Looking from the inside: Peer-exploration of teaching and learning experiences and attitudes among faculty at a technical university

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Abstract—**This full paper presentation starts with the understanding that in the present-day audit society, in which most academics also find themselves, assessment and probing are usually done from positions of higher authority, and not always with quality improvement as the main driving force. In the context of teaching and learning in higher education, this can result in pedagogical evaluations that seem to take uncalled-for interest in areas of little concern to teachers, potentially omitting areas of greater interest to them. In contrast, this paper describes the process and outcomes of a grass-roots initiative to assess the experiences and attitudes toward teaching and learning at the university among peers.**

In 2014, a university-financed project was launched at KTH Royal Institute of Technology to engage more teachers in the university's educational development work. The university initially selected 24 self-nominated teachers who were given relatively free reins to work on educational development projects. This project was one of them.

The assessment took the form of a survey targeting all teaching – or potentially teaching – faculty at the university, carried out first in 2016 and then repeated in 2019. The first survey was sent out to 2,204 respondents, and the second to 2,534 respondents, with response rates of 20% and 17% respectively. This paper will describe the process of designing these surveys, looking at what was asked about and what was not asked about, as well as the process of getting internal approval for sending them out to a survey-fatigued faculty. The paper also reports on the results in terms of both some key findings and in terms of the effect of the survey work itself on different stakeholders and potential agents of change at the university. Most importantly, however, this paper will discuss the conditions and prerequisites for grass-roots initiatives such as this to succeed, based on the literature and on the experiences gained through the survey work. Grounded in this discussion, we will suggest strategies to help teachers at other universities successfully repeat this or similar endeavours.

Keywords—pedagogical survey, teaching and learning, grassroots initiative, peer study, educational development

I. INTRODUCTION

This paper describes a grassroots initiative to explore teaching and learning experiences and attitudes among peers at KTH Royal Institute of Technology, Sweden. As with most explorations, the work started out of curiosity. How do university teachers, our colleagues, think about their pedagogical practice? About teaching and learning? About the future of teaching and learning? When the university stresses the importance of education not only in words but by, e.g., launching pedagogical initiatives, does that cause any ripples among the teachers? Was it possible to make longitudinal time studies to try to follow how pedagogics developed at a university? Could this knowledge help the university to develop its pedagogy in a more efficient way? These were questions we wanted to find answers to.

Our work was also driven by a vague notion that it would probably be a good idea if this kind of exploration was done by peers interested in furthering university pedagogics, rather than by the university management. There were several reasons for this.

A main argument in Michael Power's influential 1997 book The Audit Society was that the driving force behind the proliferation of auditing and inspection systems was not, as one could otherwise easily have believed, to critique the prevailing order in order to improve effectivity and performance, but rather to "produce comfort and reassurance" [1, xvii]. The "institutionalized longing for audit", would, Power predicted, nevertheless still put considerable stress on both institutions and managers, who would have to invest resources and energy in audit management, and force universities to move in an increasingly entrepreneurial direction [Idem, 98]. The "reassuring" nature of audit culture can also be understood in a foucauldian sense [2], i.e., as a way of upholding existing power relations, and instil discipline. In the world of academia, this can be clearly seen, and felt, at the individual level, the research team level, and the institutional level, in terms of, e.g., publication track records, course evaluations, patent numbers, start-ups, and international university ranking systems.

Apart from this understanding of auditing as a durkheimian ritual [3], where checks to reaffirm order is far more important than quality development as an outcome, the focus on precisely the outcomes can also be seen as a characteristic of the academic evaluation culture inherited from the economic audit tradition. Structural indicators with

a bookend quality are preferred, such as course pass rates, full usage of the staffs' teaching hours, and high grades. After all, as many highly skilled students as possible seems to be a good target, and policing the teachers needs only take place when the numbers seem to indicate that something is seriously wrong or out of the normal, established pattern.

While this sort of summative evaluation may serve a function, it does little to further our understanding of the attitudes of the teachers involved toward teaching and learning, or their thoughts about their overall pedagogical situation. Next to nothing is learned that can feed into processes of faculty development or projects to increase quality of education.

