

Evaluating the impact of strategies on students' perceptions of digital transformation – a case study of a Swedish higher education institution

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Abstract

Digital transformation (DT) in Higher Education Institutions (HEIs) affects the learning environment with digitally-enhanced teaching methods, student assistance, and administration processes. HEIs develop strategies to exploit the chances offered by DT. Our study investigates the connection between the strategic work of HEIs on DT and how students perceive the results of this work in their daily studies. We applied a case study design on a Swedish HEI to gather our results. Results show that students are somewhat positive about the strategic work but still perceive digitalization as a barrier to collaborating with peers and lecturers. Our research contributes to knowing if the time and effort spent on an HEI's DT impact the student stakeholder group. By bringing forth ways of improvement, we generate new knowledge about DT processes in HEIs. Thus, we inspire educators and administrators in this industry by putting forward lessons learned and improvements.

Keywords: *Higher education; digital transformation; strategy; students' perception; case study.*

1. Introduction

In Higher Education Institutions (HEIs), digital transformation (DT) affects the learning environment with digitally-enhanced teaching methods, student assistance, and administration processes (Reid, 2014). DT relates to integrating technology in all areas within an organization, thereby transforming its operations to deliver better service (Weerawardane, 2021). To succeed on a journey to a digitally mature organization, a roadmap pushed by a digital strategy is needed (Gobble, 2018). HEIs have specific strategies, resources, and support mechanisms related to their DT. Students are an essential stakeholder group directly affected by strategies and resources. It is of utmost importance for HEIs to know how their students perceive the progress of their DT journey. Thus, our research questions are: To what extent are strategic documents and students' perceptions regarding DT related to each other? What should HEIs focus on to improve students' perception of DT?

We choose a case study approach to investigate how Malmö University (MaU) in Sweden works with its DT and how its students perceive it. In terms of the number of students, MaU is among the ten largest universities in Sweden. MaU is actively working towards developing digital competencies in staff, as well as promoting flexible learning environments for students through blended learning (Malmö universitet, 2022). Especially the faculties of Teaching and Technology drive research on digital learning. These factors contributed to the choice of Malmö University as an adequate case.

The following presents a background section on DT in higher education (HE). After, we inform about the case study design. The result section presents aspects of policy documents combined with findings from survey data. Within the discussion, we will enhance results with the current literature and suggest areas of improvement before concluding our paper.

2. Theoretical background

Besides learning and teaching, several other dimensions need to be considered in DT, such as administrative tasks, human resourcing, marketing, and DT governance (Benavides, Tamayo Arias, Arango Serna, Branch Bedoya, & Burgos, 2020). DT is a highly complex process. Hence, it is essential to look at the process holistically and place the different stakeholders at the center of it (Benavides et al., 2020). Many different elements depend on each other, e.g., managers, government, faculty, digital platforms, information systems, teacher training units, teachers, and students (Benavides et al., 2020). DT might shift the roles of teachers and students, as pedagogical concepts such as flipped classrooms are easier to pursue with digital technologies. DT enables autonomous, flexible learning concepts and enhances collaboration (Benavides et al., 2020). The DT affects all the different procedures and services. Hence, HEIs require a complete institutional strategy (Gobble, 2018).

Leaders of HEIs have identified four superior goals connected to DT: (1) improving students' learning environment, (2) increasing operational efficiency, (3) stimulating innovation in education, and (4) increasing computing power for cutting-edge research (Alenezi, 2021). These goals imply the importance of integrating digital tools into existing systems to rethink the concept of HEIs. However, DT has mostly been seen as a support for the existing learning and teaching environment instead of contributing to a greater disruptive change (Alenezi, 2021). Similarly, some scholars suggest that students' digital competence should be promoted by using digital tools early in all courses (Gulliksen, 2017). In doing so, HEIs help meet future societal demands for advanced digital skills in the population (Gulliksen, 2017).

The Swedish Higher Education Authority suggested the creation of a national strategy for digitalization in HE (Universitetskanslersämbetet, 2022). While today there is no nationally DT strategy for HEIs, local alternatives can be found in universities' guiding documents. Regularly, these documents focus on digital and/or blended learning. Other aspects of DT were seemingly not included (Ljungqvist, 2018). Goals in the documents do not always coincide with teachers' experiences. A comparison of Swedish university teachers' experiences with universities' documents regarding digital teaching identified discrepancies. Often, the documents anticipate digital teaching to be efficient and time-saving. Instead, the teachers' experiences indicate an increased workload (Ljungqvist, 2018). Teachers' and students' experiences of digitalization at Gothenburg University show that the Covid-19 pandemic boosted the use of digital teaching tools. Even if digital teaching existed, it was seldom used before (Wackenhut & Gillette, 2022). The pandemic has removed many constraints. The future will show how future guiding documents will be influenced by the learnings of enforced digitalization during the pandemic. A DT strategy cannot encompass wordings in a document. Organizations must perform strategically by strategizing, having a strategy, and being strategic (Gulbrandsen & Just, 2020). Words, resources, and stakeholders are essential to consider when an organization's strategic efforts are to be reviewed.

