

# Responding to COVID-19: LUNEX University's decisions and actions to continue physiotherapy education

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## Abstract

In this report we reflect on the decision-making process and actions taken by a young higher education institution to the COVID-19 pandemic to continue teaching both undergraduate and postgraduate physiotherapy degree programmes. LUNEX University is unique in that it is the only higher education institute in Luxembourg to provide education in physiotherapy. The response to the global pandemic is further complicated as the majority of students commute across international borders to attend campus. We have focused on three distinct challenges LUNEX staff faced to ensure continued and quality teaching was provided: 1) Response to the country-wide and global shutdown; 2) Return to campus; and 3) Provision of clinical placements. We describe the decisions and actions to rapidly move to a blended learning format, and the strategic approach to incorporating simulated practice after restrictions were eased and a return to campus was possible. Initial observation suggests improvement in student competency in practical skills as a result of the blended learning approach. Recommendations are provided to encourage the integration of blended learning for practical and clinical degree programmes, like physiotherapy, where an emphasis is placed on simulated practice in classroom settings, underpinned by prior theoretical knowledge delivered online.

**Keywords:** blended learning, clinical education, professional training, coronavirus

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## Introduction

COVID-19 has initiated a schismatic shift in teaching approaches in practical and clinical higher education programmes, like physiotherapy. The need to quickly revise teaching content, traditionally delivered face-to-face on campus, to quality online teaching material brought a number of unique challenges. Making a calculated decision to move to a blended or distance learning approach would have allowed for content to be carefully considered and designed to meet specific learning outcomes. Instead, these unusual circumstances dictated quick decisions that needed to be implemented to ensure students were not disadvantaged. In this report we detail the challenges faced and the strategies implemented, including the decision-making processes, of a small private higher education institute in Luxembourg to continue teaching activities during the shutdown period. We also explain the process regarding the return to campus and subsequent teaching activities.

LUNEX University was established in 2016 and specialises in health, exercise and sport. It is unique in being the only higher education institution in Luxembourg to offer physiotherapy training, and currently has approximately 400 students registered in the bachelor and master programmes. The student

body is diverse, with only 30% of students from Luxembourg itself and the majority commuting across international borders. This international composition provides additional challenges incorporating differing rules in the neighbouring countries during the health crisis.

While online learning in health professions has become more commonplace (George et al., 2014), there is debate regarding the quality and rigour of practical focused degree programmes, like physiotherapy. As such, unlike many traditional universities, LUNEX has prioritised on-campus modular (block) teaching approaches. Each (intensive) module consists of two to four weeks of teaching based on the number of credits, with a revision period of about two weeks before examination. The modules may be entirely theoretical modules (for example research methods and the basic sciences courses), or a combination of both theoretical and practical content in the applied physiotherapy modules. For the physiotherapy degree there are two student intakes each year, in April and in October, with new students commencing their degree in the midst of the crisis in April 2020. April marks the beginning of the summer semester, and October the winter semester. In 2020, this

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resulted in an online induction week, and the introduction to the programme and staff were done remotely for these new students.

Clinical training begins with placements in the fifth semester of the bachelor programme. Students complete 950 hours of clinical placement in the bachelor programme and an additional 650 hours in the masters programme. At the time of the shutdown lectures for about 350 students over five bachelor cohorts and two master cohorts were disrupted.

## Challenge 1: Response to country-wide and global shutdown

The initial communication to staff in early March 2020 indicated the need to consider the method of delivery of the modules early in the upcoming semester, and the final decision to move to online delivery was made in mid-March. The updated timetable and strategy were then made available for module coordinators and within two weeks the first online modules were delivered. The aim of the management and staff at LUNEX was to maintain as much of the ongoing learning as possible during this time. Delays to the physiotherapy programmes have potential financial implications for both the institution and the students. Teaching of face-to-face lectures and all examinations were cancelled from mid-March until mid-May 2020. The content of these face-to-face lectures was delivered online using a variety of methods: non-synchronous and synchronous teaching in the form of voice-over recordings of slides, video presentations, slides and live question and answer sessions using online meeting software. All synchronous sessions were recorded and uploaded into the student portal for those students who were unable to attend live, and to ensure that all students had equal access to the content.

