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Original Research

Introducing German pre-service teachers to remote teaching: Policy, preparation and perceptions of competence development of future foreign language teachers

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This article considers the policies, preparations and perceptions of competence development of pre-service foreign language teachers within the context of an innovative remote teacher training module. Responding to a recent call for triangulated research on teacher professional competences and to curricular changes resulting from the turn of German universities to online teaching in summer term 2020, a Developmental Model of Teacher Professional Competence (DevTPC) is proposed that can serve as basis for operationalising required context- and content-specific teacher competences. The article's aim is to establish the theoretical background of the DevTPC and report on first promising results of a pilot study (n=39) asking pre-service foreign language teachers about their perceived competence development in remote foreign language teaching between April and July 2020. By focussing on the perceived development of technological pedagogical content knowledge in the area of foreign language instruction, the results of the pilot study contextualise the potential of remote teaching contexts to transform foreign language teacher training and (foreign) language education in the years to come. The article ends with a series of questions and recommendations for further research to promote innovation in remote foreign language teacher training.

KEYWORDS: *remote training, foreign language teacher training, developmental model, professional competence, pre-service, technological pedagogical content knowledge, TPCK, Covid-19*

1. INTRODUCTION

A survey asking German humanities faculty members to draw first conclusions of the 'Corona-Semester' and its accompanying move to fully online teaching at universities and schools from April to June 2020 found that responses were *'not as negative as expected at the beginning of the semester'* calling the move *'a legitimate emergency solution […] albeit with a relinquishment of essential quality features of the humanities teaching culture'* (Sommer, 2020, p. 667). While 40% of facul-

ty members apparently noted a lower quality of online as opposed to face-to-face teaching and 24% even believed there to be a dramatic breakdown in quality, 24% were convinced that teaching within university contexts did not lose much of its quality and 11% stated 'the quality of the teaching has even improved under corona conditions' (Sommer, 2020, p. 666). While calls for a return to established face-to-face teaching methodologies are valid, the lockdown was a motor for innovation fuelled by previously unthinkable training formats in teacher and school student education.

This article considers changes in policy made in reaction to the Covid-19 pandemic in the area of didactic internships, resulting preparatory requirements in the area of university-based remote foreign language teacher training and consequences for teacher professionalisation and competence development. Self-reported measures of a pilot study asking pre-service foreign language teachers to reflect on their competence development in teaching primary and secondary school students during school lockdown from April to June 2020 and the return to hybrid teaching models in July 2020 are presented as a vantage point for further research on specific teaching topics in the area of foreign language education. The aim of the paper is to call for further research in remote (foreign language) teacher training along the lines of the Developmental Model of Teacher Professional Competence (DevTPC). The DevTPC responds to curricular changes in remote teacher training and a recent call for more complex models of teacher professionalisation which could serve as a basis for unbiased research due to triangulation (cf. Schmid et al., 2020). The DevTPC combines two empirically validated models, the COACTIV (Baumert & Kunter, 2011) and the TPACK-model (Koehler & Mishra, 2008; Schmid et al., 2020) of professional teacher competences and adds a temporal and situational dimension by integrating the notion of the competence continuum (Blömeke et al., 2015). A pilot study asking pre-service teachers to reflect on their content-specific competence development puts their learning and teaching experiences in a time of crisis into context. The article provides new insight in pre-service teachers' perceptions of teaching and learning foreign languages online and debates implications for further research and professional development.

2. THEORETICAL BACKGROUND

2.1. Policy

With three different institutions involved in organising didactic internships, practical teacher training modules in German university-based teacher training are particularly complex to organise. Each institution, the Ministry of Education, the university and connected schools, are operating in their unique context: a) the Ministry of Education's legally binding regulations organise teacher education on a federal, the policy level; b) universities in the federal states organise and operate on the teacher training level; c) schools are the locations where university students get their first guided teaching experience on a practical level.

Teacher training in the federal state of Bavaria, as in the other 16 German federal states, is organised by federal regulations of teacher examination issued by the respective federal ministries of education. On April 21st, 2020, the Bavarian Ministry of Education released revised instructions regarding the didactic internship which students complete in their fourth to seventh semesters. In this undergraduate module, university-based teacher training is directly linked with teaching practice, as a small number of pre-service teachers are allocated to a specific school and in-service teacher respectively who guides the group in their initial steps of planning and conducting lessons. The internship is offered in combination with mandatory university-based seminars in the respective teaching subjects, in our case English. Prior to the pandemic, the lecturer of the seminar would visit each school in person and observe each pre-service teacher conducting an English lesson twice over the course of the semester in order to monitor competence development live and in action.

The revised regulations issued by the federal Ministry of Education, i.e. a reduction to one live or online visit and the integration of team teach-

ing, effectively reducing the teaching time of a pre-service teacher in one lesson to ten to twenty minutes, lead to a substantial revision of previously established assessment practices of future teachers of foreign languages during their practicum. Instead of up to three live lessons, the coordinators of the subject of English proposed that pre-service teachers now had to plan, conduct and evaluate one twenty-minute asynchronous self-study unit for their allocated secondary or primary school classes and one twenty-minute remote live teaching session via a videoconferencing tool. The preparation of self-study materials was included to cater to those school children's needs who were in lockdown or quarantine and thus could not participate in online lessons. Responding to the proposition of team teaching, self-study materials and face-to-face online lessons were planned, prepared, conducted and evaluated by pre-service teachers in teams instead of by themselves. Both formats, self-study units and digital live distance teaching are considered particularly fruitful formats for foreign language teacher training as these develop pre-service teachers' digital competences (Redecker & Punie, 2017) and train their competence to innovate (Kultusministerkonferenz, 2004).

While the directives of the Bavarian Ministry of Education lead to new assessment practices, the high quality of teacher training was to be maintained. However, as the German Standards of Teacher Training of Foreign Language Teachers (Kultusministerkonferenz, 2008, p. 44) contain only general guidelines on digital competence development, the established course curriculum had to be updated to train technological pedagogical content knowledge (Koehler & Mishra, 2008) and guide students to develop innovative online learning designs for teaching and learning foreign languages remotely.

2.2. Preparations

Although the following preparatory measures were undertaken in a specific context under specific circumstances, i.e. in the federal state of Bavaria at the Catholic University Eichstätt-Ingolstadt with 14 in-service teachers and 39 pre-service teachers of English as a Second/Foreign Language during the first lockdown period of the Covid-19 pandemic, they are, to the best judgement of the author, transferrable to other educational contexts and locations who have to or want to implement remote teacher training and language learning. In order to implement local directives issued by the Bavarian Ministry of Education and provide pre-service teachers with the necessary technical, methodological and pedagogical content knowledge for planning, conducting and evaluating the newly introduced teaching formats, remote live distance teaching and preparation of self-study materials, the following preparatory steps were undertaken.

