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# LEARNING FROM A MODEL, LEARNING AS A MODEL: PROFESSIONAL DEVELOPMENT FOR TEACHING ACADEMIC READING AND WRITING IN UPPER SECONDARY SCHOOLS

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## 1. Introduction

Educational policy reforms in German-speaking countries over the past years require students to write a kind of thesis<sup>1</sup> to graduate successfully from upper secondary school (BMBWF, 2012a, 2012b; KMK, 2014; Schweizerische Eidgenossenschaft, 2018). These requirements pose new challenges for learners and teachers alike, and to date there has been little research on the competencies that teachers need to prepare their students for this demanding writing task at the end of their school careers and to support them in the writing process. This research gap was the starting point of the AaMoL project (*Am Modell lernen, als Modell lernen*; Learning from a model, learning as a model): We cooperated with two schools (2 teachers and 56 students) to gain insights into the development of competencies on both sides (teachers and students) when participating in an observational

<sup>1</sup> For the Austrian context, in which the study presented here was conducted, the paper that has to be written is called a *Vorwissenschaftliche Arbeit (VWA)* (“pre-academic paper”) or *Diplomarbeit* (“diploma thesis”). This paper must answer a research question, follow academic writing conventions (e.g., explicit intertextuality), and have a length of up to 60,000 characters including spaces.

learning intervention that focused on the explicit teaching of reading and writing strategies in the context of a writing-from-sources task.

In this chapter, we present the results of a qualitative study conducted with the two teachers on the potential of observational learning for the development of teaching competencies for language-aware preparatory academic subject classes that do not address subject-specific academic skills (e.g., conducting an experiment in science) but language-focused skills (e.g. reading and writing strategies). We chose subject teachers as our research partners in the project because they often supervise students writing their *VWA/Diplomarbeit* but are less familiar with teaching academic reading and writing strategies than language teachers would be. Furthermore, we focused on two teaching contexts that are characterized by linguistic diversity: an Austrian academic secondary school (AHS) abroad where German is a foreign language for most students but nearly all subjects are taught in German and a college for higher vocational education (BHS) in Vienna that is attended by students who consider German as their first or second language.

In Section 2, we briefly outline the theoretical framework that we relied on in this study: teachers' professional competencies, observational learning, and teachers' competencies for language-aware preparatory academic education. Section 3 explains the research design, and Sections 4 and 5 present the results of our qualitative study and the discussion respectively.

## **2. Theoretical framework**

### **2.1 Teacher professionalism**

Teacher professionalism, defined as the “quality of the performance and fulfillment of professional tasks by the holder of the profession” (Horn, 2016, p. 156) or “a certain degree of expertise” (Hericks et al., 2018, p. 598), evolves through various professional development processes. These processes involve a complex interplay of specialist and interdisciplinary knowledge, professional and personal beliefs and values, and situation-specific practices, which contribute to ongoing reflexive development. This development can and should be viewed and examined from different theoretical perspectives (Cramer et al., 2023). To explore observational learning and its potential role in professional development for teachers, this study draws inspiration from perspectives on professional competence that highlight not only the importance of competence for teaching but also the

impact of teaching experience on competence development (Blömeke et al., 2014, p. 535).

Structural models of teachers' professional competence, such as the competence models of COACTIV (Baumert & Kunter, 2013) or TEDS-M (Blömeke, 2017), which are both based on Shulman (1987), were modeled from a cognitive perspective and primarily focus on affective-motivational components such as beliefs and values, motivational orientation, and self-regulation as well as the cognitive component of professional knowledge consisting of content knowledge, pedagogical content knowledge, and pedagogical-psychological knowledge. However, more recent theoretical approaches have taken a situated perspective, including context-specific and situated aspects of teaching (Kaiser & König, 2019, p. 4). In this view, professional competence and teaching practice are interconnected along a continuum. This interconnection involves complex processes of perception, interpretation, and decision making (Blömeke et al., 2015, pp. 6–7), intricately embedded and influenced by the broader socio-cultural context (Scheiner, 2021). Empirical evidence indicates a reciprocal influence between professional competence and teaching practice. Professional knowledge, beliefs, and values act as a perception filter (Roose et al., 2019, p. 147), shaping the interpretation of teaching situations and thus influencing teaching practice. Simultaneously, a structured, situated, and goal-oriented reflected teaching practice helps, among other factors, to refine one's own perception and interpretation of teaching situations, thereby expanding professional knowledge and changing beliefs and values (Santagata & Yeh, 2016, p. 163). These findings are central to the present study, which examines the potential of the practical implementation of and guided reflection on a teaching intervention to support the professional development of two teachers.

