specifically, a coding scheme was created and then jointly revised based on the first eight interviews by two coders and an auditor (who conducts research in the field). Next, the two coders separately categorized the data that were collected via the semi-structured interviews based on the jointly created coding

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<sup>2</sup>Note that the self-employed interviewee worked for a higher education or research institution for many years before leaving to work for themselves.

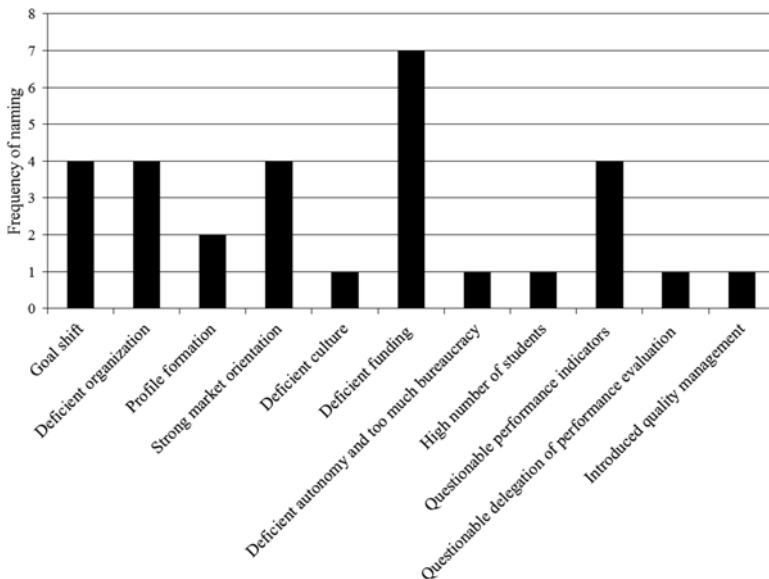
scheme. Subsequently, the independent auditor critically reviewed the inconsistent categorizations of the two coders and determined how to categorize these inconsistent categorizations.

## 4 Results

### 4.1 Current Undesirable Developments at Higher Education Institutions

Interviewees most frequently named deficient funding ( $f=7$ ) as the largest current undesirable development in higher education institutions (Fig. 1). The interviewees gave several examples for deficient funding, including temporary contracts, third-party funding dependency, stronger financing pressure, and scarce financial resources. The following quote of a Ph.D. student in our sample exemplifies funding problems:

*[...] for research associates the situation of further employment is, of course, always a topic, especially if one is employed in third-party funded projects [...] one always has to obtain further funding and the security for one's further life planning is missing to a certain degree, because one does not know what will happen in three years when the contract expires; is my contact being extended or will there be a new project?*<sup>3</sup>



**Fig. 1** Frequency of named current largest undesirable developments at higher education institutions

<sup>3</sup>All interview quotes were translated from German to English.



A closer examination of this interview question showed that deficient funding was cited most often by Ph.D. students ( $f=3$ ), followed by interviewees with another position ( $f=2$ ), postdocs ( $f=1$ ) and professors ( $f=1$ ). It is noteworthy that the answers of postdocs, professors and interviewees with other job positions were quite diverse. Postdocs most often named a goal shift ( $f=2$ ) and questionable performance indicators ( $f=2$ ) as undesired developments at higher education institutions. Professors most often named ( $f=2$ ) deficient organization, whereas interviewees with other job positions named questionable performance indicators most often ( $f=2$ ), coupled with deficient funding ( $f=2$ ).

## 4.2 Recommendations for Action at Higher Education Institutions

In this paragraph, we report what, based on our interviewees, a chair, a faculty and a higher education institution can do to foster motivation and performance. First, we present the results for the chair level, followed by the faculty and institution levels.

With respect to the question on how motivation and performance can be fostered at the chair level, our interviewees noted that in particular, an adequate leadership style could be chosen ( $f=7$ ), for example, by communicating clearly, building trust, providing reliability, giving constructive feedback, and creating a good team climate. This finding is exemplified well in the following quote by a postdoc:

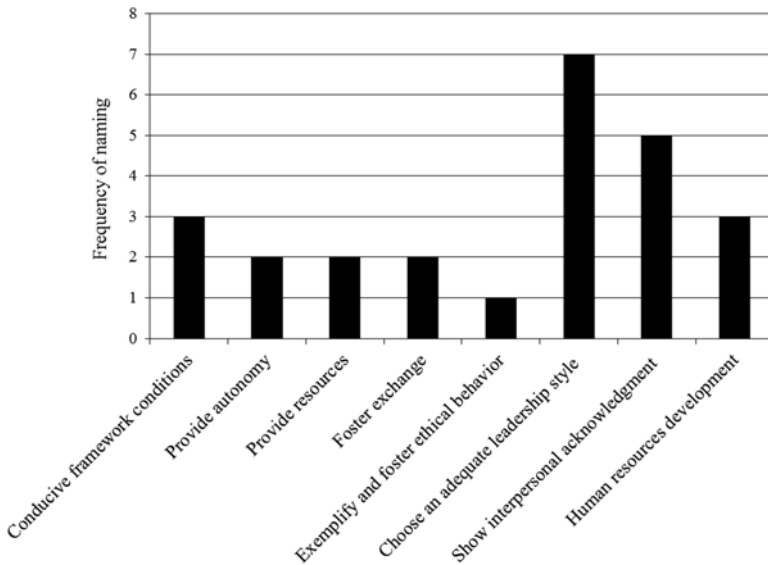
*In part, very vivid results of miscellaneous studies show that more or less professional leadership behavior of chair holders can be very influential. This [influence] is not really related to incentive systems; rather it points to what is called informational justice with regard to performance in the organizational justice research [...]. In other words, it indicates that people are also informed about everything that affects themselves [...]. Thus, any incentive system cannot function when the basis is not established [...].*

In addition, the interviewees mentioned that at the chair level, interpersonal acknowledgment can be shown ( $f=5$ ), e.g., by praise and appraisal, to foster motivation and performance (Fig. 2).

A more differentiated analysis of these results revealed that an adequate leadership style was most often stated by postdocs ( $f=3$ ) and interviewees with other positions ( $f=3$ ), whereas it was only cited once by professors ( $f=1$ ) and was not at all cited by Ph.D. students ( $f=0$ ). Interpersonal acknowledgment was most often named by Ph.D. students ( $f=2$ ) and postdocs ( $f=2$ ) and was mentioned by professors ( $f=1$ ) but was not named by interviewees with other positions ( $f=0$ ).

Possibilities to foster motivation and performance at the chair level that have, contrary to our expectations, not been named at all by our interviewees were monetary incentives (such as performance-based payment) and formal acknowledgment.

With respect to the question concerning how faculties can foster motivation and performance, our interviewees noted that a faculty could provide conducive framework conditions ( $f=5$ ), for example, by handling coordination processes in



**Fig. 2** Frequency of named possible actions that a chair can take to foster motivation and performance

teaching or by providing laboratories. A professor stated with regard to beneficial framework conditions:

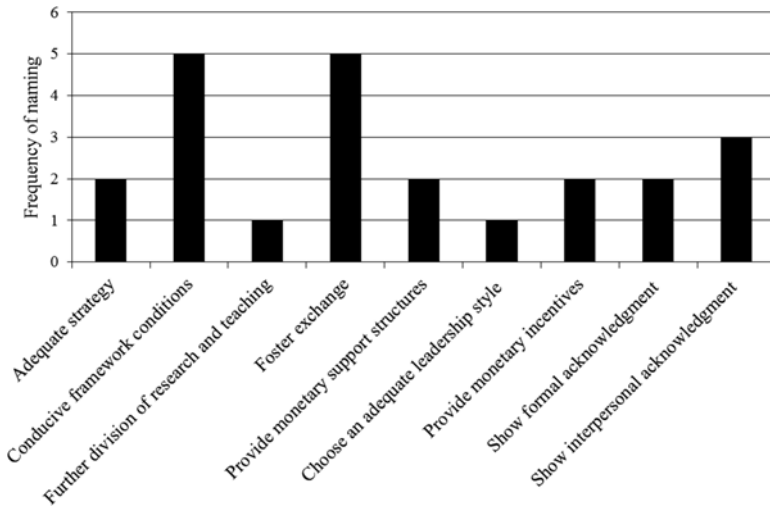
*Depending on the funding of a faculty or department, one could actually work with additional employees; I could imagine that because [faculties or departments] are largely the ones deciding about the application of funds or also obviously about technical means [...] and laboratories.*

Furthermore, they noted that faculty members may foster exchange ( $f=5$ ) between researchers, chairs or faculties (Fig. 3), which, as reported, could be achieved by incentives for cooperation, for example. An interviewed postdoc said in this regard:

*I also think that for the faculty an exchange is important; this [exchange] could take place in the form of seminars, or research seminars, where one presents one's work.*

A more fine-grained investigation of these findings showed that conducive framework conditions were most often stated by postdocs ( $f=2$ ) and professors ( $f=2$ ), whereas they were only named once by interviewees with other positions ( $f=1$ ) and were not named at all by Ph.D. students ( $f=0$ ). The possibility of fostering exchange was cited most often by Ph.D. students ( $f=2$ ) and postdocs ( $f=2$ ), followed by one mention by professors ( $f=1$ ) and no mentions by interviewees with other positions ( $f=0$ ).