KTH does already, it should be noted, conduct regular employee surveys, but these are firmly rooted in the logic of the line organisation's thinking and with their focus on "working environment", "organisation", "leadership" and "visions and goals" and they give little information directly related to teaching and learning. To initiate a longitudinal study of teachers' views on the pedagogical landscape from "the side", as it were, rather than "studying down", as would have been the case had our study been initiated by the university management, has thus hopefully also helped avoid potential mismatches between the interest and concerns of teachers and those of the university management, thereby not only strengthening the validity and the value of the study, but also its legitimacy.

II.   BACKGROUND

Measuring attitudes and approaches to teaching among the teaching staff at a university could give important knowledge that can be used to find areas of improvement and directions of educational development. One example, created in 1999 by Trigwell and Prosser, is the Approaches to Teaching Inventory (ATI) [4, 5] a tool to measure "the ways teachers approach their teaching". This instrument has been used in Sweden, at Uppsala University in 2009-2010 [6], but never at our university. Later research has also shown that teacher attitudes are far from always mirrored in actual behaviour, which is important to keep in mind when looking at self-reported data [7, 8, 9 ,10].

In 2014, KTH launched the educational developers initiative, inspired by Wieman's Science Education Initiative [11], appointing part-time educational developers among teachers from all parts of the university [12]. The aim was to implement and strengthen good teaching and learning practices among faculty and students. In the last year of this project, some of the educational developers took an initiative to systematically follow the educational development of the teachers at the university over time. To conduct this study, a broader questionnaire than ATI was created. The questionnaire has been sent out to the university's teaching staff (teachers, researchers and doctoral students) on two different occasions, in April 2016 and April 2019. The questionnaires had over 400 responses at each occasion, corresponding to 16-20% of the surveyed staff.

III.   METHODOLOGY

Four educational developers from four different schools at KTH, together with a teacher in teaching and learning in higher education, created a questionnaire on educational development and attitudes to educational development and education at the university. The questionnaire consisted of background questions about the respondent's employment and duties, closed questions that could be answered quickly, and a few open questions. Many questions about attitudes were posed as statements that would be judged on a five-point Likert scale from *strongly agree* to *strongly disagree*. These statements were deliberately formulated as strong statements, for example *I am very interested in educational development of courses* or *I feel that I can without doubt go to my colleagues when I have teaching-related problems*, so that the question would be more decisive. The answer *do not know/no opinion* was added to all questions, as an alternative for those who did not want to, or could not, respond to a particular statement or question. The questions were carefully discussed in the working group. The survey was designed as a web survey in the Survey & Report system and was sent with the help of the IT department in April 2016 to everyone who could be teaching at KTH, which included professors, associate and assistant professors, lecturers, researchers and doctoral students. The respondents received a link to the questionnaire in an email. The survey was anonymous, but the system kept track of who answered and sent reminders on three occasions during a two-week period to those who had not responded.

Three years later, five former educational developers put together a new version of the survey. In order for the results of the survey to be comparable to the 2016 survey, we chose to keep most of the questions unchanged. We added some alternatives to the background questions to get a better grasp of what kind of positions and management assignments the respondents had. We modified the wording of a few individual questions that were unclear and added one new question (formulated as a statement): *The teaching and learning courses have helped me to look beyond my own teaching, understand the context and collaborate with colleagues and students, in education, programs and learning environments*. The survey was again included in the Survey & Report system and distributed in April 2019, in the same way as 2016, to the same categories of employees (teachers, researchers and doctoral students).

The results of both surveys were compiled, compared and analysed during the autumn of 2019 by the four authors. For each question, an initial analysis was done by one of the authors; thereafter, the question was analysed jointly by all four, when, among other things, the need to relate the answers to some background variables was discussed.

IV.   MAJOR FINDINGS

A. Respondents

The questionnaires were sent out to a large group of employees at KTH shown in Tab. I. The breakup of the respondents are shown in Tab. II.

