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Innovation through distance: The foundation of a satellite campus and its implication on teaching activities in a STEM subject

Abstract

This article discusses a technology-driven innovation in distance education at Universität Innsbruck that was commenced in 2016/17, when the already established undergraduate programme of Mechatronics was also introduced at a new satellite campus 200 kilometres away from the main campus. It looks at changing practices in teaching for this study progamme and articulates general managerial recommendations for introducing such large-scale changes. The analysis is supported by three interviews with leading faculty members and an ICT expert from Universität Innsbruck.

Keywords

Distance education, satellite campus, innovation, faculty member perpection, ICT tools

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1 Introduction

The object of investigation is a technology-driven innovation in teaching at Universität Innsbruck that was commenced in the study year 2016/17, when the already established undergraduate programme of Mechatronics, offered by the Faculty of Engineering Sciences, was also introduced at a new satellite campus in Lienz, a town approximately 200 kilometres away from the main campus in Innsbruck. This could only be realized through major investments in ICT infrastructure, personnel and adjustments to the didactics of several lectures, which were then live streamed from Innsbruck to Lienz. To a great extent the project was stimulated by the regional government of Tyrol, who offered additional funding for the setup of the new undergraduate programme in Lienz as part of their regional development strategy (UNIVERSITÄT INNSBRUCK, 2015a). I will explain this in more detail in the following chapter and give additional background information on the broader context.

To group the key issues for managing this change I will use (and partly re-group) SOMEKH's stages of innovation (2007) to structure the discussion of this innovation process as follows:

- Orientation and preparation
- Routine implementation
- Refinement and (creative) integration

The model was chosen as a conceptual orientation to describe and analyze the given innovation, as it broadly covers the central stages of ICT-related innovation processes. Within the different stages it will be helpful to analyse the given example through the lens of sociocultural theory, which puts an emphasis on the change of social practices as the key indicator for enhancement taking place. I will do this by examining the undergraduate programme in Lienz as an 'activity system' with different elements and connections between them, as laid out in TROWLER, SAUNDERS & BAMBER (2009). I will put a particular focus on the tools facilitating this change, how they are used by faculty members, and if practices have

changed throughout the innovation process. This transformation-centred approach takes into account the multi-level complexity of change in higher education and the importance of changing practices.

I will support my analysis by three semi-structured interviews that I have conducted with central change agents that were and are involved in this innovation process: Rudolf Stark, then Dean of Studies of the Faculty when the undergraduate programme in Lienz was introduced in 2016; Hans-Peter Schröcker, Dean of Studies from March 2017 onwards and former coordinator for new media within the Faculty; and Ortrun Gröblinger, head of the division for new media, a central administrative unit of Universität Innsbruck that offers support for ICT-related teaching matters. Furthermore, I was personally involved in this teaching innovation as well, as I administered the funding from the regional government on behalf of the Rector and acted as the interface between the Faculty and the Rector on all budgetary as well as managerial issues.

The chosen approach offers an analytical framework to map how change is taking place throughout different stages of an innovation process. As such, it offers a structured way to cluster and discuss the presented case study, and, building on this analytical part, articulate managerial responses and recommendations. Designed fit-for-purpose, the model might not be applicable in other settings, but could be a valuable source for follow-up case studies in other environments.

In my conclusion, I will summarise the key issues for managing the implemented and still ongoing teaching innovation and discuss to what extent practices have changed. I will argue that, although the change has originally been mainly resource and top-down driven, has constantly gained acceptance among faculty members involved and is more and more perceived as an opportunity to enhance didactics and thus the learning experience of students.

2 Background: Establishing a satellite campus on the periphery of Tyrol

Regarding third-party funding, which is of increasing importance for the overwhelmingly federally funded Austrian universities, the regional government of Tyrol plays an important role for Universität Innsbruck, as it has continuously increased its budget for tertiary education activities. Between 2008 and 2016, the budget had risen by almost 70% from 19 to 32 million per year (APA – AUSTRIA PRESSEAGENTUR, 2014) and continues to grow.

One of the most important milestones in this regard was a decision of the regional government in 2012 to fund two professorships in the field of Mechatronics to strengthen regional STEM activities, which eventually led to the introduction of a new Bachelor and Master's programme in Mechatronics at Innsbruck University and also the progression of the former Faculty of Civil Engineering to a Faculty of Engineering Sciences (UNIVERSITÄT INNSBRUCK, 2012)[2].