'With three different institutions involved in organising didactic internships, practical teacher training modules in German university-based teacher training are particularly complex to organise'

2.2.1. Revaluating professional competences for online (foreign language) teaching

In fully online learning contexts, a revaluation of professional competences (future) teachers need for online language training becomes necessary. While the following conceptualisations were undertaken with the intention of training foreign language teachers online within the context of a Bavarian university, the background of the following models, all originating in neighbouring disciplines (cf. Blömeke et al., 2015; Koehler & Mishra, 2008; Baumert & Kunter, 2011), makes the proposed model for developing teachers' professional competences in remote foreign language teaching applicable to further teacher training contexts as well.

Following the example of Krauss et al. (2017) and the modelling of competence as a continuum, a thinking of knowledge processes alongside not apart from performance processes (Blömeke et al., 2015, p. 7) was taken as vantage point for conceptualising remote teacher training (Figure 1).

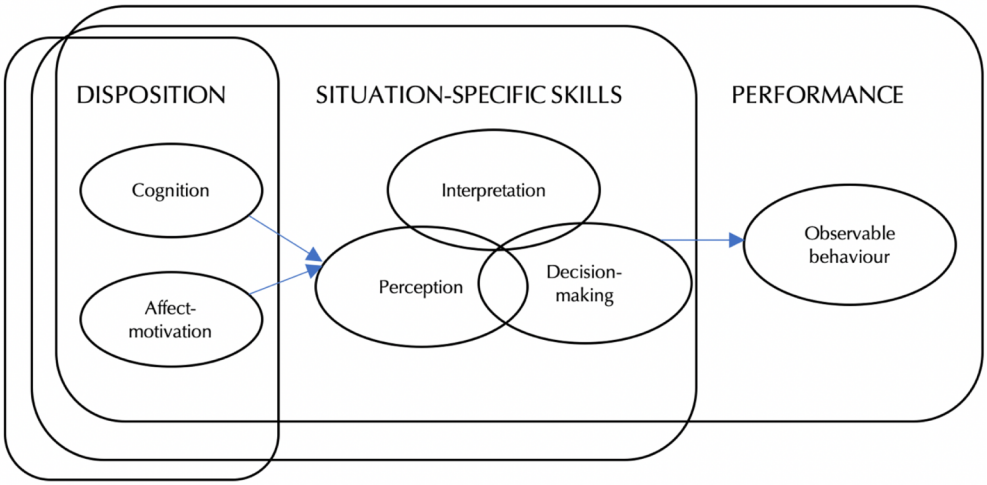

Figure 1. Modelling competence as a continuum (Blömeke et al., 2015, p. 7)

'In an unprecedented fully online learning context, Baumert and Kunter's (2011) model however does not fully represent the remote teaching context that obviously requires technological knowledge'

Blömeke's (2015) model is particularly interesting in a context and time in which competence and knowledge domains, such as the digital competences of educators (Redecker & Punie, 2017) or, more specifically, technological pedagogical content knowledge (Koehler & Mishra, 2008) that have previously mostly been perceived of as add-ons or extracurricular are unexpectedly at the centre of interest despite a lack of research into the content-specific competence facets of individual subjects and teaching topics. In unforeseen and 'emergency' circumstances, dispositional aspects such as cognition, affect and motivation play a major role in how a situation is perceived and interpreted, which decisions are made, and which actions are subsequently performed for others to observe.

As only 23% of German teachers had used digital technologies in their teaching on a daily basis up until 2018 (Autorengruppe Bildungsberichterstattung, 2020, p. 285), it is not unjustified to assume that the teaching of technological pedagogical knowledge is both still under-researched and not yet fully integrated into German teacher training and professional development. So far, professional knowledge required by teachers was mostly conceptualised alongside, for example, Baumert and Kunter's (2011) acclaimed and empirically validated COACTIV model of teacher professional competence which established teachers' professional knowledge by focusing on facets of content knowledge, pedagogical content knowledge, pedagogical/psychological knowledge, organisational knowledge and counselling knowledge (Figure 2). Such a model recognises the possible interaction between individual prerequisites and knowledge acquisition as well as a more extensive connection and hierarchical organisation of knowledge domains with growing expertise (Baumert et al., 2011, p. 15).

In an unprecedented fully online learning context, Baumert and Kunter's (2011) model however does not fully represent the remote teaching context that obviously requires technological knowledge. Such aspects of teaching with technology are at the centre of Koehler and Mishra's (2008) TPACK model which describes technological pedagogical content knowledge (TPCK) as evolving from knowledge of technologies (TK), pedagogy (PK) and content (CK) and related pedagogical content (PCK), technological pedagogical (TPK) and technological content (TCK) knowledge (Figure 3).

