Tensions of student voice in higher education: Involving students in degree programme curricula design

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Abstract

This paper considers the direct involvement of students in degree programme curricula design, specifically four computer science teacher students designing new curricula for the Faculty of Information Technology of the University of Jyväskylä. They participated in a project to make recommendations for the 2017–2020 master's and bachelor's programme curricula. We examined how these recommendations were implemented in the new curricula and what hindered student voice. The project led to major changes: making basic studies in mathematics optional, adding three new courses, and defining new learning goal descriptions for two master's programmes. Several factors hindered student voice: insufficient perceived expertise, doubts about project significance, negative attitudes towards student involvement, and lack of personal interest. Hence, despite the project leading to considerable changes, the students themselves expressed rather critical attitudes towards student involvement in curriculum design. Consequently, promoting student voice in higher education curricula design is a more tensioned phenomenon than has been discussed in earlier research.

Keywords: curriculum design, student voice, student participation, higher education

1. Introduction

Higher education curricula are normally designed among professors, teachers, and staff (Bovill et al., 2011a, p. 203). The aim of empowering students to make decisions about teaching and learning practices is known in academic parlance as student voice (Hämäläinen et al., 2017). Prompoting student voice can bring faculty and students into dialogue and help them to understand each other's perspectives (Cook-Sather, 2014). However, student voice is often promoted merely by collecting feedback from students or consulting student associations (O'Neill and McMahon, 2012, p. 161).

In this study, participating students were actively involved into degree programme curriculum design and given a legitimate role among staff design teams. The study was conducted at the Faculty of Information Technology of the University of Jyväskylä, in Finland (hereafter *IT faculty*). Previously, student voice in the IT faculty had been heard by collecting feedback from individual courses and utilising yearly student questionnaires. When the master's and bachelor's programmes were renewed for 2017–2020, the faculty administration wanted to take student voice better into account. Hence, a student project team (hereafter *team*) of four computer science teacher students was established to investigate experiences from the previous curriculum period and make recommendations for the new curricula.

The research literature about student involvement in curriculum design is still scarce (Bovill et al., 2011a). Furthermore, previous student voice initiatives concerning curriculum design have primarily focused on individual courses (e.g., Bell et al., 2019; Brooman et al., 2015; Bunnell and Bernstein, 2014). Hardly anything is known about student involvement in degree programme curriculum design. To tackle this issue, this study investigates how the team's recommendations were implemented in the new curricula and what hindered student voice in curriculum design according to the team.

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2. From listening to student voice to direct involvement

Curriculum is an important tool for organising teaching and learning in universities. However, it is also a widely used concept without shared meaning in higher education research (Annala et al., 2016). There are two ways how academics tend to conceptualise curriculum: *product oriented* and *process oriented* (Fraser and Bosanquet, 2006). In product orientation, curriculum is realised as a document that describes learning goals, content, teaching methods, and assessment guidelines for degree programmes or a single learning module. In process oriented conception, curriculum manifests as a dynamic, emergent, and collaborative process of learning for both students and teachers.

Student voice movement aims to enhance student participation in education (Manca et al., 2017). The premise is that students have unique perspectives on learning and teaching, so they should have the opportunity to influence how these practices are realised (Cook-Sather, 2014; McCulloch, 2009). Student participation manifests in collective decision-making processes that include dialogue between students and other decision-makers' (Mager and Nowak, 2012). Student participation has moderate positive effects on students' life skills, self-esteem and social status, democratic skills and citizenship, student–adult relationships, and school ethos (Mager and Nowak, 2012). Student participation can be formal, as when students are represented in university councils, or informal, as when taking part in student associations to influence university policies.

Curriculum design is a process of planning, constructing, implementing, and evaluating different learning opportunities (Print, 1993). A major factor that aids curriculum design in universities is supportive leadership, and curriculum design is often instigated by changes in professional accreditation policies in industry or academia (Freeman et al., 2014; Hurlimann et al., 2013). The main constrain of curriculum design is participants' limited availability for design efforts (Hurlimann et al., 2013). While there is a rather large amount of literature about involving teaching staff in curriculum design (see Huizinga et al., 2014), research that pays specific attention on student involvement in curriculum design has only recently begun to emerge (e.g., Bell et al., 2019; Chilvers et al., 2019; Ryan, 2019).