After the successful introduction of both programmes at the main campus in Innsbruck, the regional government approached the Rectorate of Universität Innsbruck again in late 2014 with the idea to offer the Bachelor programme of Mechatronics not only in Innsbruck, but also in Lienz in Osttirol, the capital of a Tyrolean region which is confronted with a constant outflow of people ("Immer weniger Einwohner in Osttirol", 2015) and is also geographically detached from the main northern part of Tyrol.

[2] The programme is jointly conducted with "UMIT – Private University for Health Sciences, Medical Informatics and Technology GmbH" (UNIVERSITÄT INNSBRUCK, 2017a).

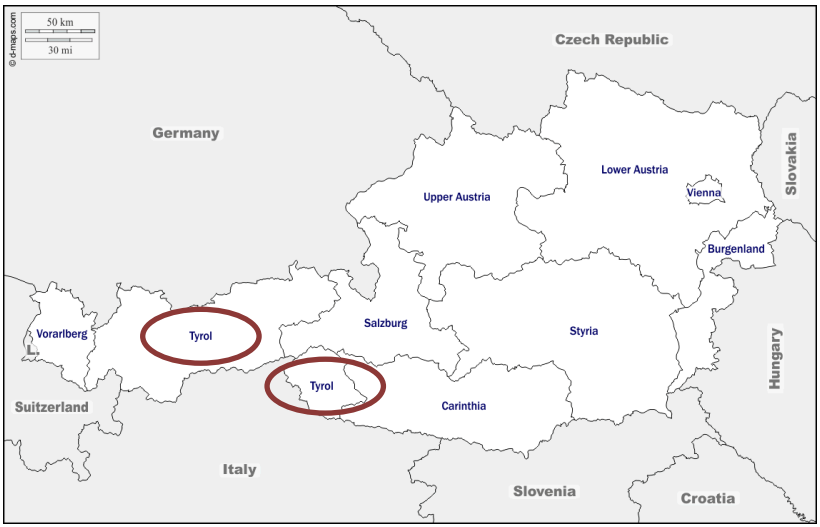

Fig. 1: Map of Austria and location of Tyrol (D-Maps.com, 2019a).

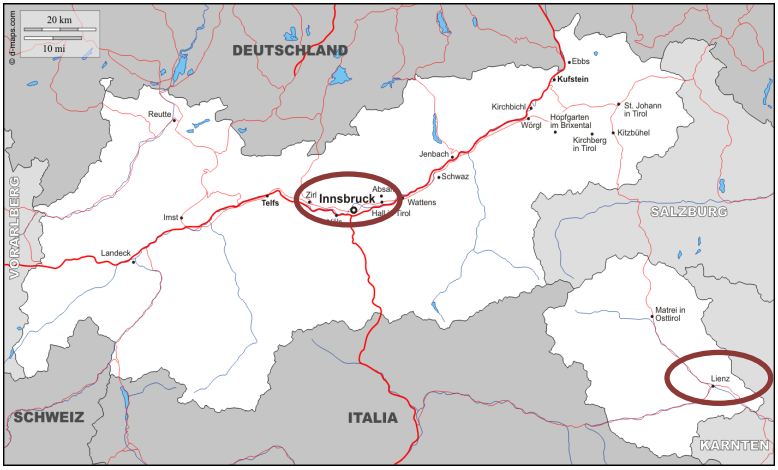

Fig. 2: Map of Tyrol and location of Lienz (D-Maps.com, 2019b).

The regional government's aim was to enhance Osttirol's attractiveness and also limit the outflow of – particularly young – people with such a new tertiary programme. After extensive consultations within the Rectorate and the affected Faculty of Engineering Sciences, it was decided to pursue the initiative that was proposed by the regional government. The main driver for this decision was for a large part the very active role and interest of the regional government in the prior and further development of the Faculty for Engineering Sciences, but also the opportunities for Universität Innsbruck in widening its regional impact through a new satellite campus and investing in academic personnel and infrastructure in an important STEM subject (UNIVERSITÄT INNSBRUCK, 2015b). How this change was managed will be discussed in the following chapters, especially how ICT-infrastructure was used to cope with the geographic distance.