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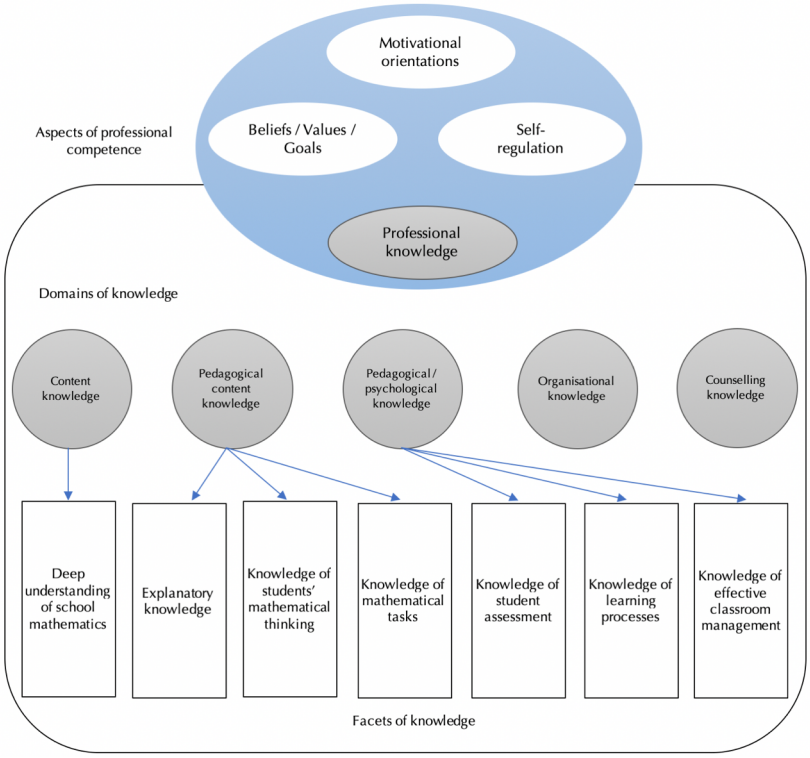
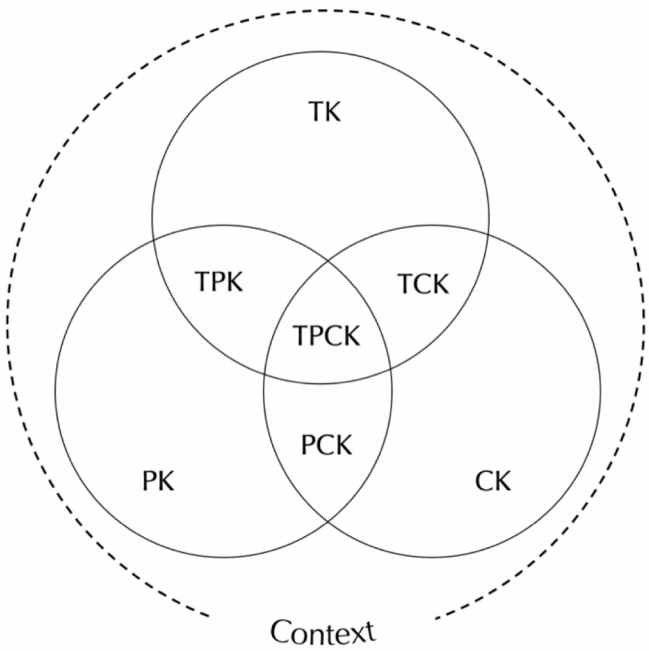


Figure 2. The COACTIV model of professional competence, with the aspect of professional knowledge specified for the context of teaching (Baumert & Kunter, 2011, p. 29)



Pedagogical Knowledge (PK)
Knowledge about the process and practices or methods of teaching and learning and how it encompasses educational purposes, values and aims (e.g. student learning, classroom management, lesson plan development and implementation).

Content Knowledge
Knowledge about the actual subject matter that is to be taught (e.g. central facts, concepts, theories, procedures).

Technological Knowledge (TK)
Knowledge about standard technologies and how to operate them (e.g. from books and chalkboards to the Internet and digital video).

Pedagogical Content Knowledge (PCK)
Knowledge of pedagogy that is applicable to the specific teaching content (e.g. knowing what teaching approaches fit the content, knowing how elements of content can be arranged for better teaching).

Technological Pedagogical Knowledge (TPK)
Knowledge of how teaching may be changed as the result of using particular technologies (e.g. knowing the range of tools that exists, ability to select them based on their fitness and knowledge of affordances of these tools for pedagogical practice).

Technological Content Knowledge (TCK)
Knowledge about how technology and content are reciprocally related (e.g. knowing how subject matter can be changed by the application of technology).

Technological Pedagogical Content Knowledge (TPCK)
Knowledge about good teaching with technology which requires understanding how technologies can support teaching subject matter (e.g. knowing how technologies can help overcome problems in the process of teaching and learning and how they can be used for constructive content and pedagogy).

Figure 3. TPACK conceptual model and definitions according to Koehler and Mishra (2008) as displayed in Schmid et al. (2020)

Mishra and Koehler (2006) provide the following general facets for TPCK, the central knowledge domain for remote (language) teachers: (1) understanding the representation of concepts using technologies; (2) knowing pedagogical techniques that use technologies in constructive ways to teach content; (3) knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; (4) knowledge of students' prior knowledge and theories of epistemology; (5) knowledge of how technologies can be used to build on existing knowledge and to develop new epistemologies or strengthen old ones (Mishra & Koehler, 2006, p. 1029). These general facets are to be understood as a vantage point for the development of further subject-specific instruments to assess TPCK. The need for more subject-specific research on TPCK also 'in relation to specific teaching topics' was most recently called for by Schmid et al. (2020, p. 10). Their TPACK.xs short assessment instrument can help *'asses TPACK in various contexts as well as in combination with other relevant constructs (e.g. beliefs, self-efficacy)'* (Schmid et al., 2020, p. 2). However, relevant related constructs such as beliefs is a limitation of Koehler and Mishra's (2008) TPACK model, which does not integrate 'motivational orientations', 'beliefs/values/goals' and 'self-regulation' as for instance Baumert and Kunter's (2011) model does. In the area of assessment literacy of pre-service teachers, Campbell and Evans (2000) came to the conclusion that finding a lack of knowledge of assessment practices is not the answer to inconsistent pre-service teachers' assessment decisions and recommended looking at *'attitudes concerning the perceived legitimacy or usefulness of adhering to measurement principles'* (Campbell & Evans, 2000, p. 354). Similarly, the impact of teachers' perceptions as opposed to their knowledge of the value of technologies in the classroom should not be underestimated. Hence, for the purpose of introducing pre-service teachers to online live distance teaching during their internship the following combined model of teacher professional competence is proposed (Figure 4).