A few studies do examine student involvement in higher education curriculum design. Brooman et al. (2015) involved students in re-designing a law course module by utilising a focus group method. This resulted in improved mean marks, pass rates, and student perceptions of the module. Nixon and Williams (2014) invited 30 students to redesign a Sport Business course module, which led to self-reported improvements in students' skills and personal development. The most relevant work for our study was conducted by Carey (2013), in which students addressed demands of pre-registration nursing school's regulatory framework and professional requirements together with the school staff. Students were willing to participate in curriculum design and tended to focus on problems of curriculum, but had limited capability to use curriculum-specific language and felt uncomfortable in formal curriculum meetings.

As a conclusion, bringing faculty and students into dialogue can yield a richer reciprocal understanding of each constituency's perspectives (Cook-Sather, 2014). We continue on this path by involving students in designing degree programme curricula, including matters like course topics, course sizes, learning objectives, and schedules.

3. Method

3.1. Research questions

So far, the outcomes of involving students' voices have been encouraging. The concern is, however, that initiatives may involve students but end up without concrete changes in educational practices (Seale, 2009, p. 996). Thus, it is crucial to examine what concrete implications these initiatives have. We consider this issue with the first question: **How were the recommendations of the team implemented in the new curricula?** By doing so, we reveal how the team's recommendations resonated in the formal decisions of the IT faculty.

Previous studies about collaborative curriculum design have focused on the teacher's perspective (Bovill et al., 2011b; Hurlimann et al., 2013). Thus, the second question examines **what hindered student voice**

in curriculum design? We aim to identify factors that may prevent students from taking part in, or lead to failures of, collaborative curriculum design projects.

3.2. Context description

The IT faculty provides bachelor's and master's degrees in mathematical information technology[1]. The graduates of the IT faculty work as experts in the software industry or continue in academic careers. The IT faculty is also the main Finnish institute to provide formal qualification for computer science teachers through the Master's Degree Programme in Educational Technology.

The Computing Curricula Series (Joint Task Force for Computing Curricula, 2017) provides general curriculum guidelines for a computer science degree programme, but more specific curricula are designed in the IT faculty. This involves faculty teachers, student instructors, and other administrative staff in aligning the teaching resources with the academic and industry needs: deciding what courses are taught, who teaches them, when they are taught, and what the learning objectives are.

3.3. Data collection and analysis

Four computer science teacher students were selected for the project (Table 1). Two of the students had no previous experience in curriculum design. S1 had graduated from educational sciences and started in the Master's Degree Programme in Educational Technology to qualify as a computer science teacher. S3 had started in 2012 in the Bachelor's Degree Programme in Mathematical Information Technology and changed to the Master's Degree Programme in Educational Technology. Two other students (S2 and S4) had previous experience in curriculum design, as they had worked in higher education and started directly in the Master's Degree Programme in Educational Technology.

Table 1: Study participants ($n = 4$).

#	Starting year	Interview date	Interview length	Previous experience in curriculum design
S1	2015	14.12.2016	31min 28s	Master's degree in education, but no work experience
S2	2015	16.12.2016	15min 9s	Over ten years teaching experience in higher education
S3	2012	15.12.2016	23min 30s	No previous experience
S4	2015	15.12.2016	30min 24s	Over ten years experience in higher education administration

In the first project meeting, we met with the team to become familiar with each other and to ask for written consent for research participation. We also proposed interview dates by email and included basic background questions. All team members agreed to participate in this research and the interview dates were set.

The task of the team was to design curricula for 1) the Bachelor's Degree Programme in Mathematical Information Technology, 2) the compulsory common studies for all master's programmes, and 3) the Master's Degree Programme in Educational Technology. We answered the first research question by comparing the team's curricula to the curricula that were accepted by the scientific council of the IT faculty. We extracted the learning goals and degree structures for every degree programme from the project report and compared them to the new degree programmes published in the IT faculty study guide.