TABLE I. RECIPIENTS AND RESPONSE RATES

	2016	2019
Number of recipients	2204	2534
Number of responses	440	425
Response rate (%)	20	17

Both years, the gender distribution of the respondents were 70 percent male, 25 percent female, and 5 percent other (non-binary, or no response). The variation between the years was less than 1.2 percent. The distribution of the respondents is close to the distribution of the population (75 percent male and 25 percent female in 2016 and 73 percent male, 27 percent female in 2019).

TABLE II. BREAKUP OF RESPONDENTS COMPARED TO POPULATION

	respondents		population	
	2016	2019	2016	2019
Lecturer	13%	13%	6%	6%
Assistant professor	3%	3%	2%	2%
Researcher	21%	17%	24%	25%
Associate professor	27%	26%	12%	12%
Professor	17%	20%	12%	13%
Doctoral student	-	19%	41%	41%
Other	20%	2%	1%	0%
Credits (ECTS) in teaching and learning in higher education	13.8 cr	13.8 cr		
Years of teaching experience	13.9 yrs	15.1 yrs		

Tab. II shows that the survey was answered to a higher degree by groups involved to a large extent in teaching (lecturers and professors), and to a lower degree by researchers and doctoral students, which is to be expected. At KTH, doctoral students teach at most 20 percent, and many doctoral students are not teaching at all. The main difference in respondents between 2016 and 2019 was that more professors responded in 2019, and that in the 2016 questionnaire, the sub-category "doctoral student" did not exist. It was, however, possible to track doctoral students through a subsequent question in the 2016 questionnaire, and the share of doctoral students are virtually the same for both years.

B. Results

The questionnaires were quite extensive (see appendix for a full list of the questions posed) and only a small share of the findings can be presented here. For many questions, changes between the two years were small and hardly detectable. Here, we will concentrate on very few questions that gave interesting results that should be reflected upon within the organisation.

The first interesting result comes from the comparison of the two questions probing the teacher's view of reliability of the sources for assessing scientific or pedagogic merits in the promotion process. As seen in Figs. 1 and 2, there was no significant difference in the results between 2016 and 2019, but both years the assessment of pedagogic merits was considered to be less reliable. There was also a large number of respondents who didn't know or didn't have any opinion, which most probably is a consequence of not having been part of a promotion process.
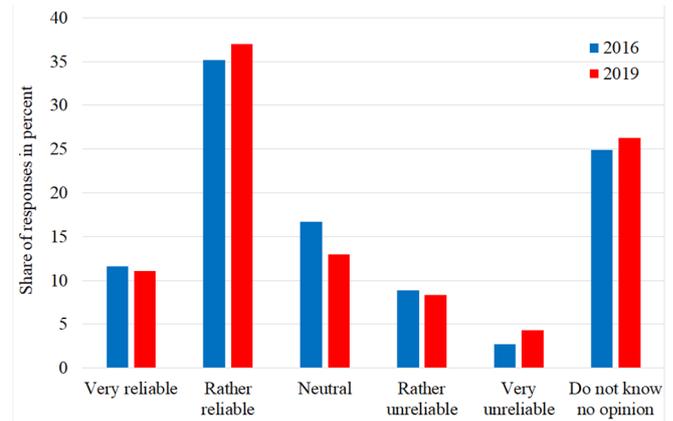

Fig. 1: Teacher's view on the reliability of the sources for assessing scientific merits in the promotion process.
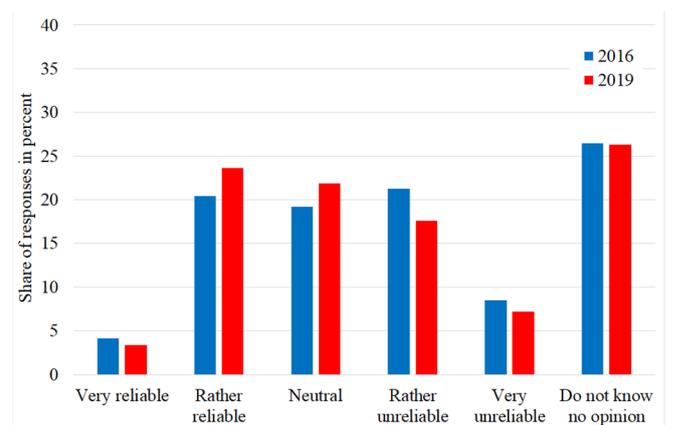

Fig. 2: Teacher's view on the reliability of the sources for assessing pedagogic merits in the promotion process.