3 Case study Lienz: Managing a technology-enhanced innovation in distance education

3.1 Stage 1: Orientation and preparation

According to SOMEKH (2007), this stage includes the phases where information about the intended innovation is gathered and preparations are made. In regards to setting up the new undergraduate programme in Lienz, I am therefore discussing a time frame of approximately one and a half years between late 2014, when the decision of the Rectorate to engage in this activity was taken, and the actual start of the programme in autumn 2016.

The early phase of this innovation was dominated by the question of how Universität Innsbruck deals with the logistical challenges in terms of teaching that such a new satellite campus poses. As proposed by the Faculty of Engineering Sciences, the principal decision was made very early on, that no new curriculum should be introduced. Instead, all courses from the existing programme in Innsbruck should also be offered in Lienz. This was critical insofar as the curriculum of the Mecha-

tronics programme is highly interdisciplinary and large parts of the programme are made up of basic lectures like mathematics, electronics, physics or chemistry that are taught by very senior academics and also attended by students of other undergraduate programmes offered by the Faculty (UNIVERSITÄT INNSBRUCK, 2017b). Thus they could not simply be duplicated in Lienz. Both the Rectorate and the Faculty saw the use of ICT-tools and E-Learning as a possibility to cope with this challenge, by live streaming all basic lectures from Innsbruck to Lienz, while offering all other interactive courses (like laboratories) on the ground in Lienz. Therefore, E-Learning at this early stage intentionally only encompassed live streaming as an additional means to deliver teaching – a conception that considers ICT-tools as neutral and largely ignores their impact on teachers and their ways of teaching, which several academics critique, such as KIRKWOOD & PRICE (2014), KNOX (2013), and BAYNE (2015).

Because of this misconception and the manifold notions of e-learning, rather intense discussions and also resistance arose within the Faculty, particularly among the affected faculty members. It was the then Dean of Studies Rudolf Stark, supported by the division for new media headed by Ms Gröblinger, who coordinated and led the discussion within the Faculty to elicit compromises and ensure support. This was successful and looked as follows: Established teaching routines need to change as little as possible, however, the sole use of live streaming was seen as insufficient (R. Stark, personal communication, November 17, 2017). It was widely agreed that students in Lienz should not only be able to listen passively to lectures happening in Innsbruck, but also interact with teachers in a bi-directional way, e.g. for questions or discussions. Consequently, the ICT-infrastructure, as originally foreseen, needed to be extended by hardware and software for videoconferencing to meet the demands made by faculty members involved. Furthermore, additional student support staff were requested to assist academics involved in the new project. Confronted with these requirements, which also had substantial budgetary consequences that were originally not foreseen, the Rector agreed to cover these additional costs in order not to endanger the project as a whole.

From these considerations and contrasted with relevant literature, several key issues can be derived that support managing change in the early phase of a teaching innovation of such a scale:

- **Clear aim:** It was a shared understanding both from the Rectorate as well as the Faculty that the undergraduate programme in Lienz should be established by autumn 2016. Without this message, which was clearly top-down, and the corresponding time pressure, discussions within the Faculty would probably have been more complicated and inertia greater. However, as TROWLER, MURRAY & KNIGHT (2003, p. 3) point out, *'pervasive change takes time'* and needs long-term thinking.
- **Adaptiveness 1:** While the aim was clear, the original intention to exclusively use live streaming needed to be adapted in accordance with the requirements of faculty members involved. Here managing change in a higher education institution differs from change in the corporate world insofar as a more inclusive approach is needed that is in line with academic values (D'ANDREA & GOSLING, 2005). Hence change agents within higher education need to be flexible when managing change – in particular to structures and scope of change – and also allow devolved responsibilities, facilitating solutions that are fit for purpose.
- **Creating ownership:** In the case of a large scale teaching innovation like Lienz, that not only combined the establishment of a new satellite campus, but also the introduction of e-learning elements in an existing curriculum, much of the success is dependent on the faculty members involved in the programme. SALMON (2005) highlights that for e-learning innovations in higher education institutions, ownership for content and pedagogy must lie within the respective academic departments to ensure wide support among academics. In the case of Lienz, this was ensured through the deliberations conducted by the then Dean of Studies Rudolf Stark, who was a long-time and respected member of the Faculty. The propositions made by this group were translated into the technical and personnel (student support staff) ne-