Developing online content has further challenges for physiotherapy as the discipline traditionally privileges a 'master-apprentice' approach (King, 2019), where the novice observes an expert in a clinical setting, or they practice in a simulated classroom environment. As such lecturers were initially required to assess the content of each module and evaluate: 1) key priorities to be taught; 2) which content could be delayed until a return to campus (and how this could be prepared for); and 3) how best to deliver the online content. 'Real-time' online classes, with opportunities for question and answer sessions, were considered to be optimal for the programme.

However, a number of restrictions were identified especially with the time constraints (for example, large group sizes, timetabling). As a partial solution, recorded lectures were provided as the core for the programme, with additional content

designed to encourage interaction, like small group meetings, and student-led problem-based learning activities. Of particular benefit was the provision of video-based learning material, both self-designed and available via physiotherapy-specific best practice material like the YouTube platform 'Physiotutors' or 'Physiopedia'. The availability of online recorded material has been identified as valuable for students as it is convenient, allowing students to study in their own time, and can assist with revision, where students can review content easily without relying on their own notes (Weeks & Horan, 2013). Preston et al. (2012) noted improvements in practical skills for students who utilised observational learning of recorded procedures. These references provided fundamental support for LUNEX staff deciding on how to structure each module.

## Challenge 2: Return to campus

By mid-May the easing of enforced restrictions allowed for a return to campus, but with strict requirements on classroom size, hygiene (and the use of personal protective equipment as appropriate for this setting) and social distancing. Theoretical content continued to be delivered online, meaning a blended approach was now implemented (this arrangement is currently in place until at least August 2020). Cohorts were split into smaller groups and teaching repeated for each group for practical classes.

The return to face-to-face teaching brought further challenges. Firstly, being the only higher education institution providing education in physiotherapy, there was a lack of specific guidelines for the return to face-to-face practical courses. In Luxembourg the Ministry of Education allowed the resumption of practical classes that could not be taught online starting from 11 May. A series of barrier measures were defined for all the schools, but none of the measures were specifically designed for the type of interaction and close physical contact that is typical in physiotherapy practical courses. For this reason, thorough research was conducted to retrieve relevant guidelines issued in the countries of the greater European region, and in countries that faced the pandemic before others.

Secondly, there was a high level of general anxiety by both staff and students in relation to the uncertainty of the situation and the potential health outcomes. A compilation of the guidelines issued throughout Europe appeased these anxieties and regular communication on current measures was provided to both staff and students. However, these guidelines did mean that teaching spaces that were not intended for practical delivery needed to be converted into appropriate spaces to deliver practical sessions. This involved removing desks and chairs, and replacing them with plinths in these spaces. Other challenges included wearing facemasks while teaching and the impact this had on effective communication and the ability to develop lecturer-student

relationships, and managing travel restrictions imposed on both staff and students living outside of Luxembourg. Staff and students were issued certificates as evidence for the need to travel across borders, to ensure that they were not penalised or fined if checked by border control. Some of the border crossings had long delays due to the documentation checking, and in these cases, staff may have continued to work from home until their presence was specifically required on site.

### Challenge 3: Provision of clinical placements

Sixty-five students were in clinical placements at the time of shutdown. Students on the clinical platform were supported until the clinical institutions were unable to retain them, based on the laws regarding COVID-19 management in each country. Clinical placements usually take place in multiple countries including Luxembourg, Italy, France (including territorial collectivities), Malta, Spain (including Tenerife), Germany, Qatar, Belgium, and the United Kingdom. This support included an increased number of direct contacts with both students and the host admin and clinical staff.

Guidance and facilitation of transport alternatives for students who were experiencing trouble in finding transportation means to return home when the placements were suspended were also provided by LUNEX staff. This scenario increased students' anxiety levels due to both health concerns and uncertainty regarding their ability to complete a required element of their degree programme, and the clinical placements staff provided emotional support to the students during this time. As each country reopens the borders, and flights return to a more normal schedule, these placements will become available again to students after the shutdown period. This has required an exceptional level of flexibility in placement dates and regular changes to the planning of placements for academics, clinical institutions and students alike.

### Successes

There were a number of successful outcomes as a result of the process. The enforced blended learning approach encouraged staff to consider how they were teaching and the content of their delivery. Using an online format to provide theoretical background, supported by additional video-based learning resources, permitted a more practical focus to face-to-face delivery. Initial observation of students in examinations appears to indicate improvements in competency of the practical skills between the winter semester 2019 and the summer semester 2020 (see Table 1). A negative change in results ( $\Delta$  failure rate) indicates an improvement in results in the summer semester. Results must be considered with caution though, as these are

crude comparisons of different cohorts of students. The modules presented were those delivered in the same manner, by the same lecturers and with the assessment format remaining the same for both semesters. Small group teaching is the regular method for the practical content in the modules (even pre-COVID-19) and, as such, we do not expect the group sizes to have resulted in the improvement identified.