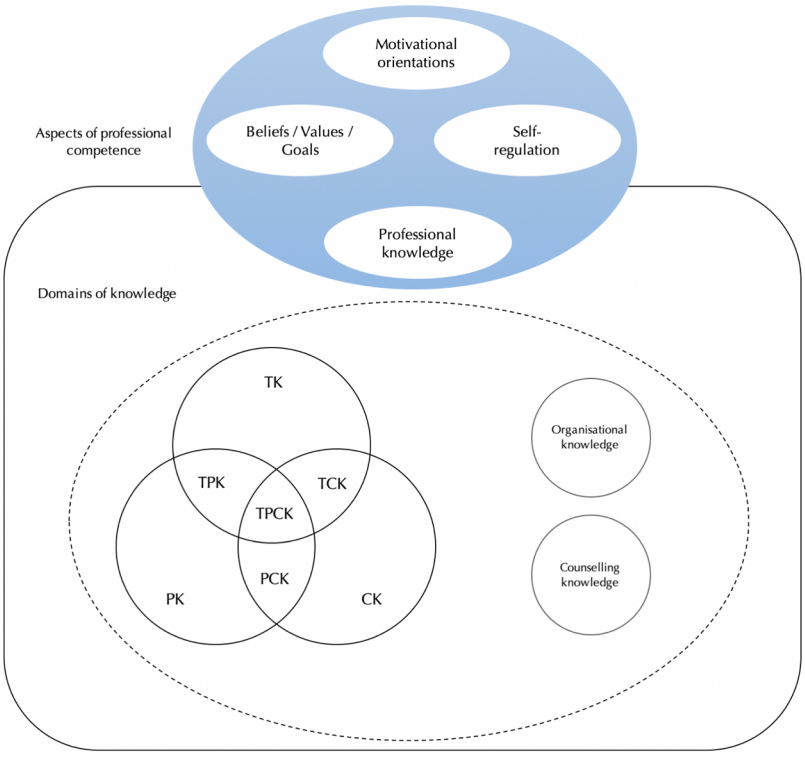


Figure 4. Combined Model of Teacher Professional Competence (CombTPC) integrating Baumert and Kunter's (2011) and Koehler and Mishra's (2008) TPACK model

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While Baumert and Kunter's (2011) aspects of professional competence are maintained in full in the new model, the knowledge domains of professional knowledge are adapted to the remote teaching context by integrating technological knowledge and its combinatory effects on pedagogical and content knowledge as visualised in Koehler and Mishra's (2008) model. Baumert and Kunter's (2011) organisational knowledge, which means e.g. knowing about students, parents and teachers' rights, qualitative and efficient school leadership as well as governance and transparency and counselling knowledge, which encompasses teachers counselling students and parents regarding learning difficulties, behavioural and psychological issues, were also maintained and included within the striped line circle representing the context as these turned out highly relevant also in online learning contexts.

Lastly, when conceiving the development of professional competences as a continuum (Blömeke et al., 2015), the acquired level of professional competence of pre- and in-service teachers within a specific context, most likely affects their situation-specific skills of perceiving, interpreting and deciding on lesson content and teaching methodologies and thus how they actually perform a lesson. Regarding the teaching of foreign languages, a pre-service teacher's repertoire for fostering speaking in the classroom might not be as elaborate as that of an experienced teacher, for example. Still, a pre-service teacher's enthusiasm in teaching writing skills with extensive teaching materials might lead to similar student learning results than an experienced teacher' explanations backed with minimal resources. Drawing on Baumert and Kunter's (2011) model, Krauss et al. (2017) were able to show more generally, how content-pedagogical knowledge, beliefs and enthusiasm affected students learning with content-pedagogical knowledge being the strongest and most influential predictor (Krauss et al., 2017, p. 22-23). Such conceptualisations can serve as a basis for longitudinal studies in the emerging field of remote online teacher training, investigating competence development in situation-specific skills over time by, for example, *'triangulating self-declarations with other measures of TPACK such as lesson observations or performance assessments'* (Schmid et al., 2020, p. 10). Responding to these recent calls, the following Developmental Model of Teacher Professional Competence (DevTPC) (Figure 5) is proposed with the intention to make situational responses and performance apparent, which are a central aspect of university-based teacher training and a special focus of didactic internships and the related development of different competence domains.

The proposed developmental model of professional teacher competence can be used as a framework to empirically validate triangulated approaches looking at self-declarations, lesson observations or performance assessments and technological pedagogical content knowledge in relation to specific teaching topics, as suggested by Schmid et al. (2020).

In the area of foreign language teacher education, 'specific teaching topics' become relevant in specific teaching situations. These topics are closely linked to the German standards of foreign language education, i.e. the training of communicative competences, text and media competences, methodological competences and intercultural competences (Kultusministerkonferenz, 2004). Foreign language teachers need to know how to work with authentic texts, build up vocabulary knowledge, listening and audio-visual competences, promote transactional and interactional language production, support reading and writing processes and strategies of comprehension, teach linguistic structures, orthography, intonation and pronunciation, train intercultural competence, mediation, text and media skills as well as methodological competences (Maley, 2018).

Moreover, foreign language teachers need to be competent in (explaining the) structuring (of) foreign language learning processes, have narrative and explanatory skills, and know how to initiate social interaction in the classroom through adequate classroom phrases. Tests assessing domain-specific knowledge of foreign language teachers teaching in offline settings already exist (e.g. Kirchhoff, 2017).

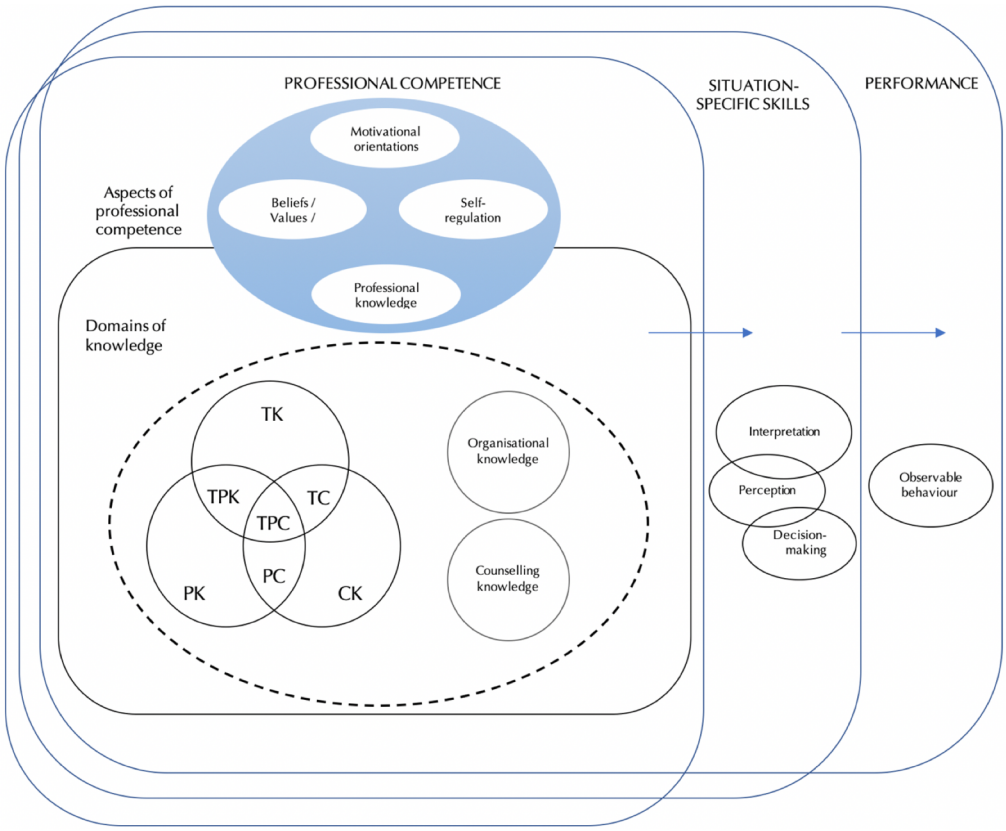

Figure 5. Development Model of Teacher Professional Competence (DevTPC) combining Blömeke et al. (2015), Koehler and Mishra (2008), and Baumert and Kunter (2011)

