The impacts of COVID-19 on teaching practice and opportunities for virtual internships, by Yi-Shan Tsai, Nataša Pantić, Michael Phillips, Dragan Gašević, and Ana Hibert Santana

At the time of writing, 153 countries have closed their schools and universities, affecting almost 70% of the world's student population. Although higher education institutions have made a rapid shift to teaching online and in hybrid modes, degree programmes where experiential learning forms a core element remain shrouded in uncertainty while physical placements in workplaces are not possible. The pandemic has required teachers to innovate in a multitude of different ways to adopt new methods to deliver teaching online, provide feedback and assessment. This is a particularly urgent issue for teachers in training as the possibility of school placement remains unclear over the upcoming academic years.

The socio-economic impacts of the pandemic have also posed difficult questions around supporting learners who have varying access to technological resources and the challenge of building caring relationships with these learners while the institutional boundaries of learning become more fluid. There

is an urgent need to examine these processes so as to ensure the quality of education and student well-being.

This project, based at teacher education programmes at the University of Edinburgh (UK) and Monash University (Australia), seeks to explore the impact of COVID-19 on teaching practice in pre-tertiary levels, identify challenges and good practices in supporting students during these difficult times, thereby informing the design of a virtual internship for trainee teachers who continue to face disruptions in experiential learning. By understanding teachers' relational work during the pandemic, how they deal with difficulties related to teaching and pastoral care, how they establish and maintain supportive relationships within and beyond school contexts to provide student support, we will be able to better respond to the changes introduced by the pandemic and be better provisioned to design virtual internships to enhance experiential learning for teachers. In this project, our first objective is to capture the challenges that teachers face during the time of COVID-19 and use the lessons learnt from the way teachers deal with the crisis situations through collaborative work with others to inform the design of a virtual internship.

Virtual Internships are computer-based professional practicum simulations where participants assume the role of a professional, working collaboratively on authentic tasks and engaging in complex professional thinking. A key part of experiential learning is the relational practice that teachers undertake: working collaboratively with various individuals, including students and their families, colleagues, and other professionals, to mobilise resources and expertise to support students. By understanding teachers' relational work during the pandemic — how they deal with difficulties related to teaching and pastoral care, how they establish and maintain supportive relationships within and beyond school contexts to

provide student support — we can better respond to the changes introduced by the pandemic and design virtual internships to enhance experiential learning for teachers.

Experiential learning is a core component of teacher training and it routinely involves placements in school contexts where trainee teachers learn essential skills from observing teachers in their day-to-day school lives. For trainee teachers such simulations can provide opportunities for experiential learning by engaging them in authentic school situations.

Project Aims

The project's short-term goal is to explore challenges and success stories about supporting students during the time of COVID-19, thereby identifying essential skills, resources, and support that can enable teachers to act as agents of change in difficult times.

The project's long-term goal is to inform the development of a future project in which a prototype virtual internship will be developed to scale the capacity of teacher education providers to enable and enhance experiential learning.

Project Questions:

1. **How do teachers work with others to support students in problematic situations during the time of COVID-19?** Feedback is an important teaching practice that can nurture a sense of trust and appreciation among students. As the online component of teaching becomes core practice, it is important to examine the extent to which teachers were able to build and maintain a supportive learning community through technology-

assisted feedback practice. At a cognitive level, feedback needs to help students reflect on their current progress and identify strategies to work towards desired goals. At an affective level, feedback should encourage positive motivation and self-esteem among learners in addition to continuous dialogue with teachers and peers. The lessons learnt will allow us to identify resources and training required for teachers, students and their families, in addition to informing the design of virtual internships.

2. **How do teachers build and maintain a supportive learning community through technology-assisted feedback practice?** It is expected that the virtual internship will allow students to work on problem-solving tasks with peers and interact with feedback from mentors. The data generated during the learning processes (e.g., chats, network data, and feedback) will enable further investigation into the development of key skills for teachers, such as relationship building, communication skills, inclusive learning design, and feedback provision.

Methodology

The proposed project will use an on-line log (TRAC) to collect data and provide visual feedback on teachers' social networks. The TRAC log was designed to track and facilitate teachers' professional reflections on their relational practices. The log contains questions that prompt teachers to describe 'what' changes or adjustments they made, 'who' they approached to drive the desired change, and 'why' their action led to (un)desired consequences. Based on their inputs, TRAC generates automatic feedback visualising and describing a teacher's interactions with individuals. In addition, guidance for teachers to improve their own and/or school level relational practices is provided alongside the visual feedback. Teachers will be invited to use TRAC to reflect on

situations in which they sought support from others to enable teaching practice and student support during the COVID-19 disruptions. They will also be invited to reflect on their own feedback practice as well as the usefulness of the automated feedback generated by TRAC.