## **2.2 Observational learning as a conceptual frame for developing teaching competencies**

Observational learning programs such as *Self-Regulated Strategy Development* (SRSD; Harris & Graham, 1996) or the *Cognitive Academic Language Learning Approach* (CALLA; Chamot, 2009) aim to develop students' strategy repertoires, such as the reading and writing strategies required to solve writing-from-sources tasks in the AaMoL project. A key step in observational learning on the way to independent and metacognitively regulated use of strategies is watching an expert model think aloud in a coherent and didactically motivated way while using effective strategies throughout a task-solving process live or in the form of a prepared

screencast. In the observational learning intervention that we introduced to preparatory academic subject classes in the AaMoL project, this core phase of watching an expert model was framed by five further steps, including peer collaboration, reflection, and application:

1. The students solve a writing-from-sources task in teams of three as an introduction to the target task and so that they can compare their task-solving process with the one demonstrated by the expert model in the following steps of the observational learning intervention.
2. The students watch a screencast video in which the expert model (the teacher) explains a strategic task-solving process by thinking aloud in a didactically motivated way (modeling).
3. In a short discussion phase in their teams, the students prepare their questions for the following Q&A session.
4. In the Q&A session, the students can pose questions to the expert model (the teacher) to clarify certain aspects of the video or to address aspects that were not mentioned in the recording.
5. Back in their teams of three, the students reflect on their insights and the strategic knowledge that they gained from the preceding phases of the intervention and write a short report about their results.
6. These teams then solve another writing-from-sources task and try to improve their task-solving process by using the strategies learned during the observational learning intervention (Reitbrecht et al., 2019).

From the teachers' point of view, the preparation for the act of modeling (step 2) also provides learning opportunities: They have to solve the writing-from-sources task themselves, become aware of their own use of strategies, and anticipate their students' needs. Furthermore, the interactive phase with the class (step 4) provides insights into the students' task-specific knowledge and their real learning needs. In this context, Philipp (2014, p. 192) assumes that observational learning can contribute to the development of content knowledge (task and strategy knowledge) and pedagogical content knowledge (observational learning as a useful concept for strategy instruction). Likewise, Feilke et al. (2016, p. 170) assume the diagnostic potential of interactional teaching situations in observational learning such as the Q&A session (step 4). Contrary to these assumptions of a multidimensional development of teaching competencies for teachers who participate as models in an observational learning intervention, implementation studies and practice-based professional development research on observational learning have so far mainly concentrated on the effects of observational



learning on students' writing performances (learning from a model). With regard to the development of teachers' competences (learning as a model), they mainly focused on teachers' perceptions of self-efficacy or their perception and assessment of observational learning concepts in terms of social validity (Festas et al., 2015; Harris et al., 2012; Koster et al., 2017; McKeown et al., 2019a, 2019b). Thus, to broaden the scope of observational learning as a learning opportunity for teachers and to consider the above-mentioned assumptions, the idea of multidimensionality guided us through the development of the category system in our qualitative study.