In digital teaching environments, the 'specific teaching topics' of foreign language teaching remain the same. What differs – and is currently the greatest challenge – is how these specific teaching topics can be taught online. The answer appears to lie with the professional competence of foreign language teachers and most prominently so in the area of technological pedagogical content knowledge, more specifically knowledge about subject-specific webtools that can help foster intercultural communicative competence. These differ according to competence facet, i.e. different webtools are used to encourage speaking skills (e.g. use of recorded audio messages and messenger services or live, face-to-face videoconferencing tools) than for encouraging writing skills (e.g. use of collaborative writing tools) or training reading comprehension (e.g. use of game-based tools that help with creating quizzes). Significantly, technological pedagogical content knowledge about specific teaching topics can only be generated and discussed after technological knowledge is established.

In the context of didactic internships and connected mandatory university-based seminars, the Development Model of Teacher Professional Competence (DevTPC) was introduced as a framework of reference in the opening and closing sessions of seminars for pre-service teachers and in professional development sessions for in-service teachers. The model facilitated the conceptualisation of required digital teaching competences pre- and in-service teachers had to develop in order to teach the foreign language asynchronously, synchronously and in blended learning settings. In addition, competence levels helped pre-service teachers to conceptualise their individual levels of competence development in relation to each teaching topic. The levels range from newcomers (A1), explorer (A2), integrator (B1), experts (B2), leaders

(C1) to pioneers (C2) (Redecker & Punie, 2017). When developing a measure for self-reported competence development, these competence levels were taken up in the end-of-term questionnaire on self-ascribed competence gains of pre-service teachers in the area of online English language teaching.

2.2.2. Checking technical requirements and resources for teaching foreign languages online

Once a model for developing professional competences in the remote internship context was conceptualised, the following questions served as guidelines for establishing the technological prerequisites for online foreign language teaching. Again, these are transferable to other online teaching contexts as they are adapted from competence Area 2 (Digital Recourses), Area 5 (Empowering Learners), and specifically 5.1 (Accessibility and Inclusion) of the Digital Competence Framework for Educators (DigCompEdu), which provides general but not subject-specific guidelines for teaching and learning with digital resources (Redecker & Punie, 2017). All participating parties, primary/secondary school students, in-service teachers, pre-service teachers and university lecturers, should ideally be asked the following questions.

1. Do you have/Can you be provided with a device that is able to access the Internet (e.g. smartphone, tablet, desktop PC, etc.)?

2. Do you have/Can you be provided with access to an Internet connection?

3. Do you have/Can you be provided with a(n integrated) microphone and/or camera? Note: Ideally, all are available, yet remote training is also possible without either.

For teachers/lecturers:

1. Which videoconferencing tool and/or learning management system (LMS) does your school/university provide and support? Note: In our case these differed, i.e. teachers/lecturers had to organise user accounts for the respective systems at the beginning of term as well as make sure of conforming to local data regulations. Schools used WebEx and BigBlueButton for videoconferencing and Mebis, a Moodle-based LMS organised by the federal state of Bavaria. The university used Zoom and Ilias, a Moodle-based LMS organised by the university itself.

2. Do you have to pay attention to particular licencing and data protection requirements when using third party tools in your teaching?

2.2.3. Professional development of in-service teachers involved in the didactic internship

As already indicated, given the sudden transfer to fully online teaching, 14 in-service teachers supervising pre-service teachers at schools were introduced to different videoconferencing tools and accompanying opportunities for teaching foreign languages with digitally informed methodologies in several virtual meetings at the beginning of term. In accordance with Area 1 (Professional Engagement) of the DigCompEdu (Redecker & Punie, 2017), all professional communication was organised remotely via e-mail and videoconferencing tools. Opportunities for reflective practice were later included through digital live distance teaching units conducted by interns which were observed by in-service teachers and university lecturers alike. Only in one instance was an in-service teacher willing to be observed while teaching online at the beginning of term by pre-service teachers and a university lecturer before pre-service teachers conducted their first lessons. This anecdotally depicts the level of hesitation and insecurity of some in-service teachers to teach with the help of or exclusively through digital resources. Over the course of the semester, the initial efforts in bringing together in-service teachers and university trainers in virtual rooms via Zoom or BigBlueButton paid off. Individual struggles of teachers to put the teaching innovations into practice resulted from a lack of technological resources, infrastructure or knowledge on their or their school students' part or from school leadership-issued restrictions regarding the use of certain digital tools. These issues could be sorted out one by one over the course of the semester. In order to respond to local data protection laws, a district media centre had for example provided server space where account information and data collected during digi-

tal live distance teaching could be stored. At the end of term all 39 students had been able to meet the requirement and complete their internship.

2.2.4. Deciding for teaching formats in remote teacher training seminars

As the core of teacher training is mediating the two poles of theory and practice, digital learning scenarios were previously not the mainstream focus of training modules. From a teaching perspective, university-based teacher training modules, including the obligatory practice phases, faced a threefold challenge in the area of foreign language teaching at the Catholic University Eichstätt-Ingolstadt:

a) continuing pre-service teacher training in exclusively virtual environments;

b) preparing pre-service teachers to teach primary/secondary school students live online and through predesigned self-study materials;

c) putting teaching and learning experiences into context through online peer reflection and self-assessment.

Three university-based seminars accompanied the didactic internship from different angles, one for planning, conducting and evaluating English lessons at primary and middle school level, one with the same content for teaching at secondary school level, i.e. Realschule or Gymnasium, and one tackling current issues and topics in English language teaching in practical terms which had to be transformed into fully online courses. These courses would normally have been taught for 90-minutes per week at a fixed time and location.