3. Method

We investigated MaU's DT process in 2021 by using a case study design. According to Yin (2013), case studies are performed in five distinguished steps: (1) *Plan* by identifying why a case study is preferable; (2) *Design* by defining the units to study; (3) *Prepare* by screening potential cases, (4) *Collect* evidence through data sources; and (5) *Analyze* by identifying patterns and developing an analytical framework. As our topic is complex and needs a holistic observation by understanding a real-world case in an authentic context, we deem a case study to be an appropriate approach (step 1). The units being studied (step 2) are MaU's policies - as an expression of its strategic DT work - and the perceptions of MaU's students regarding its DT. This study can be seen as a single case study preparing for further research (step 3) and informed suggestions for MaU. For a case study, it is expected that different materials,

such as documents and interviews, must be collected (Creswell & Poth, 2017). We collected several documents (step 4) containing Malmö University's DT strategies and resources, such as the official document "Strategy 2022" (Malmö University Board of Governors, 2017), which contains the university's goals and visions between 2018 and 2022. Additionally, we examined strategy documents before 2018 to follow up on its transformation (Lindquist, 2017). We inspected its organizational structures. Regarding the student's perceptions of the university's DT, we have used data collected from a survey conducted in 2021 with participants of semesters two and five from Malmö University within the study program Bachelor in Media Technology (Packmohr & Brink, 2022). In total, 156 students participated. Participants had to rate 30 DT-related items on a five-point Likert scale (Vogelsang, Brink, & Packmohr, 2020). From the survey items, we have selected 13 as they reflect on the strategy documents. We analyzed different materials (step 5) to learn how the documents influence the university's operations and affect the students' perceptions. We use analytical generalization to reject, modify, corroborate, or advance existing theories (Yin, 2013).

4. Results

MaU's strategy document from 2018 to 2022 (Malmö University Board of Governors, 2017) stated that the primary stakeholders were staff and students. Relations to digitalization are found in the focus areas of *identity and role in society* and the *university environment*. Within these areas, the strategy states specific goals such as *digital competence and offers*. MaU wants to generate quality in education and research by making the best of digital improvements. Further goals regarding *developing the digital work and learning environment to meet present and future requirements for digital skills* can be found. The document states that the university will *use the potential of digital technologies*. MaU possesses several *Advisory Boards* besides its faculties. One of them is the *Advisory Board for Digitalisation*. Its mission is to manage the work of digitalization and point out directions to achieve the vision of being at the forefront of digital technology in education, research, and operational support (Malmö Universitet, 2023). The *Board for Digitalisation* advises the vice-chancellor and the University Board. The chairman of the advisory board is the dean of the Faculty of Technology. Representatives from different departments are part of the board. The Advisory Board of Digitalisation interprets digitalization as more than mere integration of different tools. Instead, digitalization is a cultural change. The application of digital technologies facilitates work and enables new initiatives in the academic environment (Malmö Universitet, 2023). Other contributions have been made, such as appointing a university-wide digitalization officer or other activities organized by the Center for Teaching and Learning, such as workshops, implementation of digital exams, or courses such as *Collaborative learning in digital learning environments*. In September 2020, the university launched the so-called Digihub, where students and staff members can borrow digital equipment. Students

can connect to other students as digital mentors to get help with online studies, mainly regarding tools such as dlp and collaborative tools, and content production. Digihub is gathering different resources and offers in the same place, such as media production, IT support, mentors, and pedagogical support. Since 2018, MaU has used Canvas as its digital learning platform, which provides a rather open structure. There are many possibilities for designing a course in terms of using dlp tools and layouts. MaU offers courses on using Canvas for staff and students via the platform itself (Malmö Universitet, 2023).

Table 1. Survey results.

(#) Item in keywords	Agree	Rather agree	Neither nor	Rather disagree	Disagree
(1) necessary technical means to use digital course offerings	64,7%	21,2%	9,0%	4,5%	0,6%
(2) university moving forward in terms of DT	24,4%	42,3%	23,7%	9,0%	0,6%
(3) sufficiently trained in the use of the dlp	9,6%	20,5%	24,4%	26,9%	18,6%
(4) digital teaching has negative effects on collaboration with peers	34,6%	30,8%	11,5%	16,7%	6,4%
(5) difficulties in motivating to participate in digital courses	20,5%	26,9%	10,3%	22,4%	19,9%
(6) not enough resources for digital teaching	9,6%	19,9%	32,1%	23,7%	14,7%
(7) lecturers have IT skills to handle dlp	14,7%	24,4%	24,4%	26,9%	9,6%
(8) university offers digital services, which support my studies	25,6%	41,0%	21,2%	9,6%	2,6%
(9) digital teaching worsens exchange with lectures	35,3%	32,1%	15,4%	12,8%	3,8%
(10) University has clear vision/DT strategy	5,8%	24,4%	45,5%	17,9%	5,8%
(11) University management supports DT	19,2%	35,9%	39,7%	3,2%	0,6%
(12) learning culture at university has not changed due to DT	7,7%	21,2%	32,1%	26,3%	12,2%
(13) university strives to constantly improve to transform digitally.	10,9%	40,4%	34,6%	12,2%	1,3%