### **2.3 Teachers' competencies for language-aware preparatory academic subject classes**

Writing from sources as a core process of academic writing poses a significant challenge for students, both in their L1 and L2 (Cumming et al., 2016). To address this challenge effectively, it seems to be beneficial to introduce writing-from-sources tasks in small steps from the beginning of upper secondary school and across different subjects. This approach aims to bridge curricular gaps between writing requirements at the secondary and tertiary levels, ultimately preparing students for the transition from school to university (Rheindorf, 2016, p. 38). In German-speaking countries, this understanding of preparatory academic education as a universal teaching principle has led to the development of specific writing-from-sources tasks for the upper secondary school context (e.g., Feilke & Lehnen, 2011). Subsequent studies have focused on learners' developing competencies in academic writing. These studies were designed and conducted in the context of German language (L1) education at upper secondary schools and evaluated interventions that mainly aimed at fostering genre knowledge and domain-specific moves (Akbulut & Schmölzer-Eibinger, 2021; Bushati et al., 2018; Schüler, 2017).

To extend the students' learning goals as well as the contexts of implementing writing-from-sources tasks according to the conceptualization of preparatory academic education as a universal teaching principle for upper secondary schools, we followed a research approach in the AaMoL project based on the following three principles:

1. We chose to work with teachers of subjects other than German (detailed information on the two teachers is provided in Section 3).
2. The writing-from-sources task designed for the classroom intervention focused on the discourse function of comparison. We chose comparison (Spivey, 1991, pp. 393–397) because it is relevant to

several school subjects and the academic context in general (Wilcke & Budke, 2019) and thus holds relevant transfer potential (Reitbrecht & Schramm, 2020).

3. The project explicitly addressed the implementation of observational learning, an approach that involves learners and teachers in quite a demanding way and mainly focuses on the development of students' strategy (and task) knowledge. While the two teachers were free to design their modeling screencast, we suggested three potential teaching goals to them: (a) strategies for selective reading, (b) strategies for synthesizing and structuring information from different sources for text production, and (c) knowledge about explicit intertextuality as a principle of academic writing.

With regard to the development of teaching competencies for language-aware preparatory academic education in subject classes, we relied on research on pre-service teacher education for German as the first language in linguistically diverse contexts. Previous work, such as by Bräuer et al. (2016) and Schindler (2015), offered descriptive insights into project collaborations with schools. In particular, Bräuer et al. (2016, pp. 91–93) provided an important point of theoretical orientation in our deductive approach to content analysis. They adapt the highly influential COACTIV model of math teachers' professional competence (Baumert & Kunter, 2013) to (preparatory) academic writing instruction in upper secondary education. Thus, their model also encompasses different categories of professional knowledge (content knowledge, pedagogical content knowledge, pedagogical-psychological knowledge, organizational knowledge, and counseling knowledge) as well as the aspects of self-regulation, motivational orientation, and beliefs. They specify the competence areas of *content knowledge* and *pedagogical content knowledge* with aspects of (preparatory) academic writing. For example, they define the category *content knowledge of writing* as a deep understanding of writing processes and genre-specific moves as well as of writing and text competence. For the category of *pedagogical content knowledge on writing*, they list three domains of knowledge: knowledge about explaining (preparatory) academic writing, knowledge about students' writing-related self-concepts, and knowledge about writing tasks to promote (preparatory) academic writing. Thus, they present a broad conceptualization of teacher competence that suits our research interest of exploring the potential of observational learning for a multidimensional development of teaching competence. Yet, their descriptions of individual facets of competence remain vague. This allowed us (according to our explorative research design) to maintain a certain

degree of openness during the process of data analysis. Thus, we only refined and contextualized selected category descriptions in Bräuer et al. (2016) according to the specifics of the intervention in the project focusing on the teaching of strategy (and task) knowledge in a writing-from-sources task. Furthermore, comparable to our study, Bräuer et al. (2016) used their competence model for the context of preparatory academic education in upper secondary schools. Thus, in contrast to domain-specific models of teacher competencies for academic writing at universities (e.g., BALEAP, 2008), which include several domain-specific aspects as well as institutional knowledge and go beyond the educational tasks and goals of upper secondary schools, Bräuer et al. (2016) keep in mind the exclusively preparatory character of academic education in a school context (Schindler & Fernandez, 2016).