cessities, therefore creating ownership for the setup that was ultimately realized.
Another important aspect that Hans-Peter Schröcker (personal communication, November 14, 2017), who was also involved in these initial discussions, pointed out, is the aspect that the freedom to not change teaching practices at all was a prerequisite for faculty members to engage in this project. This absence of pressure to align with any guidelines of ICT-supported didactics allowed faculty members to retain autonomy over their courses and pedagogy – which does not mean that change is not ultimately happening.

- **Resources and institutional strategy:** While TROWLER et al. (2003) softens the importance of sufficient financial resources when delivering change, additional investments in ICT-infrastructure and support staff were a prerequisite to make progress. These additional funds were provided by the Rector due to the overall strategic importance of Lienz as outlined in the background chapter. All interviewees highlighted the importance of adequate funding for the successful initial implementation of the project, leading ultimately to the adaption of six lecture halls with state of the art ICT-infrastructure for the chosen setup.

3.2 Stage 2: Routine implementation

For SOMEKH (2007) routine implementation in ICT-related innovations takes place when low-level, routine use is established by those involved. Applied to Lienz this was the case for the first study year beginning in October 2016, when the new satellite campus officially opened and former Innsbruck-only based lectures of the Bachelor programme of Mechatronics were transmitted to Lienz through live streaming and video conferencing.

The problems arising from the very tool-limited understanding of ICT can be shown by the question of how to use blackboards when live streaming lectures. They are still quite common in several subjects like mathematics or mechanics and

it was a request from faculty members involved that the picture of the blackboard needs to be transmitted to the satellite campus (Gröblinger, personal communication, November 10, 2017). This poses several challenges for live streaming, particularly in regards to readability.

In her interview Gröblinger (personal communication, November 10, 2017) points out that her division proposed the use of tablets instead of blackboards to ensure readability, which was initially not very widely picked up. However, during the course of the first study year and mostly due to student responses, faculty members more and more switched to tablet use in order to provide students in Lienz with a more readable version of their written explanations delivered in class. This example shows the discrepancies arising from a top-down and technology-centred approach against the realities on the ground, when change is not driven by the intrinsic professional motivation of teachers. If ICT is considered as integral to learning, PEARSON & SOMEKH (2006) argue that tools and the learning process need to be aligned, which was originally not the case in this example.

Another example of reluctant adoption during the routine implementation phase was the resistance to recording of lectures, which was proposed by the division for new media to cope with possible technical difficulties. Intended as a means to provide students with a backup version of the lecture, recording was perceived as a threat to replace future lectures with these records. Gröblinger (personal communication, November 10, 2017) explains that there was, in general, substantial fear regarding the new ICT-tools and how to use them appropriately, requiring a large amount of individual training of academics involved. Similar views are shared by Schröcker (personal communication, November 14, 2017), who explains that an informal feedback session organized among involved faculty members in January 2017 was particularly helpful to identify room for improvement when incorporating ICT-tools into lectures. Such a format indicates that efforts to change practices and make progress have happened on the ground and professional improvement is taken very seriously by faculty members involved.

In regards to managing change in this phase of innovation, I want to highlight two important aspects that need to be considered:

- **Adaptiveness 2:** SALMON (2005) argues that there are two ways of introducing e-learning into traditional teaching: Either through centralization and provision of professional services, or by incrementally involving affected academics and allowing them to make individual contributions. The described teaching innovation was dominantly driven by the first aspect, though devolved responsibilities allowed staff to find their own speed of adapting to the new circumstances. This not only led to a different setup of ICT-infrastructure in the build up to the implementation phase ("Adaptiveness 1"), but also acknowledged and gave room to changing practices on the ground. This room to manoeuvre on the side of faculty members involved was essential for becoming comfortable with the new situation and dealing with responses from students and among peers. This supports the argument that enhancement cannot be accredited to technology alone, but instead takes place in its respective social context (BAYNE, 2015).
- **Professional support:** As stated before, provision of professional services can play an important role in realizing change. Without an already well established and highly professional division for new media at Innsbruck University, which also played an important role in choosing the appropriate ICT-infrastructure, it is hard to envisage how this teaching innovation could have taken place. In the described case faculty members expected (but also valued) to be supported appropriately (Stark 2017, personal communication, November 17, 2017), as the rationale for the project was very much institution-driven. For instance, in the first weeks of the new study year colleagues from Ms Gröblinger's department were physically present in the lecture halls to support involved faculty members in case of any technical malfunctions (Gröblinger, personal communication, November 10, 2017).

