THE PEDAGOGICAL DEVELOPERS INITIATIVE – SUSTAINABLE IMPACT OR FALLING INTO OBLIVION?

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Between 2014-16, KTH Royal Institute of Technology set aside considerable resources in its biggest pedagogical project to date, the Pedagogical Developers Initiative. The project has been continuously reported on at recent CDIO conferences. While aimed primarily at CDIO Standard 10, enhancement of faculty teaching competence, the project managed, by design as much as through accident, to strengthen many CDIO standards and syllabus items. With the conclusion of the project, the constructive practices and ideas that emerged from the initiative were meant to be incorporated into the regular operations of the university, a task that was delegated to each of KTH's ten schools. However, even though KTH officially labelled the project a success, the schools have taken a non-uniform approach to this endeavour, as they indeed had done to the project as a whole during its duration. Following up on our earlier reports, and primarily using data from interviews and our own observations, the paper looks at which of the initiative's ideas and practices have survived the end of the project, in what forms, by what means, and what insights and lessons one can draw from this when designing mechanisms for continuous and sustainable improvement of pedagogical practices at a technical university.

KEYWORDS
faculty development, educational development, educational leadership, CDIO Standard 10

INTRODUCTION

KTH Royal Institute of Technology carried out a pedagogical initiative during 2014-2016 to increase pedagogical competence among faculty and to build a culture of continuous pedagogical development. The initiative was strongly related to CDIO Standard 10, enhancement of faculty teaching competence, and inspired by the Carl Wieman Science Education Initiative (CWSEI) (Wieman et al. 2010) although the design at KTH differed in important ways. Following a call in late 2013, 24 pedagogical developers (PD) were appointed by their respective deans of schools. The PDs should function as local change agents, creating and facilitating communities of practice (Wenger 1998). In contrast to the CWSEI, where designated educational developers assisted individual teachers transform their courses, the Pedagogical Developers Initiative (PDI) was a process to simultaneously promote pedagogical development at all schools at KTH and to inspire teachers to increase their pedagogical knowledge. Hence, the PDI can be seen as an innovative attempt to promote pedagogical change through a bottom-up process.

The PDs were both engaged in local pedagogical projects at their respective schools and in a joint process to support pedagogical development on a university-wide scale. During 2014, the common project was to establish communities of practice among KTH's faculty, mainly by developing a method for course analysis that supported course development (Berglund et al. 2015). During the first year, it was also recognised (Berglund et al. 2015) that the activities within the PDI covered a large number of the CDIO standards and were not entirely devoted to CDIO Standard 10. In 2015 the common project was to develop and offer a set of pedagogical workshops targeted at all teachers at KTH (Berglund et al. 2015). In the final year of the project, the PDs refined the course analysis process as well as the workshops and took actions to increase their use. The PDs also compiled a list of proposals to promote further pedagogical development at KTH to the KTH education committee (Berglund et al. 2016). After the end of the initiative, the responsibility for pedagogical development was transferred to KTH's ten schools. In this paper we will follow up what has happened after that and try to draw some conclusions about what to consider when trying to engage in a similar endeavour.

In brief, the legacy of the initiative, one year after its conclusion, can be described as mixed. The two common projects, the course analysis process and the pedagogical workshops, have survived and are now in the custody of the Unit for Higher Education Research and Development (HERD), but still mainly staffed by former PDs. Many of the short-term recommendations for pedagogical development put forward in the final report of the PDs have been taken up by KTH top management and are in the process of implementation. Most of the PDs have also continued to work with educational development. However, when looking at local projects run by individual PDs at the different schools, the situation is more complicated. Most schools lacked plans for how to sustain the many small-scale initiatives, and only a minority of projects are still ongoing.