One part of the questionnaire covered the respondents' view of the value of research merits in contrast to teaching merits. It is clearly indicated in Fig. 3 that the respondents consider research merits to be more important than teaching merits for their future career at the university, despite the officially communicated view that research and teaching merits should be equally important. However, educational leaders tend to value teaching merits somewhat higher than the rest of the faculty (significant at $p<0.018$ using the Wilcoxon-Mann-Whitney test [13]).
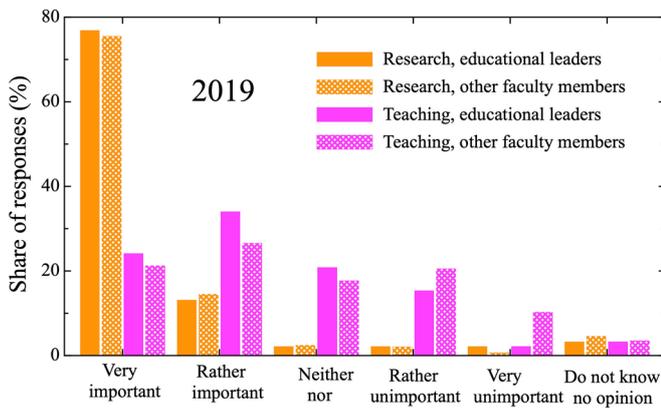
Fig. 3. Teacher attitudes about the importance of research and teaching for their career at the university divided between educational leaders (filled bars) and other faculty members (hatched bars). Data are taken from the 2019 questionnaire.

Another part of the questionnaire treated the way teachers approach educational development work. They were asked the following question

Which of the following statements come(s) closest in terms of how you currently work with pedagogy in the context of your job?

The different statements are shown in Fig. 4 and were chosen to correspond to different sorts of engagement in pedagogic development, from being totally neglecting them to being active in pedagogic research. It was possible to give multiple answers on this question.
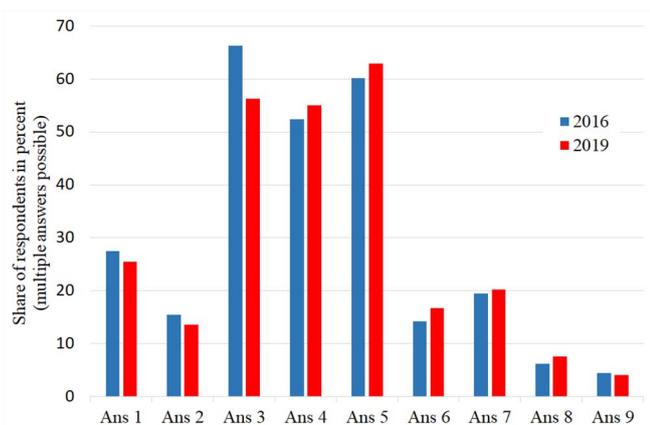
Ans 1	I have no time for educational development.
Ans 2	I just change the parts students are very negative towards.
Ans 3	It happens that I implement educational ideas I have heard of in my own course.
Ans 4	I always systematically use course analyses for educational course development.
Ans 5	I test and evaluate my own educational ideas in my own course.
Ans 6	It happens that I submit articles to educational journals and/or conferences.
Ans 7	I consider myself a driving force when it comes to engaging other teachers in educational development.
Ans 8	I actively carry out research in educational sciences.
Ans 9	Other.

Fig. 4. How teachers work with educational development in 2016 and 2019.