### **3. Research Design**

To study the potential of observational learning for the development of teaching competencies with a concrete focus on the demands of language-aware preparatory academic education from an emic research perspective, we used retrospective guideline interviews with the two subject teachers and coded the interview transcripts using qualitative content analysis based on the theoretical models presented in Section 2.

#### **3.1 Participants**

Teacher T1 teaches geography and English as a foreign language at an Austrian academic secondary school abroad and has some teaching experience in German as a foreign language. Teacher T2 teaches tourism marketing and cultural management as well as economic subjects at a college for higher vocational education in Vienna. T1 holds a PhD, and T2 completed a master's degree five years before the intervention. A total of 56 11th-grade students participated in the project, and demographic data, as well as written performances, were collected from 45 students. At the Austrian academic secondary school abroad (21 students), all students mentioned a first language other than German, and only two students considered German as their further first language. At the college for higher vocational education in Vienna (24 students), one student mentioned an L1 other than German, ten further students considered another language and German as their L1s, which suggests that they have a family language other than German but at the same time high competencies in German due to their



education in Austrian schools. The study was conducted in geography (T1) and tourism marketing and cultural management (T2) classes.

### 3.2 Procedures

To guide the two teachers through the preparation of their model videos and the intervention with their students and to initiate developments in the teachers' preparatory academic teaching competence, we followed several of the recommendations that Lipowsky and Rzejak (2019) pointed out in their review of international research on the effectiveness of in-service teacher education: the consideration of research results in the design of the teacher education units as well as feedback and coaching for the teachers by the research team. The individualized in-service teacher education in the AaMoL project consisted of the following four steps:

1. In the first stage, the teachers worked on the writing-from-sources task developed by the research team (Reitbrecht & Dawidowicz, 2018). After completing the task, the teachers evaluated its suitability for students, considering the challenges and relevance for their target group with regard to their academic writing skills. This assessment aimed to derive teaching and learning goals for working with their students.
2. In the second stage, the teachers created initial drafts of their model video using a handbook (Dawidowicz & Reitbrecht, 2018). This handbook contained a guide to screencast production, information about the potential of observational learning, an introduction to modeling, and possible teaching goals, as mentioned in Subsection 2.3 (strategies for selective reading, strategies for synthesizing and structuring information from different sources for text production, and knowledge about explicit intertextuality as a principle of academic writing). Based on feedback on the content and design of their videos from the university team, they refined these drafts and finally produced a 27- (T1) and a 19-minute (T2) model video.<sup>2</sup>
3. In the third stage, each teacher organized a research day at their school and implemented the first five steps of the observational learning setting (see Subsection 2.2). The Q&A session was recorded on video, and the students' comparison texts (step 1) and reports (step 5) were collected. The sixth step (application in a new task

<sup>2</sup> The model videos of T1 and T2 are available on the project website: <https://aamol.univie.ac.at/projektaktivitaeten/>

context) was designed as a follow-up to data collection in the project and was not part of the research day.

4. After the research day, we made the students' writing performances (step 1) and written research reports (step 5) as well as the video recording of the Q&A session (step 4) available to the teachers.

In preparation for the interviews that took place some days after the research day, we invited the two teachers to document their newly gained insights in a learning diary. This allowed for peri-actional reflection on triggering events during the intervention. Post-actional reflection in the retrospective interviews was based on these notes as well as on the artifacts that we made available to the teachers after the classroom intervention (see stage 4 of the description above).