METHODOLOGY

Our follow-up assessment had two foci. The first was the outcomes of the initiative in terms of what had happened with its many sub-projects, with the teachers involved as PDs, and with their suggestions for actions on pedagogical matters to the university management at the conclusion of the project. In a few cases, the projects have been implemented in such a way as to leave official documents, but for most of them we have relied on the former PDs' accounts of the trajectories of projects and of themselves. The second focus was the memory of the initiative as recollected by a limited number of stakeholders within the administration: the vice dean of faculty, the directors of first and second cycle education at the (then) 10 schools of KTH, as well as a few other persons that we had reason to believe could have important insights in the initiative. In total we conducted about 20 semi-structured interviews, varying in time from about 45 min to two hours. These interviews had a core consisting of four questions for the schools' directors of studies, and three questions for the PDs, allowing time for follow-up questions, clarifications and the following of whatever train of thoughts that could emerge in the interview situation.

When interviewing the schools' directors of first and second cycle education, we made a point of not interviewing the directors that we ourselves had worked under in a school when possible. This was not something that we could do when interviewing the PDs, since most of us had worked together at one point or other during the project. Since the authors of this paper constituted a substantial part of the more active group of the PDs, it was necessary to include also our own recollections and observations. This was, however, not done by interviewing each other but by writing down our observations and recollections directly in the text, subjecting ourselves to the peer review and follow-up questions of our co-authors during the process of writing the paper.

FOLLOW-UPS

In this part of the paper, we report first in some detail on the fate of the two common projects that the PDs worked with during the first and second year. Then we report briefly about what has happened to the many projects carried out by individual or smaller groups of PDs. Finally we describe the completion of the project and the effort to hand over the project both to KTH and to the ten schools of KTH.

The course analysis process

Although originally developed as a student learning experience questionnaire (LEQ) that should support collegial pedagogical discussions among faculty members, it was realised that this concept could be put into a larger context as seen in Fig. 1. Here, LEQ or other methods are used as analytical tools in a cyclic improvement process, which also include collegial course analysis meetings (and possible students' analysis meetings) in order to improve courses (Borglund et al. 2017). This process facilitates the exchange of experience and pedagogical ideas among teachers. In 2017 the president of KTH decided on new regulations concerning course evaluation and analysis highlighting collegial experience exchange as an important required element. An important reason behind this decision was the natural way students could be included in the process, either through student's analysis meeting or through participation in collegial meetings. In order to separate the questionnaire developed within the project, LEQ, from the process, the name of the process was changed to "systematic course analysis" (SCA) in late 2017.

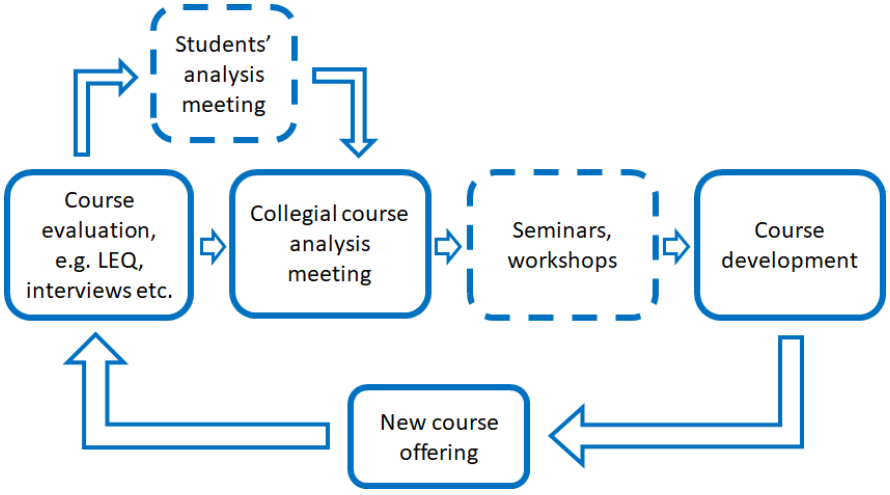

Figure 1: The systematic course analysis (SCA) process.