Constructs that have, contrary to our expectations, not been named by our interviewees concerning how faculties can foster motivation and performance were culture (such as ethical behavior, general principles or mission statements) and improving the planning ability (due to the nature of the job position).



**Fig. 3** Frequency of named possible actions that faculty can take to foster motivation and performance

With respect to the question concerning how *higher education institutions* can foster motivation and performance, our interviewees noted that a higher education institution can organize itself adequately ( $f=6$ ), for example, by giving structure to faculties, providing services to scholars, strengthening decentralized responsibilities and providing autonomy to scholars. The following statement by a Ph.D. student exemplifies the need for proper organizational structures implemented at the institutional level in higher education:

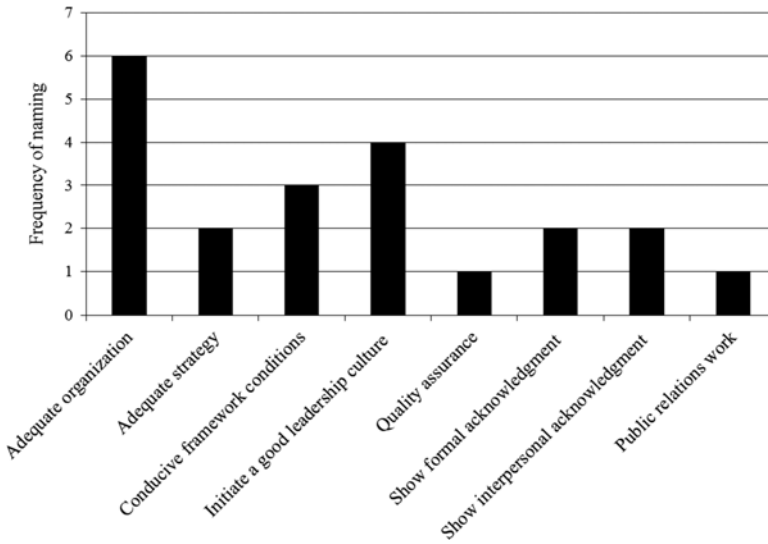
*[...] they, of course, have to provide the structures, the opportunities.*

In addition, a higher education institution could initiate a good leadership culture ( $f=4$ ), for example, by founding culture, creating trust, providing reliability, or creating a mission statement (Fig. 4).

A closer investigation of these findings revealed that the adequate organization of the higher education institution was most often cited by Ph.D. students ( $f=2$ ) and interviewees with other positions ( $f=2$ ) but that it was only named once by professors ( $f=1$ ) and postdocs ( $f=1$ ). A good leadership culture was cited most often by interviewees with other positions ( $f=2$ ), whereas it was mentioned once by postdocs ( $f=1$ ) and professors ( $f=1$ ) and was not mentioned by Ph.D. students ( $f=0$ ).

One construct that has, contrary to our expectations, not been named by our interviewees concerning how higher education institutions can foster motivation and performance is improving the planning ability with regard to one’s job position.

Furthermore, interviewees responded to the question of which incentives from the industry should definitely be transferred to science. Their answers reveal that some of these incentives are considered appropriate for science. Among the most frequently named incentives that should be transferred to science are target



**Fig. 4** Frequency of named possible actions that a higher education institution can take to foster motivation and performance

agreements ( $f=7$ ) and monetary incentives ( $f=7$ ), followed by (quantitative) performance evaluations ( $f=6$ ) (Fig. 5). An interviewee working in another position said:

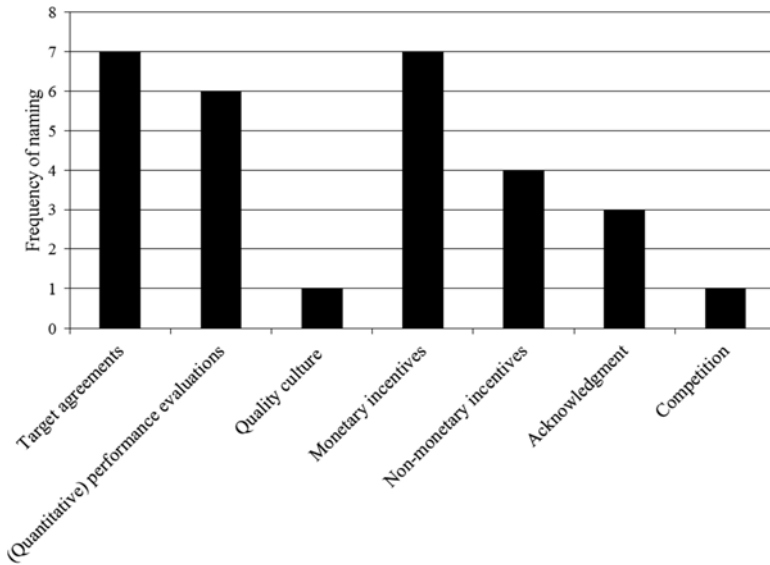
*I have written down a couple [of incentives] that I think make sense. One of them is target agreements, just because of the negotiation character, because one can take part in deciding how one's performance is measured and what one should do. That is exactly the point of self-designing that has a motivating facet and, thus, target agreements are ranked first.*

An interviewee at the professor level named monetary incentives as an incentive that should be transferred from industry to science by saying:

*Now, of course, I actually think about something like a performance-based compensation regulation [Leistungsbezügeordnung] consisting of several criteria which, of course, have positive impacts insofar as I can align them with the strategy of the higher education institution [...].*

While performance-based monetary incentives are in general positively seen by some of our interviewees, concerns about them were also raised by our interviewees with regard to the measurability of performance in the higher education context; a postdoc stated:

*I think the performance evaluation, i.e., the performance-based compensation, is important and I would also think of it as a good thing. However, then I notice immediately the problem [...] how is performance actually measured, because then all the unfair things are present again, of course. Then, the employee is supposed to be compensated according to his or her performance, but no one knows how to assess the performance. I see this problem, but generally speaking I think that this would be a good thing.*



**Fig. 5** Frequency of named incentives that should be transferred from industry to science

Taking a closer look at the results of this interview question, we found that Ph.D. students ( $f=3$ ) and interviewees with other positions ( $f=3$ ) most often cited that target agreements should be transferred to science, whereas postdocs named target agreements only once ( $f=1$ ) and professors did not name target agreements ( $f=0$ ) at all. Monetary incentives were most often named by postdocs ( $f=2$ ), professors ( $f=2$ ) and interviewees with other positions ( $f=2$ ), whereas monetary incentives were cited only once by Ph.D. students ( $f=1$ ).

Regarding the motivational potential of a teaching load reduction, our interview data reveal that a reduction in teaching load would have diverse motivational effects for our assessed interviewees: some interviewees reported that it would not motivate them, whereas others reported it would strongly motivate them ( $M=3.00$ ,  $SD=1.76$ ,  $Min=1$ ,  $Max=5$ ). A professor who ascribed a low motivational effect of a teaching load reduction said:

*Well, I have to say that I have a heavy teaching load reduction at the moment [...], however, I actually regularly carry out about seven to eight [teaching hours per week during the semester], I would say, because [...] one has chosen a job on purpose, that is called professor [Hochschullehrer, i.e., lecturer at a higher education institution], which implies very specific activities.*

When conducting further analyses for each job position, we observed that in our sample,<sup>4</sup> the potential for a reduced teaching load was rated most motivational by

<sup>4</sup>The sample size encompasses only one person for this question and position because the other two interviewees with other positions stated that this question does not apply to them; they were thus excluded from this analysis.

interviewees with other positions ( $M=5.00$ ), followed by Ph.D. students ( $M=3.33$ ), postdocs ( $M=3.00$ ) and professors ( $M=2.00$ ).