3.3 Stage 3: Refinement and (creative) integration

Refinement and integration happens when steps are taken to integrate an innovation more broadly into practices and new approaches are pursued, which is the most challenging phase in ICT-related innovations (SOMEKH, 2007). In a recent empirical study from the Higher Education Academy about current teaching developments in the UK, 'Teaching excellence in the disciplines', the authors stress that 'engineering was the most active discipline in terms of introducing and testing a wide range of innovative pedagogic approaches' (ABBAS, ABBAS, BRAYMAN, BRENNAN & GANTOGTOKH, 2016, p. 73).

Mechatronics as a strongly engineering-dominated programme would therefore offer good overall conditions for real change taking place – understood as changing practices – and Gröblinger (personal communication, November 10, 2017) emphasises that academics supported through her division were in general rather pragmatic about implementing change. For instance, more and more academics involved in the discussed teaching innovation agree to have their lectures recorded and provide them online to students for a limited time, in case any technical difficulties occur. Schröcker (personal communication, November 14, 2017) also points out that it would be useful to use the experiences from the early implementation phase of Lienz to progress toward more comprehensive and 'real' e-learning formats that could then be disseminated. However, change is still happening on a case by case basis and is not organized in a more systemic way, in order to exploit additional learning benefits (e.g. by making these records also accessible for exam preparations) or even restructure the overall didactics of the courses.

Taking account of relevant innovation literature, the following suggestions could be considered in managing change in this advanced phase of innovation:

- **Showcase best-practices:** Creative ideas and hence best-practices are an important driver for innovation (AMABILE, CONTI, COON, LAZENBY & HERRON, 1996). In regards to Lienz, Stark (2017, personal communication, November 17, 2017) highlights that, for instance, one of the lectures enhanced through ICT-tools was nominated through the Rectorate for

the national ‘Ars Docendi Teaching Award’ and is now listed in the national encyclopaedia of good teaching practices (ATLAS DER GUTEN LEHRE, 2017).

However, it must also be taken into account that change is highly contextual and simple transfer of knowledge is likely to fail if not ‘translated’ between the respective environments (TROWLER et al., 2009). But, as the challenges for academics involved in the ICT-innovation Lienz are relatively similar, as are the contexts, the prerequisites for transferability would be good. A more structured exchange of best-practices could therefore fuel further changes and support the innovation process as a whole, by creating further ownership among academics and also increase peer-pressure to rethink one’s own practices.

- **Institutional dissemination and embeddedness:** Institutional rhetoric and support can play an important role in change processes, as TROWLER et al. (2003) point out. While this was certainly the case for this innovation in its early stages, it has to be ensured on a more broader basis in the longer term, in particular on an institutional level: on the one hand through continued financial support for necessary ICT-infrastructure and ICT-related professional services, on the other hand by using infrastructure and lessons learned from this innovation for other institutional contexts and disciplines that want to or even need to engage more deeply with technology-enhanced teaching and learning. On the faculty level Stark (2017, personal communication, November 17, 2017) already notices that teaching staff not involved within the project are also making use of the new ICT-infrastructure.

  However, Schröcker (2017, personal communication, November 14, 2017) also highlights the necessity for more legal and organizational certainty when engaging in ICT-related activities, for instance copyright issues, but particularly internal consequences like career progression or effects on the calculation of teaching loads. To address these issues, a working group

headed by the Vice Rector for Student Affairs and Teaching and Student Affairs has been initiated.

- **Evaluation:** Apart from continuous student and self-evaluation, which has already contributed to changing practices, evaluation of the project as a whole and the chosen approach has to be foreseen after an appropriate period of routine implementation. Such an evaluation should also aim to establish a more profound understanding and more commonly agreed expectations among all stakeholders for the future in the sense of a 'shared language'. The latter is particularly important due to the diffuse nature inherent to ICT-related teaching innovations (BAYNE, 2015).