### **3.3 Instruments and analysis**

While the original data collection included a larger pool of data, in this article, we will analyze the teachers' retrospective interviews. The interview corpus contains video data of 113 (T1) and 114 (T2) minutes in length, which were transcribed using a simplified transcription system (Dresing & Pehl, 2013) in a ratio of 1:7 with the program f4/f5 (<https://www.audiotranskription.de>). For the content analysis of the interview data, we chose a deductive procedure and opened it for induction in a further step (Mayring, 2015). Based on the work of Baumert and Kunter (2013, pp. 33–45) and Bräuer et al. (2016, pp. 90–93) described in Section 2, we developed a category system (see Table 10-1) that allowed for the coding of reported teaching development in ten different competence areas. The full codebook (Dawidowicz et al., 2019) is available on the AaMoL project website in German. It contains definitions of the constructs (referring to the research literature) and anchor items. These items are cited from the data corpus and combined with a short explanation of their status as an anchor item.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>C1 – Content knowledge</b><br><b>C2 – Pedagogical content knowledge</b><br>C2.1 – Diagnostic knowledge about students’ writing abilities<br>C2.2 – Knowledge about task design<br>C2.3 – Explanatory knowledge<br><b>C3 – Pedagogical/psychological knowledge</b><br>C3.1 – Student assessment<br>C3.2 – Learning processes<br>C3.3 – Teaching<br><b>C4 – Organizational knowledge</b><br><b>C5 – Counseling knowledge</b><br><b>C6 – Self-regulation</b> | <b>C7 – Beliefs/values/goals</b><br>C7.1 – Epistemological<br>C7.2 – Learning theories<br>C7.3 – Teaching theories<br>C7.4 – Self-serving<br><b>C8 – Motivational orientations</b><br>C8.1 – Self-efficacy<br>C8.2 – Enthusiasm<br><b><i>C9 – Professional development</i></b><br><i>C9.1 – Exchange with colleagues</i><br><i>C9.2 – Professional development opportunities</i><br><b><i>C10 – Media competence</i></b> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Table 10-1: Category system (inductively formed categories in italics)**

As mentioned above, in the category of *Content knowledge* (C1), emphasis is placed on knowledge about and a deep understanding of preparatory academic writing processes and genre-specific moves as well as of academic writing and text competence. The category of *Pedagogical content knowledge* (C2) is divided into three subcategories. As these subcategories, together with C1, are central to competence developments for language-aware preparatory academic education in subject classes, the definitions of codes C2.1, C2.2, and C2.3 are listed here. For space reasons, the anchor examples are omitted but they can be found in the codebook:

- *C2.1 – Diagnostic knowledge about students’ writing abilities* – We defined this code with reference to Baumert and Kunter (2013) and Bräuer et al. (2016) as the development or consolidation of knowledge about students’ conceptions of preparatory academic writing (e.g. common misconceptions as well as students’ confidence in or motivation for writing) and as knowledge about assessing students’ writing-related knowledge and skills (e.g. typical errors, frequently used writing strategies, or diverse assessment methods).
- *C2.2 – Knowledge about task design* – We defined this code with reference to the same sources above as the development or consolidation of knowledge about the didactic/diagnostic potential of tasks, their cognitive requirements, and implicit language-based

prerequisites as well as their micro- and macro-curricular sequencing in the context of preparatory academic writing.

- *C2.3 – Explanatory knowledge* – We defined this code with reference to the same sources as the development or consolidation of knowledge about varying ways of representation and explanation, including media, materials, and content as well as language teaching behavior relevant for explanations in relation to preparatory academic writing.

Each interview was coded by two researchers. The inter-coder reliability check indicated isolated deviations in the coding, which we then discussed in our authoring group to reach a consensus. In our discussion of inconsistently coded text passages, we inductively contoured categories C9 and C10 (see Table 10-1). Under C9, we included utterances that point to different means of professional development. These include informal discussions with colleagues (C9.1) and formal professional development opportunities such as general or local in-service teacher education programs offered by the university colleges of teacher education in Austria (C9.2). C10 comprises aspects of media competence.

## 4. Results

During the interviews, the two teachers shared reflections and insights on various competence facets covered by the category system. The content analysis showed differences and similarities between the two teachers regarding the occurrence of different categories (see Fig. 10.1).