Our interview data further revealed that the opportunity to hire additional employees would be more motivating to our interviewees compared with a reduced teaching load ( $M=4.58$ ,  $SD=1.00$ ,  $Min=3$ ,  $Max=6$ ). This finding is nicely depicted by an interviewee with another position:

*Definitely rather on the motivating side [...] on the grounds that it brings a clear relief effect; to be able to delegate things and to work together with other people, who maybe also have an own interest; [...] an exchange emerges and one entrains each other [...].*

There were some concerns raised that lowered the motivation potential of the opportunity to hire additional employees for some of our interviewees. A professor figuratively describes that further employees usually imply not only more working force but usually come together with further work and responsibilities:

*[...] I take the middle there because it always depends on what additional tasks, what additional obligations, what additional agreements are connected with it and most of the time it is said, you assume responsibility for task XY and in return you also get an employee and I think that at some point a management-to-staff ratio or span of control [...] is eventually exhausted and then one moves on from an occupation as a professor [i.e., higher education lecturer] directly as a researcher to a science management [position] [...].*

When conducting further analyses for each job position, we observed that all interviewee groups rated the opportunity to hire additional employees as more motivating than a teaching load reduction. The opportunity to hire additional employees was rated highest by Ph.D. students ( $M=4.67$ ), postdocs ( $M=4.67$ ) and interviewees with other positions ( $M=4.67$ ), followed by professors ( $M=4.33$ ).

## 5 Discussion

Our semi-structured interviews reveal that our interviewees (particularly Ph.D. students) perceive deficient funding to be the most significant current undesirable development in higher education institutions. Our interviewees cited temporary contracts, third-party funding dependency, stronger financing pressures and scarce financial resources as examples. Ph.D. students in particular cited temporary contracts, which stem partially from third-party funded projects in which many Ph.D. students are employed, as well as a shortage in resources due to public funding shortages. This undesirable development may at least in part be caused by New Public Management of higher education institutions, which attempts to increase competition among institutions and scholars and, thus, affects the human resources at higher education institutions (e.g., Ph.D. students). With respect to the criticism of temporary contracts, our interviewees noted that the dependence on third-party funding is too strong and undermines sustainable professional behavior (e.g., research ideas that might require a longitudinal design will not or less often be pursued due to the uncertainty of being able to complete the study and obtain proper

funding). This finding is in line with discussions in the literature (Whitley 2011). In addition, the nature of third-party funded projects, which often span 3 years, leads to the aim and necessity of producing research output in the time frame of the funded project. While the output per se may be increased, entire potentially valuable research streams are disregarded, which may hinder advancements in science (i.e., the most meaningful ways to address research gaps may not be pursued in each case, which might decrease the quality of research). Furthermore, with regard to short-term contracts, it has been noted (in accordance with statements in the literature (Marder 2013)) that these complicate the ability to plan work and one's personal life.

Based on our results and the findings in the literature, competition in higher education institutions seems to be a double-edged sword with possible negative and positive effects. While Schneider and Sadowski (2010) reported that an increased competition for resources leads to successful Ph.D. education, our interviewees yet raised the issue that market incentives are not working (as they should) in each context (e.g., in basic research).

Regarding the question of what a chair, faculty and a higher education institution can do to improve the situation and at least partially counteract these undesired developments, our results show that different incentives are useful to enhance individual work motivation and work performance, depending on the organizational level. At the chair level, a good leadership style and motivation through interpersonal acknowledgment are recommended. The importance of acknowledgment has been reported in the literature as a major motivator of scholars (Ahsan et al. 2009; Lam 2011) and has been reported as a central motivator at the chair level, especially by the supervising professor, in a survey of young scholars (Wollersheim et al. 2014). Our interviews indicate that acknowledgment per se is not valuable at the chair level, because interpersonal acknowledgment was often named by our interviewees, while formal acknowledgment has not been named at all. Additionally, monetary incentives such as performance-based payment were not named as possibilities to foster motivation and performance at the chair level. These results may imply that interpersonal non-monetary performance management and the provision of a sufficient basic working surrounding is most crucial at the chair level to foster motivation and performance. A formal acknowledgment at the chair level may not be highly valued, as these acknowledgments may not be known outside the chair and thus may not provide any significant wide-reaching reputational and career effects.