4 Conclusions

The use of Somekh's stages of innovation might imply that change in higher education institutions – in this case an ICT-related teaching innovation – happens in a linear way: preparation, implementation, refinement, integration – period. This simplification is of course not valid. Change in higher education institutions happens in a complex environment with different levels of decision making, stakeholders, disciplinary cultures and activity systems that are affecting each other. Even in the discussed project there are actually two strands of innovation taking place at the same time: The introduction of a new satellite campus as well as an ICT-related teaching innovation induced by this new campus. I tried to focus on the latter dimension by using aspects of sociocultural theory to identify and discuss changing practices, however, this change needs so be understood in a broader context with its own dynamics, which I laid out in the background chapter. This interwoven nature and complexity makes change in higher education institutions generally hard to steer from a managerial point of perspective. I try to illustrate this overall challenge in the following figure.

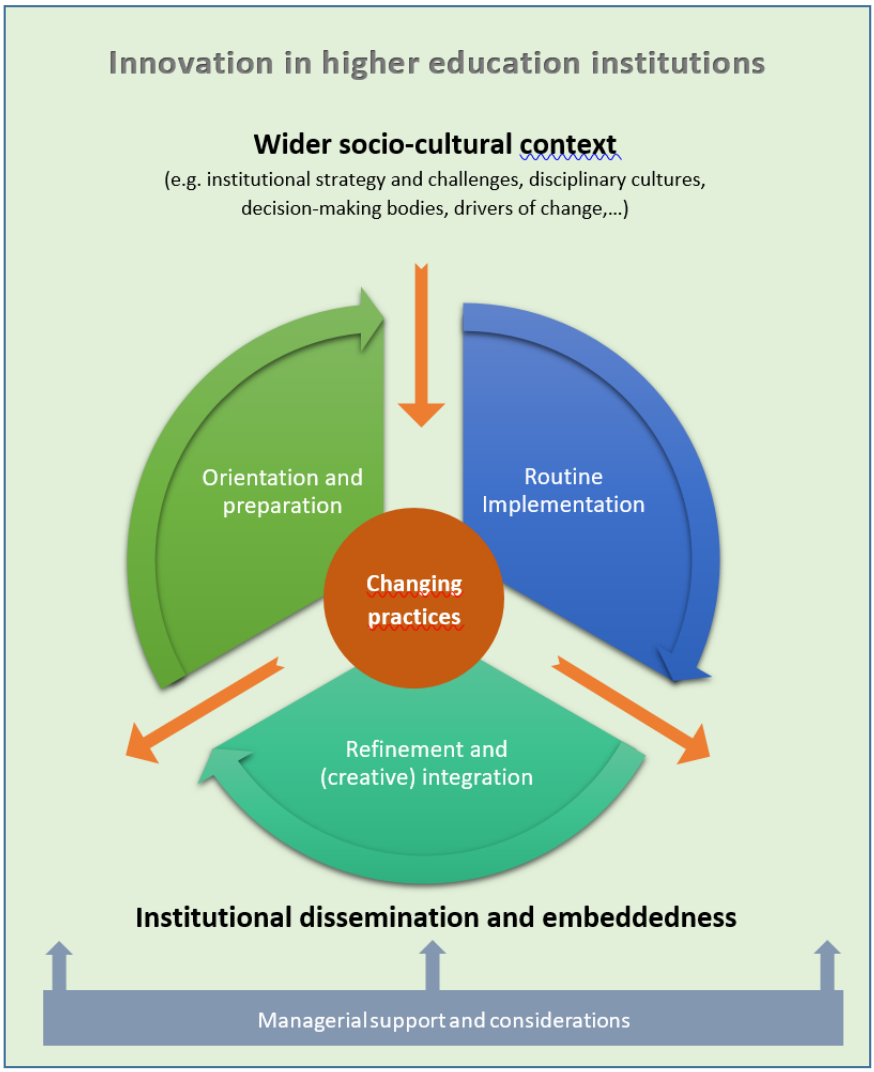

Figure 3: Adaption of Somekh's stages of innovation for illustrating change in higher education institutions