In Fig. 4 we see a large difference in answer 3, where the will to test others' ideas in their own courses has decreased considerably. Instead, we see an increase in answers 4, 5, 6, and 8 which are all aspects we want to strengthen among the teachers. The fact that teachers are more interested in testing own (answer 5) instead of others' (answer 3) ideas is also a clear stand for own development, reinforced by the fact that this is done in a systematic way (answer 4) combined with a will to spread these findings through publications in journals and/or conferences (answers 6, and 8). This may indicate a change in attitudes from doing what others have tested before towards finding out innovative ideas that are adapted to one's own courses.

We can also see a small decrease in answers 1 and 2, which means that more teachers are given, or take, the time to conduct educational development work (answer 1) and that fewer do it as a result of complaints from students (answer 2).

We also investigated the self-estimated interest in pedagogy among the teachers as compared to what they thought about the interest from their colleagues. They were asked to what degree the agreed or disagreed with the following statement:

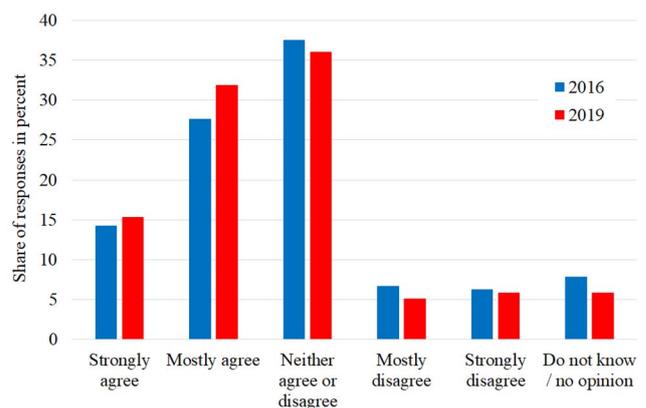*I think that I'm more interested in pedagogy than most of my closest colleagues.*

Fig. 5. View of teacher's own interest in pedagogy 2016 and 2019

The rate of increase of pedagogical interest seems to have decreased between 2016 and 2019. Fig. 5 shows that the respondents indicate a larger interest for pedagogy than their closest colleagues. This is an important observation that indicates a confirmation bias among the respondents.

V. IMPACT OF THE WORK

The study and its findings were summarized in an internal report [14], which was sent to the university management, and also briefly reported on, and linked to, at the university's open educational meeting (online) in May 2020, attended by around 200 of the university's teachers, educational leaders, educational developers and other interested stakeholders.

This work was directly initiated by peers and only indirectly by the university management, who nevertheless funded those peers while still giving them large freedom to develop their own creative ideas to support educational development. One of the outcomes of this work was the insight that there was a need for a tool to monitor the educational development among peers systematically over time. Previous and existing tools were management-oriented

and mainly based on key indicators, like the number of credits or courses that the faculty had taken in teaching and learning in higher education, the number of courses that were using digital tools, or the number of courses that used special pedagogic methods etc. However, the interpretation of these numbers can be questioned, and they do not give any direct information about what the faculty really think about pedagogics and educational development, what their attitudes towards pedagogics are and how such attitudes may change over time. This shortage of information may lead university management to make incorrect decisions about the strategic directions for future educational development.

Hence, the main impact of our work comes from the insight that it is useful for a university to monitor its own educational development through a recurrent internal quality enhancement process, which can help university management to set up proper strategies. Based on the experiences from our work, we argue that the following aspects are important to consider when thinking about how to monitor educational development.

i) An internal measure of faculty attitudes on educational development is helpful for identifying areas of pedagogical improvement.

ii) An inquiry performed by peers is probably considered more legitimate within faculty than an inquiry driven by the university management or by an external quality assurance body.

iii) An internal inquiry based on teacher attitudes gives valuable additional information that easily can be missed by an external audit.

iv) Internal processes for improving pedagogics ensures a larger diversity both internally and between universities.

Another potentially important impact of this work is that our inquiry (or more likely a slightly modified version of it) is now considered for being included as part of the internal quality assurance system at KTH. Whether this should be seen as a sign of an enlightened management that knows to cherish grassroots efforts or as a way for management to take control of the process, or both, remains to be seen.