At the faculty level, beneficial framework conditions and cooperation (exchange) are requested, whereas at the institutional level, good organizational structures and mission statements are called for. With regard to the importance of cooperation (exchange), our interviews support findings in the literature (Bland et al. 2005; Gu et al. 2011). Our results add further insights to the literature by revealing on which level exchange should be fostered: interviewees named most often that exchange should be fostered by the faculty rather than by other organizational levels. However, our results indicate that culture (such as ethical behavior, general principles or mission statements) is a topic that should be addressed at the institutional level rather

than at the faculty level. Interestingly, our interviewees seldom named monetary incentives when answering the question on what can be done to foster motivation and performance and did so only as a motivation and performance-enhancing factor at the faculty level. Although monetary incentives received few mentions in this interview question, our interviewees surprisingly stated that monetary incentives, as well as target agreements and (quantitative) performance evaluations, should be transferred from industry to science. At the same time, some of the interviewees who generally supported performance-based monetary incentives raised the problem of measuring performance in higher education. Nevertheless, the results appear to be contradictory initially because monetary incentives were seldom mentioned when interviewees were asked about motivation and performance-enhancing factors, though they simultaneously stated that among other things, monetary incentives should be transferred to science. Drawing on the theory of Herzberg et al. (1967), however, the results become plausible in that monetary incentives in science resemble rather a hygiene than a motivation factor; in other words, monetary incentives do not really enhance motivation and performance but do seem to play a role in meeting scholars' basic needs and satisfaction. In turn, highly satisfied scholars may also show a higher work performance than less satisfied scholars (Ringelhan et al. 2013). In line with this pattern of results, interviewees stated in another interview question that non-monetary incentives in research and teaching were central factors for work motivation (referring to the interview question of which three factors are most motivating in teaching and research), whereas they did not report monetary incentives as central factors for work motivation. These results further emphasize the importance of distinguishing between motivation and hygiene factors in incentives in science according to the Herzberg theory (Herzberg et al. 1967), i.e., if funding is perceived as lacking or deficient by scholars, this may lead to dissatisfaction, whereas if funding is perceived to be sufficient, it may not necessarily motivate them further in their work. The fact that the ability to plan one's future life (based on the conditions of one's job contract) was not named at the faculty and institutional level as motivation and performance enhancing, supports this argumentation. The result may indicate that while it might be dissatisfying to worry about one's job position and uncertain plans for the future, the ability to plan one's future life seems to be unimportant as a motivation and performance enhancing factor.

### ***5.1 Theoretical and Practical Contributions***

This study contributes to the existing literature by highlighting current undesired developments in higher education institutions from the perspectives of different individuals working in higher education and research institutions in the German-speaking area. Our findings suggest a clear area of shortcomings, namely deficient



funding, and highlight the importance of considering employees of different job positions to fulfill their special needs. Furthermore, our findings add value to the application of Herzberg's theory (Herzberg et al. 1967) in the scientific working context in that monetary incentives may dissatisfy when not present in a sufficient manner, however their presence may also not really motivate for high performance. Finally, a theoretical contribution is that different levels of management at higher education institutions should take different actions to foster work motivation and work performance. The outcomes suggest that New Public Management must be adjusted to ensure that the goal of high research output is met. In particular, the high competition for funding may harm research and young scholars' job satisfaction as well as their ability to plan their lives. Our interview-based approach contributes to the existing literature by revealing, among other things, the importance to distinguish between formal and interpersonal acknowledgment at the chair level (with interpersonal acknowledgment obviously being the more crucial type of acknowledgment at the chair level). Furthermore, the results revealed that exchange and cooperation should be fostered by the faculty rather than other organizational levels.

The findings reported above make important practical contributions because they allow for the derivation of specific practical recommendations. First, funding seems to be an important factor, especially for Ph.D. students, and should not be neglected when seeking satisfied scholars. According to our interview data, solid funding seems to matter to scholars. Second, simultaneously, monetary incentives do not really motivate performance according to our interviewees. Third, to motivate performance, potential starting points are a good leadership style and acknowledgment (chair level), fostering cooperation and conducive framework conditions (faculty level), and a mission statement and good organizational structures (institutional level). Another starting point for increasing motivation in higher education seems to be giving scholars opportunity to hire additional employees. According to our interviewees, the opportunity to hire further employees would represent a more suitable performance management tool than would a reduction in teaching load. However, this performance management tool is only effective if (1) the benefits of hiring further employees (i.e., an increased work force) outweighs further work and responsibilities that often go along and (2) it does not reach a stage where one turns into a science manager rather than a university teacher and researcher. Thus, New Public Management requires an adjustment to ensure the aim of a high research output; for example, the time frame of third-party projects could be prolonged or young scholars' existing funding could be supplemented by additional non-third party positions with a long-term focus. As reported in our interviews, such measures would also positively affect the currently perceived misallocated working time of scholars (inefficient use of highly educated human resources), which arises from the fact that scholars must devote a large amount of time to administrative and bureaucratic tasks rather than investing it in research, which is one of the main tasks of higher education institutions (Melo et al. 2010).