Regarding the ICT-related teaching innovation in Lienz it must be assessed that the primary driver for change was clearly top-down and resource driven. It was not the Faculty or individual faculty members who initiated a change process to enhance teaching and learning on the ground (in the sense of the diffusionist / epidemiological change theory of TROWLER et al., 2003), but the Rectorate through impetus from the regional government. Thus, ownership on the ground and willingness to change practices developed reluctantly. For such an underlying change theory TROWLER et al. (2003) point out that desired behaviour might be produced when sufficient (budgetary) allocations are provided and some bottom-up change might be evoked, however, within complex systems like universities, resistance and inertia is likely to arise if innovation is primarily pursued by one level only (SOMEKH, 2007). For the long term success of the project the following analysis seems particularly relevant:

> *Where change is imposed through managerial fiat there is unlikely to be real change in values, attitudes or practices in the long term. Real change is embedded in its context and comes when people make it their own through use and adaptation to local histories and contexts. Power and control at the ground level is a condition of success.*
> *(TROWLER et al., 2003, p. 15)*

It will therefore be crucial to align the top-down and bottom-up dimensions better, strengthen the latter and support faculty staff as much as possible to foster ownership of this project. Progress in the sense of changing practices was already made to a minor extent and some aspects of ICT-supported teaching are now embraced more widely – for instance the possibility of recording lectures. For Stark (2017, personal communication, November 17, 2017), initial scepticism towards the project has largely diminished and given way to a more curious approach of experimentation.

As the project is still in an early phase of routine implementation, an upcoming evaluation will be the appropriate occasion to change the notion of this innovation to a change process that is more driven by the professional imperative on the

ground, which may also contribute more to the overall learning experience of students, as SAUNDERS et al. (2009) highlight. However, one should be cautious to potentially discourage further engagement by any centralized action plan or the like. Ultimately, this is also a concession to the inherent messiness that innovations require in order to be successful (SOMEKH, 2007) – but also makes them exciting and stimulating to be part of.

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Annex A – Questionnaire

Ao. Univ.-Prof. Dipl.-Ing. Dr. Rudolf Stark
(https://www.uibk.ac.at/bft/mitarbeiter/stark.html)

	German original	*Translation*
1	Welche Faktoren waren für die – schlussendlich erfolgreiche – Umsetzung der E-Learning Aktivitäten Lienz in der Entwicklungsphase aus deiner Sicht von besonderer Bedeutung? (bspw. Ressourcen, Einbindung der Lehrenden, etc…)	*Which factors for – the ultimately successful – implementation of e-learning activities in Lienz where particularly important during the initial development phase? (e.g. resources, involvement of academics, etc….)*
2	Wo konntest du besondere Hürden identifizieren und wie hast du versucht, damit umzugehen?	*Could you identify particular obstacles that you were confronted with and how did you deal with them?*
3	Welche Bedeutung hatten bereits bestehende best practices Beispiele – sowohl innerhalb der Fakultät als auch von außen?	*What role did established best-practices play – from within the Faculty as well as from external actors?*
4	Haben sich aus deiner Sicht Praktiken und Herangehensweisen in Bezug auf E-Learning geändert bzw. siehst du in diesem Bereich Weiterentwicklungen an der Fakultät?	*From your point of view: Have practices and approaches in regards to e-learning changed and do you see enhancement in this field within the Faculty?*
5	Im Nachhinein betrachtet: Welche Empfehlung(en) würdest du aussprechen, wenn du diese Entwicklung noch einmal begleiten würdest?	*In hindsight: Which recommendation(s) would you suggest if you would have to be part of this project again?*

assoz. Prof. Mag. Dr. Hans-Peter Schröcker
(http://geometrie.uibk.ac.at/cms/slabid-11.htm)