The LEQ and the SCA process have been used to a fairly high degree at KTH. It was, however, not introduced by all PDs from the beginning and as a result, it was not spread to all of KTH's schools initially. In later years, with technical systems in place to facilitate the dissemination and analyses of the questionnaire, the process has spread to all schools and between January 2014 and November 2017, more than 1400 course offerings have used the LEQ for course evaluation. In total, over 33 000 questionnaires have been filled in by students. After the PDI, the simplicity of using the LEQ and the analysis tool is still attractive for many teachers, while the course analysis meetings are only continued at a few schools as there is no longer a PD responsible for organising them.

Pedagogical workshops

The pedagogical workshops, developed by the PD group in 2015 (Berglund et al. 2016) are since 2016 a part of KTH's basic course in teaching and learning for teachers. Although the PDI was finished in 2016, the workshops are still run by former PDs. The scheduling of the workshops was in the beginning of 2018 taken over by the Unit for Higher Education Research and Development (which is responsible for giving the course). This is a strong indication that the workshops will remain. The workshops are open to all KTH teachers, but only a handful of teachers not participating in the course participate. The workshops are also given on demand (for example when a school organises a pedagogical seminar), which has happened on a few occasions. Our interviews show that this information has not reached some of the schools' directors of first and second cycle education, a minority of the programme directors and only a few of the teachers. Some of the workshops have been given in international settings, including *Assessment methods*, *Intended learning outcomes and the course plan*, as well as *Designing courses for motivation*, which were all given during an Erasmus+ higher education mobility exchange to Trinity College Dublin, Ireland, in January 2017. The workshop *Designing courses for motivation* has also been given at the CDIO European regional meeting 2017, as well as at the 13th international CDIO conference in Calgary, Canada.

Other projects

The projects mentioned above were activities that most PDs had in common and often worked together with, but the initiative also involved a number of other activities and in Table 1 we have listed most of these without going into details, and indicated the target group or scope for the activity, the initiator, and the present status after the conclusion of the initiative.

Table 1. Status of other projects at different levels, early 2018

PD = pedagogical developer, DE = director of first and second cycle education, PDir = programme director.

Target group	**PD activity (number of schools involved)**	**Initiated by**	**Current status**
Individual teachers	Support for course development (2) E-learning, "flipped classroom" (3) E-learning, clickers (2) E-learning, automatically corrected assignments (1)	DE PD PD, DE PD, DE	Discontinued Implemented & cont. Implemented & cont. Continued
Individual educational leaders	Progression within study programmes (1) Develop new courses (3) Progression within study programmes (1)	DE PDir PDir	Implemented Implemented Continued
Teacher teams	Pedagogical interest groups (1) Changes in mathematics education (1) Equality and diversity (1) Audit course development work (1)	PD PD PD PD	Discontinued Implemented in part Finished Discontinued
Department	Pedagogical seminars or lunch meetings (3) Annual pedagogical day (2) Programme development (2) E-learning projects (4) Setting up international agreements (1) Establishing Pedagogical council at school level (1)	PD PD DE DE PD PD	Continued Continued Implemented Implemented & cont. Implemented in part Not implemented
University	Courses in teaching and learning in higher education New guidelines for course syllabuses and course information Certificate of Global Competence (for students)	PD PD, Univ. Admin. PD	Established & cont. Implemented in part, continued Established & cont.

Completion and handover

Towards the end of the project, the schools were formally informed that they were expected to take over the responsibility for future pedagogic development and to incorporate the work done by the PDs in their usual budget. Due to their relative independence, it was up to the different schools to decide how they wanted to evaluate what parts of the PD activities to be retained. The only thing made clear was that there would be no central funding for the continuation of the project's activities. This was also one of the rationales behind the early summation of the PDI in a final report to the KTH education committee in May 2016, where the PDs suggested a number of actions for improving and facilitating pedagogic development both in a short and in a long term perspective. As seen in Table 2, the short-term actions are mostly on the way of being realised, while the long-term strategic decisions suggested by the PDs are not considered at the moment. These included e.g., suggestions for a development oriented pedagogical programme, a personal pedagogical development plan for every faculty member, a pedagogical academy, facilitating of university-encompassing research in

teaching and learning, a pedagogical forum and an increased status for performing pedagogical development.

