Author: Ulrich Hobusch THE TEACHING CLINICS' ONE HEALTH CASE: A HIGHLY FLEXIBLE

DIGITAL SERVIVE-LEARNING FORMAT IN AUSTRIAN TEACHER

**EDUCATION** 

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## **Abstract**

The term One Health was first mentioned in 2003 in relation to the SARS virus and H5N1 avian influenza. As part of the One World, One Health: Building Interdisciplinary Bridges to Health in a Globalized World symposium in 2004, the 12 Manhattan Principles emerged. These principles focused on the essential link between human and animal health and the threat that zoonotic diseases pose to humans and the ecosystem. To make macro-level principles applicable to the public, comprehensive local frameworks are needed that allow people to both understand these relationships and act accordingly to make future pandemics less likely. In the process of disseminating knowledge to society, the education sector, especially universities and schools, is the most important actor. For the local context in Austria, the Teaching Clinic offers an interdisciplinary platform in teacher education that seems suitable to pilot the One Health concept in a university setting. The course merges servicelearning, digital learning, and design-based research in an open learning environment, where practicing teachers, teacher education students, and teacher educators co-create sustainable and evidence-based solutions that address real educational challenges. In the light of the ongoing pandemic, a group of students at the teaching clinic addressed the One Health concept through purposefully designed teaching interventions for upper and lower secondary school classes. In addition to implementing the focus lessons, the student teachers also applied practitioner research methods to evaluate and discuss the outcomes. An initial finding is that implementing One Health principles as a practice-based research topic in teacher education professionalizes student teachers' teaching and research practices. In addition, pupils were found to have a better understanding of inter- and transdisciplinary topics such as the current SARS-CoV-2 pandemic. To gain further insights and consolidate empirical evidence, a second round of the One Health Teaching Clinic will be conducted in the summer term of 2022.

# Introduction

The fact that the daily lives of billions of people are now affected by medical, social, and political aspects of the SARS-CoV-2 pandemic shows the need to anchor understanding of this topic and its interrelationships in the wider population. Therefore, awareness and a better understanding of the relationship between health and ecosystems should be achieved through quality education in this respect (Karesh and Cook, 2009). The rapid progress in digitization that has emerged in the year 2020 can be seen as an opportunity to meet the educational needs of ecological, economic, and civil society solutions in multi-stakeholder settings between the public, universities, and schools. This not only narrows the gap between higher education/research and teachers' real-life working environments but

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also aids the important transfer from academia to schools (Schober et al., 2016). Thus, it seems logical that a certain basic understanding towards these contents must be already created in school through quality teaching and learning settings provided by qualified teachers.

# Theoretical background

The threat of zoonotic diseases, ecosystem health, and healthy biodiversity have long been articulated by experts from different academic fields (Zinsstag et al., 2011). In 2009, a *One Health* Commission was established in the United States with the clear goal of seeking and raising awareness and to educate the general public about these issues (One Health Commission, 2020). However, One Health has been conceptualized at a rather macro level and an implementation of this comprehensive framework needs to consider the local context. The format of the Teaching Clinic (TC) offers an interdisciplinary platform in teacher education, that already showed the transferability of new emerging educational paradigms (ESD- Education for Sustainable Development) into university and local school teaching context (Froehlich et al., 2021). In this course, practicing teachers (as external stakeholders) submit their realworld challenges and then work in close collaboration with groups of students of teacher education to find, develop, and evaluate tailor-made solutions to that challenge. Furthermore, knowledge is being transferred from the academy to the individual classroom: The *TC* shows how state-of-the-art research can be translated into a design that has a direct impact on the teacher, the classroom, and its pupils. On this basis, we consider the *TC* as a suitable format to pilot the *One Health* concept in teacher education and to design and test lessons for schools in the course of service learning.