In the remote training scenario, asynchronous and synchronous training scenarios were combined. Weekly synchronous meetings lasted for only 45 minutes instead of 90 minutes and were always conducted on the same day and at the same time. During these 45-minute live sessions pre-service teachers discussed results and questions arising during their allotted 45-minute self-study time with prepared materials. Self-study tasks took the form of interactive introductions to a new digitally informed teaching method, such as digital storytelling or gamification, or conducting a criterion-referenced peer-reflection of a prepared self-study unit or lesson plan of a digital live distance teaching unit. Thus, the asynchronous learning scenarios, i.e. self-study units, which the pre-service teachers designed for their internship school students, were reviewed by and for pre-service teachers in the accompanying university-based seminars. Adaptive learning from ongoing experiences with the new technical media of teaching (e.g. videoconferencing software and tools) over the course of the semester and constantly integrating upcoming individual, conceptual and context-specific requirements characterised the weekly meetings with pre-service teachers in the seminar context. The mix of synchronous and asynchronous learning and teaching designs corresponds to competence Area 3 (Teaching and Learning) and Area 5 (Facilitating Learner's Digital Competences) of the DigCompEdu (Redecker & Punie, 2017) in a twofold way for pre-service and in-service teachers as well as university lecturers simultaneously.

2.2.5. Preparing evaluative measures of remote teacher training

In order to document students' perceptions of their first remote teacher training seminar, two instruments were used to evaluate the teaching innovation. Firstly, the new format was assessed in the context of the university-wide course evaluation. Secondly, an end-of-term survey was constructed asking pre-service teachers to self-assess their competence development in the areas of teaching foreign languages online.

3. RESULTS OF COURSE EVALUATION AND STUDY ON PRE-SERVICE TEACHERS' PERCEPTIONS

3.1. General observations

Based on Baumert and Kunter's (2011) COACTIV-model of professional competences, novice teacher cognition, German standards of foreign language teaching (Kultusministerkonferenz, 2008) and the DigCompEdu (Redecker & Punie, 2017), a survey tracing the development of digital and content-specific competences in foreign language teaching was constructed. In July 2020, the first

cohort completing the fully online didactic internship was asked to reflect on their beliefs and perceived gains in knowledge about how to teach foreign languages online.

A total of 39 pre-service teachers (84% female) with 87% aged between 18 to 23 and 13% aged between 24 to 29 participated in the survey. 82% studied in their 1st to 4th semester, 18% between their 5th and 8th semester. 17 pre-service teachers (43.59%) had held up to three English lessons prior to the course, 20 participants (51.28%) had 4 to 10 hours of teaching experience and 2 (5.13%) had more than 10 hours of teaching experience. 14 (35.90%) pre-service teachers studied to become primary school teachers, 3 (7.69%) studied to become middle school teachers, 5 (12.82%) studied to become teachers at Realschule, and 17 (43.59%) aim to become teachers at a German Gymnasium.

3.2. Instruments

In order to assess pre-service teachers' perceptions of teaching English through digital means a questionnaire consisting of 36 questions was constructed, drawing on established sources for item development in three areas, namely content pedagogical knowledge (Kultusministerkonferenz, 2004; 2008), digital competences (Redecker & Punie, 2017) and team teaching. Three items were adapted from the DigCompEdu self-evaluation test available freely online (DigCompEdu, 2021). The survey was conducted as an online survey using the Qualtrics tool. For the purpose of this article, only selected items from the first two parts of the survey on content pedagogical knowledge and digital competences are reported in full. The items on team teaching are not analysed in this article. More detailed analyses in future papers will be needed to provide further insights in the development of digital competences.

3.3. Statistical analysis

Overall, the 39 participants in the pilot study indicate that their competence in developing digital activities and learning scenarios improved by 2.43 levels between the beginning and end of the summer term, 2020, i.e. between March and July 2020 (Table 1).

Table 1
Item 1: How would you rate your ability to design digital, competence-oriented tasks for English lessons using digital tools? Assign yourself a competence level from A1 to C2

	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION	VARIANCE	COUNT (N)
Beginning of summer term	A1	C1	2.21	1.14	1.29	39
End of summer term	A2	C2	4.64	0.92	0.85	39

An increase by more than two competence levels displays a high confidence in the self-ascribed ability to develop digital, competence-oriented tasks for English lessons using tools. This high score did not come as a surprise to the author and conductor of the study who observed and guided the competence development throughout the semester. Pre-service teachers in the fully online course format were highly motivated to put together self-study materials and enthusing online face-to-face teaching lessons thereby contributing to the ongoing emergency situation during lockdown period of local schools and their return to on-site teaching from mid-June onwards. A follow-up study is currently under way and will evaluate whether these self-reported measures can be maintained over a longer period of time and in regular teaching and training situations.

The following items support the high gains in digital competences. Pre-service teachers reported they had used a multitude of digital activities for foreign language teaching. They prepared interac-

tive presentations (25.55%), comprehension questions (24.82%), quizzes (16.79%), collaborative writing opportunities (16.06%) and, to a lesser extent, more elaborate learning scenarios like digital storytelling (7.3%), interactive videos (5.11%) or podcasts (4.38%). No student team worked with serious games. The latter is a task format that essentially is more complex and requires a considerably more extensive preparation in the teaching and working methodology, thus being a format that was not quite suitable for emergency online teaching.

Table 2
Item 2: Which digital task formats have you already created yourself?

ACTIVITY	%	CHOICE COUNT
Comprehension questions (e.g. true/false, multiple choice, drag and drop)	24.82	34
Collaborative writing tools	16.06	22
Digital storytelling	7.3	10
Quizzes	16.79	23
Serious games	0	0
Interactive presentations	25.55	35
Interactive videos	5.11	7
Podcasts	4.38	6
TOTAL		137

Two questions asked about the use of different types of digital tools. Table 3 displays pre-service teachers' knowledge about which digital tools they could use to train in a foreign language specific competence area, such as reading, writing, speaking and listening. The table lists a number of specific tools (learning apps, Thinglink, Google tour Creator and Google Maps) alongside broader categories of tools (mindmapping, visualisation, survey and organisation) displaying the wide range of tools available and specifically referring to the tools used in the course context. The total number of references is the most important figure in this table as it shows that pre-service teachers see multiple ways to use digital tools for a great variety of skills. Depending on prior experience, more or fewer opportunities were perceived as realistic for training. Over the course of the summer term 2020, pre-service teachers got more experienced in designing foreign language activities with the help of web applications. However, research into best practice examples is still evolving as is assessing the quality and effectiveness of remote foreign language learning.