Table 2: A summary of the status of the PDs' proposals for actions to facilitate pedagogical development at KTH.

Suggested action	**Current status**
Decide on collegial course analysis meetings and dedicate time for this in the schedule.	Policy decision taken, not yet in schedule.
Quality assessment of course plans.	Will become part of quality assurance system.
Create a pedagogical council at each KTH school.	A central council for pedagogical development is established.
Create a follow-up process for courses that are not working properly.	Will become part of quality assurance system.
Ensure that course analyses are made for all courses.	Improved procedures. Linked to economy at one school.
Create an archive where course analyses and pedagogical development can be followed.	Decision taken, archive created and under development.
Use measurable goals in the pedagogic development plans for each school.	Not yet implemented.
Ensure that all courses should have a more standardised course PM, which also includes pedagogical approaches.	Administrative support is under development.
Develop a process for collegial programme development.	Under discussion.
Create clear programme goals for each programme and link them to course goals.	Will become part of quality assurance system.

COMMON AND DIVERGING VIEWS

We will now discuss some of the common and diverging views that we have found during the interviews. Since the interview material is rather extensive, we will concentrate on a few common and central themes that occurred in several of the interviews.

Project organisation and management

Almost unanimously, the interviewees have mentioned the lack of a clear project organisation and management, from the start and throughout the project duration. There was no clear organisation for setting up and following up on requirements, nor any well-defined receiver of results. Thus, the expectations from different organisational units varied, with some PDs being given explicit tasks to carry out for the school, whereas other schools took the stance that, as there was central financing for the project, the PDs of the school could work with any task they found interesting.

One interviewee from the KTH administrations office meant that there should have been a project coordinator appointed at each school, who could have followed up on work and

received results. The vice dean of faculty admitted when interviewed that he had expected the schools to follow up and request status reports from its PDs, as the PDs were formally appointed by the dean of each school.

The new role meant that there was some confusion about the responsibilities for pedagogical issues between the PDs, the DEs, and the programme directors. In the interviews, this was pointed out as one possible reason for the lack of management of the PDs from the schools – the schools did not know what kind of tasks to give to the PDs. One of the interviewees expressed it as: “The viewpoint of the DE was that it is more important that something happens, than what specifically happened.”

Results of the work

The president of KTH, reportedly said “I am impressed” after receiving the final report of the PDs. The vice dean of faculty commented the statement: “He does not say that often.” The vice dean himself stated in his interview that: “When it comes to the results of the PDI, I can see a lot of ripple effects that are probably not visible to everyone.”

In the interviews with the schools’ directors of first and second cycle education, some of them said that the deans of their schools thought that the focus of the project was not the right one, and that they were dissatisfied with the results. The DE group, on the contrary, had expressed that it was an advantage that the PDs were given the freedom to work with tasks that were of interest and importance to themselves. One DE expressed it as: “The result of the PDI was rather good, in spite of the [lack of] management of the PDs.”

Pros and cons that were brought forward in the interviews include:

+ The pedagogical competence has been spread outside the group of professional educational developers at the ECE school.
+ The PDI did well by highlighting teaching, more than research.
+ The project has led to better cooperation between teachers and university administration, and its results have been valuable input in the development of a quality assurance system for KTH.
- The local PD projects are not known to other schools. The results have little impact outside the local environment.
- Status and recognition of the PDs among teachers was not clear, in particular if the PDs did not simultaneously have other formal roles.
- Many proposals are dependent on other resources within KTH, which makes it difficult to allocate resources for development.