From a larger survey (Packmohr & Brink, 2022), we selected 13 items related to MaU's DT work. For an exploration of the data, table 1 represents the frequencies of the possible degrees of agreement/disagreement. Students are confident that they possess the necessary technical means (1). On the contrary, students perceive rather insufficient training on the dlp (3).

Collaboration through digital channels with fellow students (4) and lecturers (9) is perceived as negative. In comparison, perceptions of problems in motivation (5) are fairly evenly distributed. Regarding resources (6), students tend to have a slightly positive perception. A balanced perception is visible regarding lecturers' skills (7). With MaU's strategy (10), there is a tendency toward the middle. Additionally, the engagement of the top management (11) is perceived as positive. Regarding the learning culture (12), there is a tendency toward the middle. On a positive note, students perceive MaU as open to improvements within DT (13).

5. Discussion

Considering the wording regarding DT within MaU's strategic documents, there is a high overlap with definitions from the field (Reid, 2014). MaU wants to use DT to affect the university's culture, which students do not entirely perceive as changed yet. One part of a changed learning culture is a digital-nomad pattern (Nurhas, Aditya, Jacob, & Pawlowski, 2022), which offers students the opportunity to study and gain other experiences simultaneously. MaU might more explicitly communicate such opportunities to students. MaU's Advisory Board of Digitalisation comprises representatives from several departments, which ensures a broad administrative perspective. However, neither students nor teachers are included. Scholars highlight the importance of having all stakeholders involved (Benavides et al., 2020). Monitoring of the two stakeholder groups within the core operations seems to be imperative. Students find digital courses challenging regarding collaborations with peers and motivating themselves, despite MAU offering the course *Collaborative learning in digital learning environments* for teachers. A solution is to enable more interpersonal exchange and counseling (Draxler-Weber, Packmohr, & Brink, 2022). Instead of setting up a top-down solution, co-design methods with the intended users as an active part of the design process (Sanders & Stappers, 2008) could be a way to address these challenges. The students perceive MaU as at the forefront of its digitalization. It seems MaU's efforts on DT are paying off. Most students judge MaU's digital services to support students during their studies as positive. This might be connected to the visibility of DigiHub, which is available for guidance. Looking at DigiHub, a recommendation could be an even stronger connection to the universities core operations. Practically, DigiHub's personnel could become part of courses. The students give scattered answers regarding teachers' knowledge of working with the digital platform. One reason might be that Canvas' open structure enables a great degree of freedom in how courses can be designed and executed. This might lead to the widespread perception of teachers' competencies but might also relate to the dilemma between standardization and adaptation (Aili & Bjarnason, 2020). Another problem is the time lecturers need to adapt to digital teaching (Universitetskanslersämbetet, 2022). Even if courses and guides are available, developing competencies takes time, especially in faculties that are less prone to technical and/or pedagogical education. The dilemma of standardization

and adaptation might also reflect on the answers regarding sufficient training. As there is no objective standard on the dlp, students need to be trained for adaptability. It seems the university is giving the students the impression that it continuously improves on its digitalization. Still, the Covid-19 pandemic might have triggered many changes, which students perceive as an effort of the university (Boström, Collén, Damber, & Gidlund, 2021).

6. Limitations and Conclusions

To analyze efforts on a strategic level, our study connected a university's strategy documents to its students' perceptions. In general, the perception of students is positive. Regarding collaborations and motivation, we found more negative perceptions. Thus, recommendations are to include stakeholders more in the DT process. Even if a single case is examined, a case study should draw general conclusions (Yin, 2013). Most universities need help with their DT. MaU is a common example of an HEI that is pursuing its DT, leading to the fact that our recommendations could be applicable in diverse settings. A specific advantage could be the Swedish government's digitalization vision for the whole state. As this is a single-case study, further research could include a multiple case study design (Yin, 2013) or collect additional data, e.g., instructors' perceptions. In addition, more in-depth statistical analyses could provide further insights. Our quantitative data was collected during the Covid-19 pandemic. Students might be positively biased toward MaU's digitalization work.

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