For the second research question, we arranged semi-structured interviews, which were carried out immediately after the project ended but before the new curricula were published. The team members were interviewed individually by the first author. The interviews included the following topics: gains from the project, attitudes towards the project, recommendations for the new curricula, and participation in curriculum design. The interviews were then transcribed and exported to Atlas.ti analysis software. We executed an open coding procedure to identify relevant quotations and categorised them as factors that hinder student voice.

[1]The Faculty of Information Technology of the University of Jyväskylä, accessed 23.4.2019

4. Results

4.1. The team's recommendations in the new degree programme curricula

The team's recommendations were based on benchmarking other information technology universities and interviewing other students, staff, and alumni of the IT faculty. Here, we have extracted the parts that differ from the new accepted curricula. We describe the proposed change, whether the change was accepted in the new curriculum, and possible reasons for this outcome.

Bachelor's Degree Programme in Mathematical Information Technology. The team recommended three major updates to the learning goals: 1) changing from 'students have strong competency in software development' to 'students develop strong competency in programming'; 2) changing from 'students understand the structure and operation of computer systems in theory' to 'students become familiar with the theoretical foundation of computer science and learn the basics of scientific research'; and 3) changing from 'students can solve computing problems with sufficient technical and mathematical skills' to 'students have the technical, computational, and mathematical skills for solving problems and can apply these skills responsibly and safely'.

However, none of these three changes were accepted to the new curriculum. Instead, the learning goals remained exactly the same as in the previous curriculum. We asked about this from the faculty administration and the explanation was that the team's recommendations had been appreciated, but there had been too little time to implement the changes.

The team recommended three major changes to the degree structure: 1) making compulsory basic studies in mathematics optional; 2) dividing two large programming courses into four smaller courses; and 3) including a new course about cyber security. The team found that the current basic studies in mathematics do not serve computer science students well, as these courses are intended primarily for mathematics students. The team proposed replacing the basic studies with a compulsory course about discrete mathematics, which would be taught by the IT faculty. As for programming courses, the team found that they were perceived as too exhausting and proposed dividing them into smaller courses to relieve students' workloads. The team also found that there was a common need for a course about cyber security as students had complained that they have too little knowledge about this topic.

The effects of the team's recommendations on the new degree programme curricula are evident. The basic studies in mathematics were made optional and both of the new courses, discrete mathematics and cyber security, were included in the new curriculum. However, the structure of the programming courses remained the same. This rejection was partly because the programming teacher had resisted the change, a topic that is discussed later in the interview findings.

Compulsory common studies for all master's programmes. The team designed completely new learning goals for the compulsory courses common courses. These learning goals were implemented in the new curricula exactly as the students recommended.

When regarding the structure of the compulsory common courses, the team found that there was a lack of research-oriented courses. Thus, the team proposed a new course called research methods in computer science. This course was not implemented as a compulsory common course, but instead included in two master's programmes.

Master's Degree Programme in Educational Technology. The team designed completely new learning goal descriptions for this degree programme as well, which were also accepted to the new curriculum.

What it comes to the degree structure, the team proposed three new courses: teaching and researching educational technology, online courses and virtual learning environments, and technical support in educational institutions. None of these courses were included as such, but the old degree structure was modified based on the recommendations. The team also recommended expanding the design of the learning materials course from three to five ECTS and making it compulsory. Although the course was not expanded in the new curriculum, it was changed from optional to compulsory.

To conclude, the following parts from the team's recommendations were implemented in the new curricula: making basic studies in mathematics optional, adding three new courses (discrete mathematics, cyber security, and research methods), and adding learning goal descriptions for two master's programmes. This

outcome contradicts the interview findings, which we present next, as the students expressed critical notions towards promoting student voice in curriculum design.

4.2. Factors that hinder student voice in degree programme curriculum design

We identified four major factors that hindered student voice in curriculum design: insufficient perceived expertise, negative expectations about project significance, negative attitudes towards student involvement, and lack of personal interest (Table 2). We will describe these factors more in detail, accompanied with purposefully selected excerpts to present insights into the team members' thoughts.

Table 2: Code occurrence table for factors that hinder student voice in curriculum design (X occurs, – does not occur).