The pilot study provides data on pre-service teachers' knowledge of when to use different types of digital tools for visualisation, organisation, entertainment, performance (e.g. learning apps and Thinglink) or surveys in an English lesson (cf. Table 4). The question implies knowledge of the tools mentioned here. Indeed, all these tools were introduced in the courses for pre-service teachers involved in the internship programme. Significantly, the total numbers of tools selected per competence area are the highest for visualisation tools and the lowest for the only recently available Google Tour Creator. Tool familiarity thus plays a major role in imagining its use in online language training. Teacher training institutions thus have a responsibility to introduce future teachers to such digital applications if they are to include such tools in their teaching.

Table 3
Item 3: Indicate, which digital tools can be used to train a specific foreign language competence, such as reading, writing, speaking and listening

FIELD	LISTENING		SPEAKING		READING		WRITING		I DON'T KNOW		TOTAL
Google Tour Creator	22.64		28.30%	15	20.75%	11	3.77%	2	24.53%	13	53
Google Maps	11.86		30.51%	18	28.81%	17	11.86%	7	16.95%	10	59
Microphone	34.85		53.03%	35	6.06%	4	1.52%	1	4.55%	3	66
Thinglink	25.00		13.24%	9	32.35%	22	10.29%	7	19.12%	13	68
Surveys (e.g. Kahoot, Quizlet)	13.04		7.25%	5	52.17%	36	26.09%	18	1.45%	1	69
Camera	28.17		35.21%	25	15.49%	11	8.45%	6	12.68%	9	71
Mindmapping (Mindmeister, Miro)	9.46%	7	20.27%	15	28.38%	21	36.49%	27	5.41%	4	74
Learning apps	28.09		6.74%	6	39.33%	35	23.60%	21	2.25%	2	89
Organisation (Padlet)	12.22		11.11%	10	36.67%	33	37.78%	34	2.22%	2	90
Visualisation (PowerPoint, Prezi)	25.96		17.31%	18	34.62%	36	22.12%	23	0.00%	0	104

Table 4
Item 4: Indicate in which phase the digital tools can be used in foreign language competence

FIELD	PRESENTATION / PRE-PHASE		PRACTICE / WHILE-PHASE		PRODUNCTION / POST-PHASE		I DON'T KNOW		TOTAL
Learning apps	8.06%	5	37.10%	23	53.23%	33	1.61%	1	62
Microphone	28.89%	26	35.56%	32	31.11%	28	4.44%	4	90
Organisation (e.g. Padlet)	24.71%	21	35.29%	30	38.82%	33	1.18%	1	85
Mindmapping (Mindmeister, Miro)	33.33%	24	34.72%	25	26.39%	19	5.56%	4	72
Visualisation (PowerPoint, Prezi)	33.01%	34	33.98%	35	32.04%	33	0.97%	1	103
Thinglink	32.88%	24	31.51%	23	21.92%	16	13.70%	10	73
Camera	31.87%	29	30.77%	28	31.87%	29	5.49%	5	91
Google Tour Creator	43.40%	23	26.42%	14	9.43%	5	20.75%	11	53
Google Maps	56.14%	32	24.56%	14	14.04%	8	5.26%	3	57
Surveys (Kahoot, Quizlet)	38.89%	28	9.72%	7	51.39%	37	0.00%	0	72

Interestingly, when asked if they would work with digital tools in English as a foreign language lessons again after the internship had ended, no pre-service teacher indicated 'no' in the questionnaire (Figure 6). When asked to explain why they would use these tools again, the participants in the pilot study indicated that they bring more 'clarity, variety and possibly more motivation' into the virtual classrooms. One of the participants who opted for 'rather yes' explained: *'I believe that traditional learning methods should still be used to some extent. In moderation and as a means of differentiation, however, digital tools are definitely a reasonable choice'*.

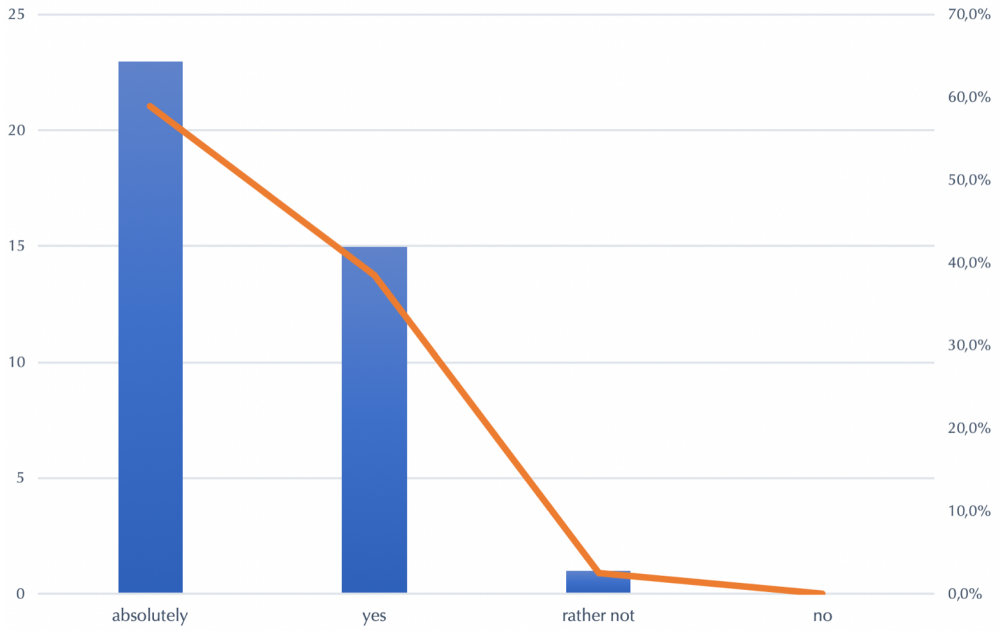

Figure 6. Item 5: Would you use digital tools again?

Drawing on an item from the teachers' commitment scale of the DigCompEdu, pre-service teachers were also asked about their own working processes and use of digital media. 8.11% (n=3) pre-service teachers used the conventionally available digital communication tools like email and WhatsApp. The majority combined various communication tools without having systematic digital solutions for communicating effectively in mind (54.05%, n=20). 35.14% (n=13) are however already looking for systematic solutions and 1 person (2.7%) even indicated that he/she reflects, discusses and proactively develops new communication strategies. Two participants did not respond to this question asking for the choices for online communication indicating that teacher training institutions need to make links between professional commitment and professional communication a stronger priority.