## 5.2 *Limitations and Future Research*

Our study is limited with regard to the following aspects. First, our study relies on a sample of 12 interviews, which appears to be small at first sight; however, the existing literature recommends a sample size of eight to 15 interviewees (Hill et al. 1997, 2005). In a review of 27 consensual qualitative research publications (which is a method characterized by semi-structured interviews with open-ended questions, several coders and at least one auditor who checks the ratings), a sample size of seven to 19 interviewees was reported (Hill et al. 2005). Because our sample size lies well within the range of the suggested sample sizes reported in the literature, we are confident that our sample size of twelve interviews meets standard requirements and can be considered sufficient. Nevertheless, our sample may not be large enough for analyses of subsamples because such analyses may be better when they are based on larger sample sizes (i.e., more than 12 interviewees). However, Hill et al. (2005) were themselves reluctant to recommend large sample sizes because of the time-consuming nature of conducting, transcribing and analyzing interviews. Second, our study may be limited with regard to the experience of our interviewees to answer the interview question which incentives from the industry should definitely be transferred to science. We do not know whether or how much experience all of our interviewees had with incentives from industry and thus, we do not know whether our interviewees were able to assess whether incentives from the industry are suitable for science. Nevertheless, at least one of our interviewees had practical experience through working in industry for several years. Additionally, our interviewees might have (to varying degrees) theoretical knowledge as most of them were management and organization scholars. In addition, none of the interviewees named that they lack knowledge to answer this question. Last, it is recommended in the literature to interview individuals of the target population (Hill et al. 2005); because we wanted to gain knowledge in adequate incentives in science, it is advisable to interview individuals working in higher education research institutions rather than in industry. Future studies might assess the degree of practical knowledge about incentives in industry and the years of practical experience in industry. Third, our study may be limited with regard to the generalizability of our findings to other countries and scientific systems because our interviewees are from a German-speaking area. Therefore, the situation for scholars in other countries and scientific systems may differ to varying degrees, depending on how similar the scientific system is to the German scientific system. Similarly, our results cannot be generalized to other scientific disciplines because we only assessed individuals working in higher education and research institutions from the fields of business and management and social sciences and sociology. Fourth, our data do not allow causal conclusions; thus, we cannot claim with certainty that the reported current undesired developments are caused by New Public Management. They may also be caused by other factors or may even have existed before the introduction of New Public Management.

Future research avenues should therefore broaden this investigation by (1) conducting interviews across scientific systems or contrasting these findings with scientific systems where New Public Management was introduced earlier than in Germany, for example, in the United Kingdom (Melo et al. 2010); (2) conducting interviews in other scientific disciplines (e.g., Biology) to contrast these findings with our findings from the fields of business and management and social sciences and sociology; and (3) conducting interviews that compare the recommendations from individuals working in higher education institutions versus research institutions or universities of applied sciences.

### 5.3 Conclusion

In sum, this qualitative study points to specific and practical feasible suggestions on how to improve the work situation and foster individual work motivation and work performance in science to tackle existing challenges and undesired developments in higher education. Our interview data indicates that deficient funding seems to be a concern of especially Ph.D. students. To foster motivation and performance, a good leadership style and interpersonal acknowledgment of the chair holder (i.e., professor) may motivate and enhance performance, whereas at the faculty level beneficial framework conditions and cooperation (i.e., exchange), and at the institutional level good organizational structures and a good leadership culture may foster motivation and performance.

**Acknowledgments** We conducted the interviews, transcription and initial analyses as part of the research project “Pay Professors for Performance?! Entwicklung eines neuen Anreizsystems für Forschende und Lehrende an Hochschulen” (grant number 01PW11006) and continued our analyses and compilation of this work as part of the research project “The Many Faces of Academic Success: Leistung und Anreize in Forschung und Lehre (FAceS)” (grant number 01PY13012). We thank the German Federal Ministry of Education and Research for funding this research project. Additionally, we would like to thank our interview partners for their time and support of this study. Furthermore, we thank our student assistant Stefan Körner who supported us in coding the interview data. Parts of the project were completed while Jutta Stumpf-Wollersheim was working at the Otto-von-Guericke-Universität Magdeburg.

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