Code	S1	S2	S3	S4
Insufficient perceived expertise	X	X	X	X
Negative expectations about project significance	X	X	X	X
Negative attitudes towards student involvement	X	X	X	-
Lack of personal interest	X	-	-	X

Insufficient perceived expertise. A common topic of the team members was that they, or students in general, lack necessary expertise to carry out curriculum design.

> S1: *I don't have enough experience in this field. Considering that this is my second year of study, how could I make better recommendations than those who have studied for five years? It was a very difficult starting point.*
>
> S3: *It was self-evident that I could not rely on myself when making curriculum recommendations as I have started directly in the master's programme and have only taken a couple of IT courses.*

S1 and S3 discussed that they lack either study experience or work experience in the IT sector to be able to design curriculum content. Thus, they found it self-evident that completing the project task would be difficult and, as S1 noted, the team members felt frustrated at the beginning. The team explained that the lack of knowledge about the IT sector was the main reason they decided to interview other students and staff, instead of relying on themselves. This uncertainty was not only about their own perceived expertise, but also students' expertise in general.

> S2: *How can, let's say, bachelor level students say what a curriculum should include? They have too little experience in the field. But students should be listened to in practical matters: how much content courses should have and how long they should be, not to become too overwhelming.*
>
> S4: *Students may not be able to differentiate their opinions between courses and teachers. So it might be difficult for them to assess the need for a course.*

These quotations show that the team members were rather pessimistic towards students' capacity to make sensible recommendations for curriculum content. They perceived teachers and other staff as experts of content, whereas a student's position was to take a stand on more practical issues, such as the length of a course. A possible reason for this view was, like S4 expressed, that students may not be able to differentiate between the content and the teacher of the course. In other words, students could value some courses over others based on who is the teacher. Thus, the team considered the students' role in curriculum design to be one of making recommendations about how courses are taught, not what is taught.

Negative expectations about project significance. The quotations with this code show that the team members doubted that their recommendations would be included in the new curricula.

> S1: *I don't think so. Or maybe those recommendations that have been proposed somewhere else as well. But recommendations that were proposed only by us likely won't be included in the new curriculum.*

When we asked the team members to anticipate if their recommendations would be taken into consideration, S1 pointed out that if their recommendation is also proposed by staff, it may be included, but not otherwise. In that sense, the students' perception was that the purpose of the project was to find support for recommendations designed by staff, not to make new ones.

> S2: *I don't think that the programming courses will be changed. [...] Because the programming teacher doesn't want them to be changed. [...] And when it comes to the educational technology courses, I don't think they'll be changed either. [...] For the same reason, the teacher who is responsible for the course resists.*

The team shared the view that teachers are the ones who make the final decisions in curriculum design. S2 explained that the team had recommended dividing two large programming courses into smaller courses, but this recommendation had not been appreciated by the course teacher. Although this recommendation was about practice, not content, it had been rejected. S2 said that the programming teacher had resisted the change because the content of the programming courses would have been difficult to divide into several smaller courses.

Negative attitudes towards student involvement. This code includes quotations that manifest negative attitudes towards involving students in curriculum design. We found two different angles: hesitation towards students' willingness to participate and hesitation towards teachers' willingness to take recommendations into account.

> S1: *Only a small minority of students would actively take part in curriculum design. Of course there are always those who want to present their opinions.*
>
> S3: *[Student involvement in curriculum design] would be beneficial, but it is also difficult. At the moment feedback is gathered from courses, but my experience is that there are only a few answers, so it is difficult to develop courses based on them. It would need a better answer rate.*

These quotations demonstrate how the team members were cautious towards the idea of students taking part in curriculum design. S3 justified this view by pointing out that it was already difficult to gather feedback from students, so involving them would be difficult. On the other hand, S1 states that curriculum design may only appeal to those students who are already active, and limit the student perspective, whereas surveys can reach opinions of larger student populations.