In terms of differences, the interview with T1 included several passages that referred to developments in the transdisciplinary competence area of pedagogical/psychological knowledge in relation to preparatory academic writing (C3), specifically in the facets “teaching” (C3.3; 8 codes) and “learning processes” (C3.2; 1 code). In these passages, T1 referred to the potential of observational learning for other content areas as well as teaching preparatory academic reading and writing. In contrast to T1, the interview with T2 included several passages that referred to developments in the area of organizational knowledge (C4; 3 codes). In these passages, T2 mentioned ideas about how changes at the level of local school organization could facilitate the development of preparatory academic reading and writing.



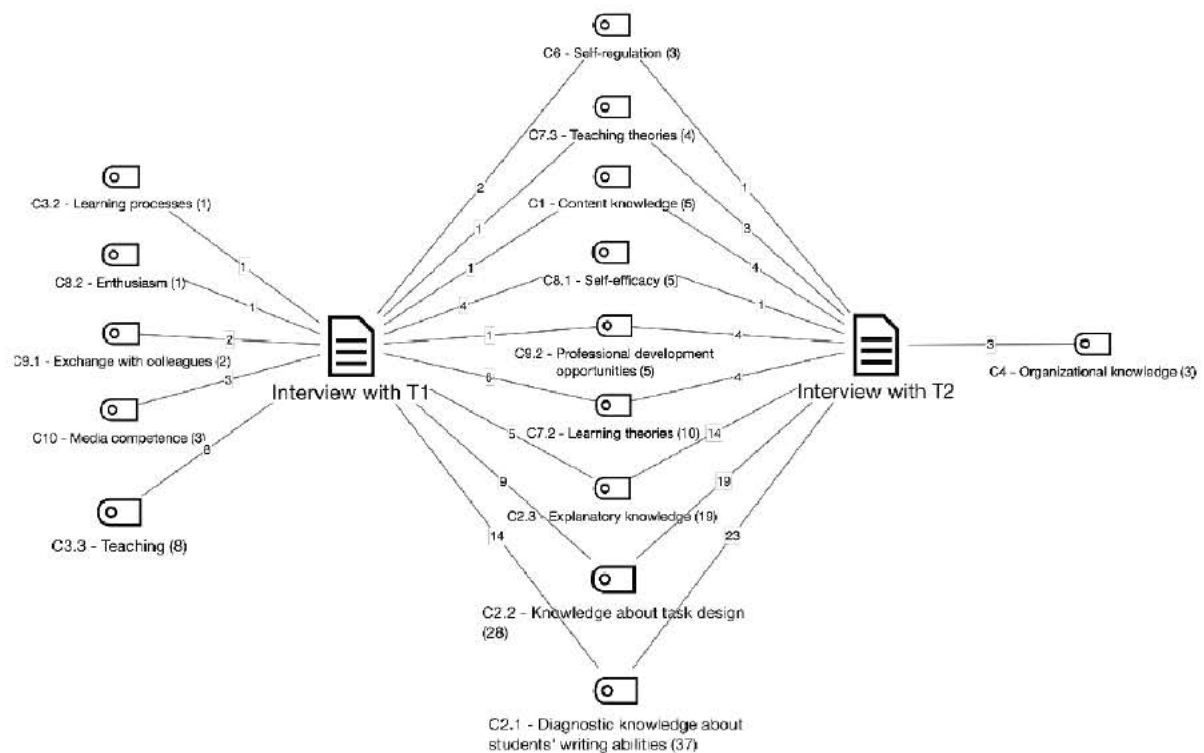


Fig. 10.1: Allocation of categories in the two interviews

In terms of similarities, the results showed that neither teacher reported on content knowledge in any detail (C1; 5 codes), but both perceived and expressed a development or consolidation of their pedagogical content knowledge (altogether 84 codings, see Fig. 10.1). High numbers of codings of “diagnostic knowledge about students’ writing abilities” (C2.1; 37 codes) and “knowledge about task design” (C2.2; 28 codes) demonstrate that the teachers frequently referred to the importance of preparatory academic education. Therefore, in what follows, we focus on presenting results on the core areas of diagnostic knowledge (C2.1) and task design (C2.2). We also show how these two facets of knowledge interact when diagnosis-based support measures and lesson planning are mentioned in relation to teaching academic reading and writing. Finally, we illustrate our results on explanatory knowledge (C2.3) in relation to teaching academic reading and writing strategies with quotations from the teachers’ interviews.