Although the results of the pilot study are mostly positive regarding the sudden transformation in teaching foreign languages and conducting the accompanying teacher training online, the survey supports theoretical notions (Blömeke & Kaiser, 2017) and previous findings in neighbouring disciplines (Wagner et al., 2016; Friedrichs-Liesenkötter, 2016; Kutscher et al., 2020) that developing sustained openness toward new teaching methodologies and learning materials depends largely on context-specific and technological prerequisites. The success of the remote teaching internship was not only due to all project participants' high motivation to enable young learners to continue their education while in lockdown. If the university's computing centre and the county's media centre had not provided technical support and infrastructure, remote teaching would not have been possible on that scale. In addition, local teachers'

and headmasters' openness and support for online teaching opportunities for pre-service teachers was a prerequisite. Finally, unless own learning and teaching experiences in online contexts during teacher training are diverse and of high quality, technological pedagogical content knowledge cannot be obtained (Foulger et al., 2017; Pamuk, 2011; Wang et al., 2018). A pedagogy of distance education and more specifically of foreign language distance teaching can help to address this research gap.

3.4. Limitations

The previous results present first selected results from a pilot study on introducing remote teaching to pre-service teachers of foreign language teaching. Given the extensive introduction of a new theoretical model that proposes to take a closer look at teachers' competence development, a full report of the results of the pilot study was not possible within the scope of this paper but will be published continuously as follow-up data is presently collected. Discussing course evaluations and reports of self-ascribed competences come with several well-known limitations yet have been used extensively in monitoring ongoing competence development (Schmid et al., 2020). Moreover, the teaching innovation presented and analysed here was conducted by the author of the pilot study herself, which may lead to limitations in terms of replicability. Presently, a concise description of what technological pedagogical content knowledge of English language teachers (TPCK-ELT) entails is still outstanding yet evolving simultaneously to first practical experiences in the new, virtual teaching environment. A concept for teaching foreign language learning remotely is necessarily developed along the lines of the German standards of foreign language education according to which teachers require knowledge in how to train intercultural competence, text and media competence, methodological competence and communicative competence. In addition, teachers need to be competent in designing activities and tasks with the help of suitable digital tools. These competences have been developed in team teaching in the internship programme described above. An evaluation of preparing, conducting and evaluating foreign language instruction in pre-service teacher teams is also currently under way. Last but not least, the present study only hints at how digital tools can be used by integrating first results of pre-service teachers' knowledge of when and which web applications can be used for the training of foreign language skills. More detailed studies need to follow on lesson planning and observations of digitally-based lessons in order to provide guidelines on required content-specific knowledge of specific teaching topics.

4. CONCLUSION

In many ways, the turn toward online teaching was accompanied with fears of a 'lost semester' for students and subsequent prolongation of studies and training. Teacher training programmes with their mandatory practical phases during which students observe, plan, try out and reflect on their first teaching experiences in the subject were particularly affected by the nationwide instructions to stay home and maintain a distance of at least 1.5 metres to other people. Naturally, any regional approach raises issues about whether its measures are scalable and thus transferrable to other contexts.

Digital live distance teaching was successfully implemented in the practical training modules of the English as a foreign or second language teacher training programme of the Catholic University Eichstätt-Ingolstadt in a time of crisis and in response to a necessary turn toward online teaching due to the Covid-19 pandemic (Tulchinskii, 2020). The presented course format guaranteed the continuation of qualitative teacher training by integrating the training and teaching of digital competences with content-specific knowledge of teaching English as a foreign or second language. Following Alkharusi et al.'s (2011, p. 121) suggestion, the practical outline of the course allowed pre-service teachers to put into operation their skill-specific training and knowledge acquired in the university-based course into actual online classroom settings. Connecting the content material of the

'Digital (live) distance teaching was found to be a valuable addition to the curriculum of foreign language teacher education and a motor for pre-service teachers' digital competence development'

course with ongoing live distance teaching opportunities, pre-service teachers were provided *'with real-life opportunities for the application of educational […] concepts and principles'* (Alkharusi et al., 2011, p. 121) of teaching English as a foreign or second language.

This article proposed a developmental model for professional teacher competence as a framework for optimising knowledge domains for teaching foreign languages online and provided the first empirical results in the area of pre-service teachers' perceptions. A next necessary step is to develop an instrument assessing TPCK of English language teaching in remote learning settings, thus reading the general DevTPC against a subject-specific Developmental Model of Language Teacher Professional Competence (DevLTPC). Digital (live) distance teaching was found to be a valuable addition to the curriculum of foreign language teacher education and a motor for pre-service teachers' digital competence development. Ideally this development is monitored longitudinally and with various cohorts. Given the success of the teaching innovation, digital (live) distance teaching experiences have by now become an obligatory element of the training curriculum of foreign language teachers at the Catholic University of Eichstätt-Ingolstadt and will be taught also after the return to face-to-face teaching.

Having analysed German and Bavarian policies, necessary preparatory measures and innovative best practices of digital live distance teaching, the study highlighted the transformative potential of this teacher training concept developed and conducted under severe time constraints in times of crisis. Although pre-service teachers were initially hesitant about conducting live teaching sessions with primary and secondary school students, the end of term course evaluation and accompanying survey on perceived learnings in teaching English online display mostly positive results.

The following questions for reflection arise from these initial positive results.

1. Which changes to policies of foreign language teacher training should be made or maintained after the end of the pandemic?

2. How do infrastructural and technological specificities continue to affect access of primary/secondary school students/pre-/in-service teachers/teacher trainers to digital teaching/learning opportunities?

3. How far do infrastructural and technological issues affect the quality of foreign language teaching in offline/online teaching environments?

4. Should digital (live) distance teaching experiences become mandatory in teacher training programmes after the return to face-to-face teaching?

5. Which digital competences should foreign language teachers have?

All these questions underline the urgent need for further empirical research in the area of (remote) foreign language teacher education. Experts should be brought together to consult on policy development using the Delphi technique. Tests on CPK in online foreign language learning contexts should be developed as recent influential studies have shown that general knowledge of technological pedagogical content knowledge is not enough (Schmid et al., 2020). While digital media are particularly effective in supporting foreign language learning, a collection of evidence-based best practice examples of digital teaching innovations is still missing and thus another area of particular interest for professionalising practical digital competence education alongside the development of content knowledge and content pedagogical knowledge is lacking. Finally, in order to empirically validate the proposed developmental model of professional teacher competence, future studies should opt for triangulated approaches in order to overcome potential biases in competence development (cf. Schmid et al., 2020, p. 10). Evidently, this is an exciting time for professionalising remote foreign language teacher training and research.

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