Type	Timing	Failure rate <i>Written</i>	Failure rate <i>Practical</i>
Theory	1 <sup>st</sup> semester	-1.8%	-
Theory	3 <sup>rd</sup> semester	7.4%	-
Theory & practical	1 <sup>st</sup> semester	1.4%	-3.2%
Theory & practical	4 <sup>th</sup> semester	3%	-0.1%

Table 1. Change in failure rate ( $\Delta$ ) of theoretical and mixed modules between the winter semester 2019 (pre-lockdown) and summer semester 2020 (post-lockdown) for comparison.

\*Failure rate is determined by the number of students achieving less than 50% for the module, on the first attempt of the exam per module (excluding supplementary/re-examinations) presented as a percentage.

The module assessments were continued as per their accreditation but in some cases were delayed. During the initial shutdown period, no students were allowed on site, and any examinations during this time were delayed until students were back on campus. Modules that were prerequisites for clinical placements were prioritised and these assessments were completed as close as possible to their previously scheduled dates. No additional/unscheduled assessments were included to monitor the students' progress during this time. On return to campus, lecturers used additional revision sessions to ensure a successful achievement of module learning outcomes.

The ability of staff and students to adapt to the situation is also a highlight and a key transferable skill that can be implemented by students after graduation when entering the workforce. Staff were still able to ensure quality in delivery and rapidly provide fundamental information in different formats.

The process of gathering guidelines for the return-to-campus activities was facilitated by multiculturalism and the extensive network of international collaborations that characterise LUNEX University. We were able to retrieve and appraise documents that were not primarily available in English (for example Spanish, Italian, French, and German) and have early access to guidelines that were still in the final stages of their

development. This wealth of information contributed to building our own internal guidelines for the return to campus.

## Areas of consideration

The primary challenge with moving to a blended learning approach is the engagement of students with the online content. In some modules, students found this more challenging than others. In courses with primarily theoretical content (for example Scientific Foundations, Physiology, Anatomy II), the extended time periods of video content and online meetings were not suitable for many students. Some reported being unable to concentrate for more than four hours while others had limited access to computers in family homes, and distractions from siblings, children and partners. The use of the video resources was surprisingly low with these considered a key tool for students.

The workload impact on staff is another concern, with many staff reporting increased workloads to prepare the required online content. Communication with students via video conferencing and email was also noticeably increased, with staff reporting difficulties in addressing queries timeously due to volume.

The time restrictions imposed were outside of the institute's control. If this had not been the case a more considered approach to developing blended learning could have been applied, which utilised best practice in developing online content. The application of Bloom's taxonomy (Anderson & Krathwohl, 2001) to e-learning would be a logical first application.

## Recommendation

Delivery of online content in a non-synchronous manner provides learning opportunities to students beyond the classroom and allows them to pace themselves individually. It also removes the didactic teaching of the past, with which many students currently in the system struggle to engage with. A long-term shift to a blended learning environment could make education more accessible for LUNEX students commuting across borders. It will also refocus face-to-face teaching hours on specific practical skills that need instruction and correction. A careful balance between these methods would need to be ensured to retain engagement between students and staff, and to provide support for students who may not engage easily with this method of teaching. This blended approach could, for example, take the format of a flipped classroom, with the theoretical content covered during self-study using resources that have been created for this purpose. Students would then attend classes for the sole purpose of practice and correction of

practical skills. Further research investigating the students' preferences in the methods of delivery should be considered before implementing these changes in the future.

While a move towards this online approach would require a full curriculum review and potential re-accreditation with the Ministry of Education in Luxembourg, the resources developed during this time will be used to provide additional online support to the modules when they repeat in the upcoming semesters. The pre-recorded videos will be used as revision tools following the face-to-face delivery of the module. This online academic support will be piloted during the winter semester of 2020 in two of the modules with the highest overall failure rate in the physiotherapy programme. Should this approach prove successful in increasing the pass rate of the module, it will be rolled out in other modules in the future.

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## Peer review reports

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