With regard to diagnostic knowledge about the students’ reading and writing abilities (C2.1), teacher T1 addressed the relevance of the different phases of observational learning. Reading the students’ texts and their research reports revealed different students’ needs. For example, she was surprised by the length of the students’ comparison texts (T1, Turn 146). In the concrete task context, this indicates that the students did not only focus on the criterion of comparison but also reported on non-relevant data from

the sources or chose wrong data from the sources. In a more general way, the reflection of T1 also addressed the diagnostic potential of the artifacts provided after the intervention. This aspect is illustrated in the following quote:

*Interview excerpt 1*<sup>3</sup>

[...] And to collect and videotape all that, that is/ is very/ very important to me. Because I can resort to that for my future teaching, sometime later. I can say, okay, that was a point and I can rewatch it: What did the students recognize? And then prepare my lessons maybe once again on the basis of the/ on the basis of the video that I have watched. So, this was really very/ very useful. (T1, Turn 113)

In interview excerpt 2, T1 gave concrete examples from the Q&A session with the students that T1 had mentioned in their diary as relevant. They described how students handled different sources in terms of explicit intertextuality and the meaning of the terms *net* and *gross sample*. The students' questions in the Q&A session allowed T1 to recognize the group's heterogeneous experience with academic reading and writing:

*Interview excerpt 2*

And the last point I wrote down is the question from student T5.15. I think this was at minute 36. He asked why don't you just write the sources at the end. And/ and that is enough, so to speak. And that makes it so very clear, I think, how/ clear, how different the students' level of knowledge is. Well, that's yes/ with some of them you really have to start from scratch. They really have absolutely no idea what to expect from this *VWA*. What this writing is supposed to be, how it is different from a homework assignment or what I write down in the lesson, or I don't know what else. No idea. And then there are others who really bring some previous experience to the task. Like the specific question of what is a gross and a net sample, because they are already familiar with everything else. Like the fact that I must quote, how I must quote, and so on. Well, it/ I/ that is unbelievable how/ how far apart the students are (T1, Turn 120).

T2 also drew on the phases and products of the observational learning setting to gain diagnostic knowledge about the students' reading and writing abilities (C2.1) when developing their teaching competence. Specifically, T2 addressed the use of hypertextual structures – in this case, the table of

<sup>3</sup> The interviews were conducted in German. All interview excerpts were translated into English by the authors.

contents – as a useful strategy for selectively reading comprehensive sources. T2's statement in interview excerpt 3 is particularly significant because they directly connected the students' knowledge/strategy gap (C2.1) with considerations about teaching practice as a possible reason for this gap (see "they only ever get a newspaper clipping or something else from us"). Moreover, T2 mentioned future goals for their own teaching (C2.2), an approach that could be observed several times in their interview:

*Interview excerpt 3*

Right, that/ that was also the one with the table of contents. Look into the table of contents. That was for them like: "Oh, table of contents, aha. Ah, we could have looked there. That's right, we didn't look at it at all." So looking at a table of contents is also new for them. Sure, they practically never have any texts with them, so they don't read books, or they read books where there is no table of contents, and/ and otherwise they only ever get a newspaper clipping or something else from us, what/ Of course, but the table of contents is probably very strange to them, isn't it? That one could take a look at it. Well, that was also an aha-experience, and I thought to myself – and what I'm already doing more and more and now propagate more and more is to bring them books and they have to find something in these books. I already bring them the right ones, but they have to at least either flip through the book or maybe have a look at the table of contents and then find out. That they simply also need that/ Well, because that is what they need for the *VWA* (T2, Turn 150).