VI.   LESSONS LEARNED

The main lesson learned from this work is that university management should strategically make use of the latent power of its staff, by enabling them to take their own initiatives. Having a large body of highly competent and innovative people, university management has a unique position to lead educational development. However, they too often get stuck in a traditional top-down management system based on communicating strategies and policies that are not anchored within the reality of the faculty. This is not efficient use of university resources. Instead, they need to learn how to allow agile project development for improving educational quality. Our work shows that there exist important processes within an organisation that would hardly be attended to, if looking from a management perspective, except if allowing members of the faculty the freedom to be innovative and the freedom to act.

Hence, our main recommendation for a university who would like to try this kind of study, would be to let a group of pedagogically interested faculty members form, with the specific aim of developing an inquiry into educational development. Those faculty members should be independent of the university management, and rather have as a goal to make the inquiry accepted by their peers. This process will ensure that there is a sufficiently wide acceptance among the faculty from the beginning of the monitoring process. A similar conceptual idea of letting people in a dependent position independently develop a questionnaire to enhance educational quality has recently been successfully implemented for quality enhancement in a study programme [15]. It was noticed in this study that the method was complementary to standard quality assurance methods, and that evidence for acceptance of the method among both teachers and students was gathering.

VII.   THE ARGUMENT FOR GRASSROOTS INITIATIVES

One can think of several ways for finding information within an organisation about educational development, which can later be used as input when striving to create real change. From an agency-perspective, there seems to be two basic alternatives at the university level (as opposed to, e.g., evaluations carried out at the initiative of a national audit agency): management-driven processes, which can then be carried out by the university management itself or, indirectly, with the help of external auditors, or peer inquiries, e.g., such as the one described in this paper.

While the management-driven processes are seemingly easy to control from a management perspective (decide what to do and it will be done), it is well established that such processes often have a low success rate at the university [16]. This is in fact not surprising, since a university comes with a faculty of highly competent individuals, trained to identify weak points in such decisions, and as a rule preferring to work independently of higher management [17]. This can effectively stop bad decisions from being implemented, but it can also, quite as effectively, prevents necessary change from happening, if for no other reason than because faculty is not given enough time to reflect on the rationale for change.

External audits is a way for managers to point out weaknesses without being the ones that create the message themselves. If audits are done by peers from other universities, there is often a higher legitimacy in the process (similar to the peer-review processes used by scientific journals), but if audits are done by external bodies with limited knowledge and understanding of the way a university works, they are often of little practical use.

However, as pointed out in an OECD report on institutional management in higher education [18]

"*Anyone in an institution can act as a change agent (leaders, faculty, students, support staff) ...*" [page 25]

Hence, it is necessary to involve and listen to the faculty during change processes. A major reason for letting peers studying peers during development processes, or indeed for allowing and encouraging grassroots initiatives of different kinds, is that peers studying peers need to create their own legitimacy within the organisation, which in a highly competent environment implies that their investigation of the educational development has to be done in a way that is transparent and meaningful to the peers. They also have to carefully consider relevant criticism from those they study, during the process. Successfully done, this process has a high potential to become accepted by faculty and be seen as looking at the most relevant issues.

However, to make the process have real consequences, and not have the endeavour dismissed as fringe behaviour or staff obnoxiousness, it must not only be seen by faculty as a representative reflection of their experience and views, but also be accepted by the university management. Ideas and insights coming out of the work must be translatable into the language of university policies and strategies. The university must ensure that there are ways of channelling the outcomes of grassroots initiatives of various kinds into the top management's planning processes. In the best case scenario, then, the process has the potential to bridge the gap between teachers "on the floor" and university management, helping to deepen our understanding of teaching and learning experiences and attitudes among the staff, with an eye on furthering educational quality development. Regardless of the outcome, however, there seems to be little to gain from waiting for someone else to take the initiative. To paraphrase Hillel, "If not we, who? If not now, when?"