	German original	*Translation*
1	Nach dem ersten Studienjahr: Welche Faktoren sind aus deiner Sicht für die erfolgreiche Implementierung der E-Learning Aktivitäten Lienz von besonderer Bedeutung? (bspw. Ressourcen, Austausch zwischen den Lehrenden, etc…)	*After the completion of the first study year and from your point of view: Which factors for the successful implementation of e-learning activities in Lienz are of particular importance? (e.g. resources, exchange between academics, etc….)*
2	Wo kannst du noch gewissen Hürden (bzw. Berührungsängste) identifizieren?	*Can you identify particular obstacles that you are confronted with and how do you deal with them?*
3	Haben sich aus deiner Sicht Praktiken und Herangehensweisen in Bezug auf E-Learning geändert bzw. siehst du in diesem Bereich Weiterentwicklungen an der Fakultät? (etwa neue Formate des Austausches, peer learning, etc…)	*From your point of view: Have practices and approaches in regards to e-learning changed and do you see enhancement in this field within the Faculty? (e.g. new formats of exchange, peer learning, etc.)*
4	Damit verbunden: Wie geht man mit bereits gesammelten Erfahrungen um bzw. haben / hatten diese einen Einfluss auf die weiteren Planungen?	*Related to the previous question: How do you deal with lessons learned and did / do they have an impact on the further planning?*
5	Welche Empfehlung(en) würdest du für die weiteren Aktivitäten im Bereich E-Learning Lienz aussprechen?	*Which recommendation(s) would you suggest for further activities in the field of e-learning / Lienz?*

Dipl.-Ing. (FH) Ortrun Gröblinger
(https://www.uibk.ac.at/elearning/mitarbeiter/ogroeblinger.html)

	German original	*Translation*
1	Welche Faktoren waren aus eurer Sich für die erfolgreiche Implementierung der E-Learning Aktivitäten Lienz von besonderer Bedeutung? (bspw. Ressourcen, Beratung von Lehrenden, etc…)	*Which factors for – the ultimately successful – implementation of e-learning activities in Lienz where particularly important? (e.g. resources, consulting academics, etc….)*
2	Inwieweit ist die Fakultät bzw. sind einzelne Lehrenden an euch herangetreten, um Auskünfte / Schulungen / Input bzgl. E-Learning zu erhalten?	*To what extent did the Faculty, respectively individual academics approach you for enquiries / instruction / input in regards to e-learning?*
3	Wo konntet ihr besondere Hürden bzw. Berührungsängste identifizieren?	*Could you identify particular obstacles that you were confronted with?*
4	Haben sich aus eurer Sicht Praktiken und Herangehensweisen in Bezug auf E-Learning an der Fakultät geändert bzw. seht ihr in diesem Bereich Weiterentwicklungen an der Fakultät? (etwa neue Formate des Austausches, peer learning, etc…)	*From your point of view: Have practices and approaches in regards to e-learning changed and do you see enhancement in this field within the Faculty? (e.g. new formats of exchange, peer learning, etc.)*
5	Welche Empfehlung(en) würdet ihr für die weiteren Aktivitäten im Bereich E-Learning Lienz aussprechen?	*Which recommendation(s) would you suggest for further activities in the field of e-learning / Lienz?*

Annex B – Streamed lectures Bachelor Mechatronics Lienz

Winter semester 2016 / 17:

844803	Precourse Descriptive Geometry	Innsbruck → Lienz
844804	Precourse Descriptive Geometry 2	Innsbruck → Lienz
844212	Mathematics 1	Innsbruck → Lienz
844138	Fundamentals of Chemistry	Innsbruck → Lienz
846122	Fundamentals of Physics	Innsbruck → Lienz
146117	Principles of Electrical Engineering	Hall (UMIT) → Lienz (4x)
844533	Mechanics in Mechatronics 1	Innsbruck → Lienz
850461	Fundamentals of Material Technology 1	Innsbruck → Lienz Lienz → Innsbruck (1x)
844371	Mathematics Advanced Training Course	Innsbruck → Lienz
844502	Mechanics Advanced Training Course	Innsbruck → Lienz
846103	Physics Advanced Training Course	Innsbruck → Lienz
846302	Chemistry Advanced Training Course	Innsbruck → Lienz

Summer semester 2017:

850360	Components and Basic Circuits	Hall → Lienz
844222	Mathematics 2	Innsbruck → Lienz
844861	Geometric Modelling, Visualisation and CAD in Mechatronics	Innsbruck → Lienz Lienz → Innsbruck (1x)
844122	Strength of Materials in Mechatronics	Innsbruck → Lienz
850462	Fundamentals of Material Technology 2	Innsbruck → Lienz