## **Aims**

While Nordic countries, such as Sweden (Haxton et al., 2015), have already taken promising approaches to bring *One Health* formats into the education sector, Austria is lagging in this respect, both in teacher training and school education. To change this situation, teachers in particular must have the competencies and a scientific skillset to disseminate *One Health* ideas in schools as educational multipliers. We have already found out, that the successful implementation of inter- and transdisciplinary teaching within Austrian school environment is strongly related to the teachers' own education (Hobusch and Froehlich, 2021). Consequently, students must learn to integrate current scientific knowledge and references into their teaching already during their university education. Another requirement is to have the ability to develop and implement scientific tools for the evaluation of teaching in the later working environment at school. Regarding the *One Health Teaching Clinic* university course, two research questions can be formulated:

Level 1: Teacher Education/Professionalization

Q1: Do student teachers experience professionalization of their own research practice while going through the 1-semester *Teaching Clinic* using *One Health* as an example?

Level 2: One Health school teaching

Q2: Can implications for sound *One Health* teaching be derived from the teaching-learning arrangements implemented by student teachers in secondary schools?

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# **Methods**

This research project draws on qualitative implications from the teaching-learning arrangements from the *One Health Teaching Clinic* that were tested by the master's student teachers in the winter semester of 2021/2022. The data are based on qualitative content analyses of the self-taught learning formats conducted by the students themselves and supported by the documentation of the accompanying university course of the research semester. The documentation includes the underlying lesson plans, their follow-up journals (didactic analysis, methodological consequences, reflection on own teaching), concepts, interim reports as well as two presentations. The research is conducted by using the method of structured content analysis (Mayring, 2010) to identify indicators that adequately substantiate students' professionalization in terms of applied research skills. In addition to the evaluation dimension of professionalization in terms of applied research skills, implications of additional sound *One Health* teaching-learning formats of the actually taught teaching sequences will be analyzed. Further data will be generated in a second round of the *One Health Teaching Clinic* to be held in the summer semester of 2021/22.

# (Preliminary) Results

Positive implications to answer the research questions can be identified at both levels of teacher professionalization and learning settings for school. Due to the limited number of students (4) and teaching hours at schools, a further *One Health Teaching Clinic* will be conducted in the summer semester of 2022 to consolidate the observations.

Level 1: Teacher education/professionalization.

During the 1-semester *One Health Teaching Clinic*, the students were able to independently formulate a scientific question on the integration of the *One Health* topic into Austrian school education and consequently operationalize and implement it. They showed comprehensible decisions towards deductive and inductive research approaches and attempted to increase the quality of their research through reliability testing and applying the four-eyes principle for objective view. Likewise, the results are presented by the students in a comprehensible way and a discussion including implications for practice is derived in an appealing way.

#### Level 2: One Health school lessons

One Health input lessons were designed for three subject bundles (mathematics, English/biology, history/Spanish) whereby two of the lessons were actually taught and evaluated. It can be shown that the high relevance to One Health topics runs throughout the entire subject canon of school education. Input lessons were carried out exclusively by the students themselves using different methods of practitioner research methodology. Through the intervention with One Health teaching-learning settings, a transfer of the learned added understanding to the social relevance of the topics could be observed. In addition, the pupils felt empowered to classify their own current situation in the pandemic context and to critically question protective measures and political decisions.

# Theoretical and education significance

The whole idea of the *TC* is to provide a sustainable mechanism for quality teacher development. Through this process, a transfer of university knowledge to the classroom happens—and also the "scientific mindset" is being transported. The *TC* brings together three relevant stakeholder groups (students, teacher educators, teachers) that all have their specific perspectives on arising challenges like the One Health topic. The possibility of a transmission of *TC* across the borders of Austria with COIL

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initiatives supports the guiding idea of a truly European education system, which is so far hardly to be found in teacher education.

## Relevance to the QUINT ambition

The *TC* provides a highly adaptable learning environment. Each method used (e.g., coaching via office hours booking platform, varying number of projects, the grading system) has been integrated with the goal of increasing flexibility. Institutions that seek to adopt the course format could take the resources and templates we have created as a starting point (course calendars, online courses, analysis templates,...) and get started without much effort. This was verified by pilot testing the concept at a Spanish university within an arguably more complex COIL setting. The test went well, even though the other university had very different curricular affordances (e.g., duration was 2 semesters instead of 1, different grading, different position in the curriculum).

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