REFERENCES

1. M. Power (1999[1997]). The audit society: rituals of verification. Oxford: Oxford Univ. Press.
2. M. Foucault (1975). Surveiller et punir: naissance de la prison. Paris: Gallimard.
3. É. Durkheim (1912). Les formes élémentaires de la vie religieuse: le système totemique en Australie. Paris: F. Alcan.
4. K. Trigwell, and M. Prosser (2004). Development and use of the Approaches to Teaching Inventory. Educational Psychology Review, 16(4), 409–424.
5. J.H.F. Meyer, and M.G. Eley (2006). The Approaches to Teaching Inventory: A critique of its development and applicability. British Journal of Educational Psychology, 76: 633-649.
   doi:10.1348/000709905X49908
6. A. Pears, M. Elmgren, and S. Andersson (2012). Teachers' conceptions of teaching practice. In Improving Student Learning through Research and Scholarship (ISL 2012). Sweden: Lund University.
7. D. Ebert-May, T. L. Derting, J. Hodder, J. L. Momsen, T. M. Long, and S. E. Jardaleza (2011). What we say is not what we do: Effective evaluation of faculty professional development programs. BioScience, 61(7), pp. 550–558.
8. J. H. E. Assen, F. Meijers, H. Otting, and R. F. Poell (2016). Explaining discrepancies between teacher beliefs and teacher interventions in a problem-based learning environment: A mixed-methods study. Teaching and Teacher Education, 60, pp. 12–23. doi:10.1016/j.tate.2016.07.022
9. E. Martin, M. Prosser, K. Trigwell, P. Ramsden, and J. Benjamin (2000). What university teachers teach and how they teach it. Instructional Science, 28(5), pp. 387–412.
10. V. Mesa, S. Celis, and E. Lande (2014). Teaching approaches of community college mathematics faculty: Do they relate to classroom practices? American Educational Research Journal, 51(1), pp. 117–151. doi:10.3102/0002831213505759
11. C. E. Wieman (2017). Improving how universities teach science. Lessons from the Science Education Initiative. Harvard University Press.
12. A. Berglund, H. Havtun, A. Jerbrant, L. Wingård, M. Andersson, B. Hedin, J. Soulard, and B. Kjellgren (2016). The pedagogical developers initiative – development, implementation and lessons learnt from a systematic approach to faculty development. In Proceeding of the 12th International CDIO Conference, Turku University of Applied Sciences, Turku, Finland (pp. 497-508). Turku University.
13. A. Marx, C. Backes, E. Meese, H. P. Lenhof, and A. Keller (2016). EDISON-WMW: Exact Dynamic Programing Solution of the Wilcoxon-Mann-Whitney Test. Genomics, proteomics & bioinformatics, 14(1), pp. 55–61. doi:10.1016/j.gpb.2015.11.004
14. M. Andersson, H. Havtun, V. Kann, and B. Kjellgren (2020) Pedagogisk utveckling på KTH? En jämförelse mellan lärarenkäterna 2016 och 2019. Slutsatser och resultat. KTH 2020-02-29.
   https://www.kth.se/social/files/5e656b3452742168dbc49e25/rapport-pedagogisk-enkat.pdf
15. F. Leander Zaar, and M. Andersson (2020). Quality enhancement through trustful interaction between students and teachers, In Proceedings of INTED2020 Conference, Valencia, Spain, March 2-4 (pp. 1117-1123).
16. C. Henderson, A. Beach, and N. Finkelstein (2011). Facilitating change in undergraduate STEM instructional practice: An analytical review of literature, Journal of Research in Science Teaching, vol. 48, no. 8, pp. 952-984.
17. G.G. Garrett, and G. Davies (2010). Herding cats: being advice to aspiring academic and research leaders. (1st ed.) Axminster, Devon: Triarchy Press.
18. F. Hénard, and D. Roseveare (2012). Fostering quality teaching in higher education: policies and practices, OECD Programme on Institutional Management in Higher Education (IHME), http://www.oecd.org/education/imhe/

The set of questions used in the survey 2019 are summarized below. For brevity, we do not always show the alternatives used in the survey. About half of the questions are formulated as statements (within citation marks below), and the respondents are instructed to indicate to what degree they agree or disagree with each statement, using the scale *strongly agree, mostly agree, neither agree nor disagree, mostly disagree, strongly disagree*, with the extra option *do not know/no opinion*. The survey questions were available both in English and in the national language, Swedish.