Personal development and careers of the pedagogical developers

Nearly all PDs mentioned that the PDI had been personally important to them and had helped them develop their own pedagogical thinking. A few of them also explicitly compared it to a pedagogical trainee programme. On the negative side, one PD mentioned that he had lost some contact with his research group, which he considered bad for his career. Looking at the original group of 24 PDs, by early 2018 seven have left KTH, while 13 hold positions at KTH through which they are able to lead pedagogical development or influence decisions to that end. Five of these PDs had such positions already when the PDI started and eight PDs have been appointed new pedagogical leadership positions, such as directors of studies,

programme directors, directors of first and second cycle education of a school, or members of KTH's education committee. It would seem as KTH has been able to take care of the personal competence that has been built up within the PD group in a constructive way.

CONCLUSIONS AND DISCUSSION

As noted there existed quite diverging views within the KTH leadership about the PDI and how it should have been managed already from the beginning. Likewise, the interest in the initiative, including how the emerged practices should be incorporated in regular school work after the initiative, varied considerably, from enthusiasm to scepticism or mild uninterest. As a result, PDs at different schools have been working under very different conditions. Some were quite steered in their activities while others were more or less free to work with things they thought should contribute to pedagogical development at KTH. Also, the PDs had to spend energy trying to handle the consequences of the unclear leadership, which was an inefficient use of their time and which delayed the outcomes of the project. The unclear leadership also explains the difficulties and the lack of general strategies when the KTH schools were supposed to take over the responsibility for the activities. From a change management perspective (Kotter, 1995, Mento et al. 2013), this means that one of the basic steps in a successful change process, defining the strategy for the change process itself, was unclear from the beginning. In a sense this ensured that the project doubly impossible: impossible to succeed and impossible to fail.

Under such circumstances, one may perhaps have guessed that all activities should have died out after the official completion in late 2016. However, this seems not to be the case - instead it seems as pedagogical activities are growing stronger, perhaps a benefit of the project's inability to fail. Many of the former PDs have been chosen for educational leadership positions, where they have the formal authority to implement change. Having worked with the faculty during their time as PDs, they can combine their leadership position with a deep understanding on how the faculty react to change. Hence, the PDI can in retrospective be seen as a de facto trainee programme for future educational leaders, albeit an unintentional one. While the support and interest from the schools varied, the PDI could always count on the support of the KTH top management. They were also impressed by the results coming out from the PDI (despite the delay in the start-up phase) and have since created thematic discussion groups involving pedagogic leaders of more traditional cut, student representatives and administration, in order to discuss and solve university-encompassing pedagogical issues. This will hopefully create new momentum in the university-wide change process, something that was somewhat lost when the PDI ended.

Is it possible from our experiences to give some advice to other institutions that want to do something similar? Perhaps. All universities are in some way or other different from the others, and, as we have seen, there also exists large differences between different schools and departments of a single university. Hence, a method used at one place can seldom be transferred to another place and expected to work in the same way. Having said that, we believe some insight can still be gained from our experiences.

Developing tools and processes that facilitate faculty discussions around pedagogical issues are probably a key component in promoting faculty-wide pedagogical development. The reason for this is quite simple – faculty members are seldom expected to be experts in pedagogics and they have usually very little time available for pedagogical development, especially if this is not rewarded within the university promotion system. This points towards

the necessity of lowering the barriers and introducing time-efficient tools (e.g., LEQ) and processes (e.g., SCA), introduce teachers to important pedagogical concepts in short time (e.g., through workshops), create internal rules and resources that promote and facilitates pedagogical development, and create efficient teacher teams that can work collaboratively towards common goals.

In the final analysis, one must also strike a compromise between the rigor of good project management and planning, and the possibility of good things only emerging if not aimed for. As Cohen (1992) puts it: “There is a crack, a crack in everything. That’s how the light gets in.”

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