> S2: *Maybe the barrier is, or there is a problem, how teachers could receive and take into account new perspectives.*
>
> S3: *A bit roughly said, but some may prefer to stick with old habits. I don't want to judge anyone, but maybe feedback from students is received, but not taken into account. [...] Either there is no one willing to take feedback into account, which would be worse, or there simply are no better solutions.*

Another concern was that teachers may not take students' recommendations into account. S1 pointed out that teachers may want to keep teaching courses in the same way that they are used to. Changing the course content or practices takes, after all, a lot of work and there is no certainty that it would make the courses better. However, the quotation by S2 manifests sympathy towards teachers – it may be that teachers find students' recommendations desirable but do not know how to implement them.

Lack of personal interest. The final code includes quotations where the project members showed lack of personal interest towards curriculum design.

> S1: *Maybe this curriculum development is not the most interesting area. I prefer more practical work, to have impact when learning happens, in interaction with students. So, developing learning materials and having discussions with students.*
>
> S4: *At first, I thought that this project is just fooling or playing around [laughs], but it was rather useful after all. It showed that it is possible to make rather sensible curriculum recommendations, even though I am not an expert in this field.*

(O'Neill and McMahon, 2012)/Users/ari/Library/texmf/bibtex/bib

S4 expressed lack of interest towards the project because it had felt artificial. This student had previous curriculum design experience as a teacher. Thus, S4 thought that there is no sense in asking students with little experience from the IT sector to make such curriculum recommendations. Another view came from S1, who stated that curriculum design is irrelevant for, or separate from, actual teaching practices: curriculum design was administrative and extra work that took time away from being with students. Of the students, S1 expressed most clearly that the project was just a compulsory part of the studies. For example, when we asked how new curricula chosen by the IT faculty, S1 responded: 'I don't know how the official process goes, maybe there is a rector who decides, I haven't really thought about that, I just want to have the recommendations completed.' By reporting these findings, it is not our intention to say that there is anything wrong with this attitude, but just to illustrate that not all students are keen on taking part in curriculum design.

5. Discussion

There has been a growing interest on student voice in the development of higher education (Hämäläinen et al., 2017). So far, the results of involving students' voices have been encouraging, such as leading to improved student achievement (Brooman et al., 2015), improved curricula (Nixon and Williams, 2014), and improved teaching and learning practices (Cook-Sather, 2014). Recent literature has taken a step further by examining *student-staff partnership* in higher education (Bell et al., 2019; Chilvers et al., 2019; Ryan, 2019). Our study points out the challenges and tensions that higher-education institutions may face when trying to establish student-staff partnership.

The findings for the first research question confirm that student involvement can lead to concrete changes in degree programme curricula: basic studies in mathematics were made optional, three new courses were added to the curricula, and new learning goal descriptions for two master's degree programmes. However, the study revealed a contradiction between ideals and their actual realisation, as many of the team' ideas did not materialise in the final curriculum. The reasons for ignoring these ideas were lack of time for actual realisation and disagreements between teachers and students, which naturally gave the teachers' ideas more weight.

Previous studies have brought up various self-reported advantages of student involvement, such as improved perceived support, autonomy, engagement, and reflexivity (Bovill, 2014). However, there may be overly optimistic notions regarding the possibilities of student voice, as there is fairly little empirical research on hindering and tensioned factors. The second question revealed a novel understanding on what hindered student voice in curriculum design from students' perspectives: insufficient perceived expertise, negative expectations about project significance, negative attitudes towards student involvement, and lack of personal interest. These seem to prevent students from taking part in, or led to failures of, collaborative curriculum design projects.

Although this paper reports a small-scale study, a single project in one higher education institution, it reveals that involving students in curriculum design is more nuanced than has been previously discussed. We find it crucial that these kind of experiences are studied and reported, if we want to pursue for better collaboration between students and staff. As an example, the students' recommendation to make the basic studies in mathematics optional had been a serious issue for the IT faculty for decades. Some have argued that mathematics is necessary for computer scientists, while others say that it decreases the amount of potential degree programme applicants. We know from student feedback that many would prefer studying some other subject instead of mathematics, such as business studies, and end up choosing another programme. While it is impossible to say whether this change will prove to be right or wrong, what matters is not whose voice is the most influential but the interactions required for detecting and repairing misunderstandings and for constructing optimal curricula to meet future needs.

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