[1] What percentage of your work time are you currently using to the following activities? (teaching, research, public outreach, commercialization, educational leadership assignments, management assignments, other)

[2] Ideally, how would you allocate your working hours?

[3] What percentage of the time you spend on teaching is currently at the following levels?

[4] What percentage of the time you spend on teaching goes to educational development?

[5] How important do you feel that different tasks are for qualification and career development at KTH? (internal assignments, research, teaching, public outreach, other)

[6] Ideally, how important do you think that different areas should be for qualification and career development at KTH?

[7] "I feel that the sources of evidence for assessments of scientific merit in the promotion process are very reliable."

[8] "I feel that the sources of evidence for assessments of pedagogic merit in the promotion process are very reliable."

[9] "I feel that new innovative teaching and new learning approaches get much positive attention at my school."

[10] In what forms do you usually work with educational course development? (Several options can be selected.) (alone, together with an educational developer, together with a program director, together with a director of studies, together with other teachers, together with students, I do not do educational development, other)

[11] What is the reason that you are not doing educational development?

[12] "I am very interested in educational course development"

[13] What would motivate you to do more educational course development?

[14] Have you ever considered devoting some of your time to educational research?

[15] "I would very much like to do educational research within the next three years"

[16] What three forms of teaching / learning methods would you like to see more of at KTH?

[17] What three forms of teaching / learning methods would you like to see less of at KTH?

[18] How many hours have you participated in any form of teaching and learning event at or outside KTH during the last twelve months? (conferences, workshops, seminars, pedagogical meetings, programme meetings, other)

[19] Which of the following statements come(s) closest in terms of how you currently work with pedagogy in the context of your job? (I have no time for educational development, I just change the parts students are very negative towards, It happens that I implement educational ideas I have heard of in my own course, I always systematically use course analyses for educational course development, I test and evaluate my own educational ideas in my own course, It happens that I submit articles to educational journals and/or conferences, I consider myself a driving force when it comes to engaging other teachers in educational development, I actively carry out research in educational sciences, other)

[20] "I think that I'm more interested in pedagogy than most of my closest colleagues"

[21] "I feel that the interest in pedagogy is much greater at KTH today than three years ago"

[22] "I believe that student learning will become considerably better over the next three years at my school"

[23] "I think my own teaching will develop significantly over the next three years"

[24] "I am in favour of strongly increased elements of e-learning in my classes"

[25] "I am in favour of strongly increased teacher collaborations in my teaching"

[26] "I feel that I without hesitation can go to my colleagues when I have teaching-related problems"

[27] "I feel well qualified to teach at KTH"

[28] "I feel strong support from my educational management when I have teaching-related problems"

[29] "I feel strong support from my schools former pedagogical developers when I have teaching-related problems"

[30] "I often consult with my colleagues in matters of pedagogical course development"

[31] "Motivating students for the topic is an important part of the teacher's tasks"

[32] "Real-life examples are necessary for students to develop an understanding of abstract concepts"

[33] "I keep myself informed about research in educational sciences in order to improve my teaching"

[34] "The courses in teaching and learning in higher education that I have passed have given me important

tools to structure, implement and reflect on my teaching in a conscious way"

[35] "The courses in teaching and learning in higher education have helped me to look beyond my own teaching, understand contexts and cooperate with colleagues and students, within education, programmes and learning environments"

[36] Overall, how satisfied are you with teaching and learning at KTH?

[37] How well do teaching and learning at KTH meet your expectations?

[38] How do you perceive teaching and learning at KTH as compared to an ideal situation?

[39] Gender (female, male, other, do not want to state)

[40] Position (lecturer, assistant professor, researcher, associate professor, professor, doctoral student, other)

[41] What percentage of a full-time do you work?

[42] How many years have you been teaching in higher education?

[43] How many higher education credits (cr) do you have in teaching and learning in higher education?

[44] How long work experience have you got in your profession, outside of KTH?