Steps:

1. Courses that have placement elements from the teacher education programmes at the University of Edinburgh (UK) and Monash University (Australia) will be selected, and both the instructors and students of these courses will be invited to join the study. Participating instructors will incorporate TRAC into their course design. Trainee teachers will fill in the log based on their placement experience in the time of COVID-19 (during and after lockdown).
2. We will invite in-service teachers through local councils to use TRAC to reflect on their teaching experience in the time of COVID-19. Our sampling will include both primary and secondary school teachers.
3. Trainee and in-service teachers who have participated in the previous steps will be interviewed on their experience of reflective activities and feedback using the TRAC log.
4. Data analysis collected from TRAC and interviews to identify how teachers work with others to support students in problematic situations, and how they build a learning community through technology-assisted feedback. We will identify challenges and good practice of teaching during the time of COVID-19 and the strengths and weaknesses of technology-assisted feedback to inform institutional strategy and the design of a virtual internship.
5. With the goal to prototype ideas for a virtual internship for trainee teachers, we will run two co-

design workshops to identify effective ways to support experiential learning virtually. The outputs of activities in Step 4 will be presented to the participants to facilitate the co-design process.

Impact

Project evaluation report that outlines key stages and milestones in the project, successes, challenges and lessons learnt. This report will summarise project findings related to the two objectives of the project: how teachers work with others to support students in problematic situations during the time of COVID-19; and elements of feedback that can effectively support teachers' experiential learning of relational work.

A conceptual prototype of a virtual internship for teachers. Based on the research findings and consultations of the two co-design workshops, we will conceptualise a prototype virtual internship for teachers, focusing on crisis scenarios during the COVID-19 pandemic, i.e., situations where teachers need to exercise professional thinking and skills to solve problems. It is expected that the conceptualised prototype will inform a larger-scale study on understanding and supporting the development of teacher agency and collaborative skills using data generated through participating in virtual internship activities. We also expect the future project to scale the virtual internship to include training for in-service teachers.

Journal and peer-reviewed conference articles: we will produce two journal articles each addressing one research question: 1) Common challenges and good teaching practice in crisis

situations of the pandemic, and 2) effective ways to build and maintain a supportive learning community through technology-assisted feedback practice. In addition, we will produce a conference article presenting a conceptual prototype of a virtual internship for teachers.

Team

Dr Yi-Shan Tsai is the principal investigator of this project. She is an Honorary Fellow at the School of Informatics at the University of Edinburgh. She currently works on two large multinational research projects on learning analytics and blended learning in collaboration with 16 different institutional partners in Europe, Australia and Latin America. She is also a lecturer in the Centre for Learning Analytics at Monash (CoLAM) at the Faculty of Information Technology, Monash University. Her research aims to enhance learning, teaching, and educational environments with the adoption of digital and data technologies. She is particularly known for her achievements on an award-winning project, SHEILA (Supporting Higher Education to integrate Learning Analytics), which has informed policy development for learning analytics in over 200 higher education institutions around the world.

Dr Nataša Pantić is a co-investigator of this project and Senior Lecturer at the University of Edinburgh, School of Education. Her recent research has included studies of teacher agency for change and teacher communities using social and epistemic analysis. Her research interests include educational change and inclusion in contexts of diversity, and teacher development. She has published extensively in these areas in some of the field's leading journals and other outlets.

Dr Michael Phillips is a co-investigator of this project and the Associate Professor of Digital Transformation in the Faculty of Education, Monash University. His work focuses on the knowledge expert teachers develop when integrating educational technologies into their practice. Additionally, Michael researches the ways in which expert teachers make active decisions about their classroom technology integration. He has received a Highly Commended Paper Award from the Australian Council for Computers in Education (ACCE) and the Best Paper Award at the Society for Information Technology and Teacher Education (SITE) conference in 2016 and 2019.

Professor Dragan Gašević is a co-investigator of this project. He is Professor of Learning Analytics in the Faculty of Information Technology and Director of the Centre for Learning Analytics at Monash University. As a world-leading researcher in learning analytics, Prof Gašević has received several awards for his outstanding work on shaping next-generation learning and software technologies and advancing our understanding of self-regulated and collaborative learning. Funded by granting agencies and industry in Australia, Europe, and North America, Dragan is a recipient of several best paper awards at the major international conferences in learning and software technology.

Ana Hibert is a research associate of this project. She is a PhD student at the Moray House School of Education at the University of Edinburgh. Her research focuses on automated feedback for second language learners.