T2 not only directly related statements in the two categories (C2.1 and C2.2) to each other but also mentioned several further ideas for their own teaching in terms of task knowledge (C2.2). Interview excerpt 4 underscores that T2 did not view language-aware preparatory academic teaching as individual activities, additive offers, or specific project ideas, but they rather suggest concrete examples of a continuous and progressive integration of preparatory academic practices into their future teaching practice:

*Interview excerpt 4*

Exactly. Yes. So as I said, really concrete/ First of all, show them the sources again and again and point them out. So that's the quoting and sources and so on. And the other thing is this work with statistical data material. With studies. That they are there, that I simply use them again and again and/ or that we keep recalling who has been given a questionnaire, how has been asked and so on. Just that/ things like that, that I simply use them in class piece by piece. And maybe start on a small scale, even in the

tenth or eleventh grade with smaller things. And then somehow larger studies and maybe ask them two or three questions about them, for which they scan very specifically. So that they have to learn to scan the studies, so to speak. And that they have to pick out these two or three pieces of information from the large volume. So that we simply practice this (T2, Turn 171).

In this example, T2 named procedures as teaching principles of a continuous and coordinated approach to preparatory academic subject classes. Similarly, T2's reflections on developmental measures at the institutional level also emphasized this sense of continuity (see category C4 on organizational knowledge in Fig. 10.1). This was also a detail in which the two teachers differed with regard to knowledge about task design (C2.2): Although T1 also fundamentally combined diagnostic findings (C2.1) from observational learning with further considerations on task design (C2.2), they remained more strongly attached to single tasks than T2. This is illustrated by interview excerpt 5, in which T1 used the example of students' presentations to develop new ideas for their teaching. This passage suggests a stronger focus on isolated measures in preparatory academic education for T1 compared with T2, who emphasized consistent and coordinated measures across the curriculum:

*Interview excerpt 5*

I have to see where I have that. I/ What I was thinking about is, for example, in Geography with the presentations, whether it wouldn't make sense to simply say that I have specialized literature myself, which I simply take with me to class and then let the students browse through the books, in the printed academic articles for an hour. That they/ they really learn to deal with a given research question in the material that is available, that they pick something out and learn to deal with it (T1, Turn 89).

With regard to the third facet of pedagogical content knowledge, i.e., explanatory knowledge (C2.3), several of the teachers' considerations were specifically related to the modeling of (digital) writing and reading processes. Excerpt 6 provides an illustration from T1, who emphasized the advantages of multimodal modeling of reading processes:

*Interview excerpt 6*

Well, I had no idea about a video/ a learning video at all. And also not really how I will implement it. And then I just tried it out. And/ To support this visual, as I mentioned before, or to really show how the work is done,



not only to show these slides with the words, but also to show what it looks like on the computer, this reading, this scrolling or whatever. I think I would really add the suggestion that it has an unbelievable added value if one can see that too. So it wasn't just the/ I was proud of myself that I came up with the idea of doing it this way with the PowerPoint slides. But in the end, it was/ was, yes, it's okay, but, I think the other thing is even more enriching when you see how the work is done. Yes, I think I would definitely include this suggestion (T1, Turn 211).

It is noteworthy that T1 related this aspect of showing and acting in the model video to their teaching situation in German-medium subject instruction at the Austrian academic secondary school abroad. T1 particularly emphasized the importance of the visual component of multimodal explanation in the screencast as an aid to understanding for German as a foreign language students:

*Interview excerpt 7*

Yes. And I learned, the more that is really shown visually in this video, the better. So, you really have to use all modes, so to speak, not only/ Because otherwise it's almost a bit like a listening exercise in language classes and/ or where you have to listen in a very concentrated manner, which is also incredibly exhausting for the students, I think, over 27 minutes. And if you really show something, that is, if you use the visual mode of the video, it's just easier for the students to follow. And they probably learn more. Though we have not checked this, but/ (T1, Turn 71).

## 5. Discussion

The findings indicate processes in the professional development of the two teachers initiated by their participation in the observational learning intervention. While both report on developments in various aspects of their professional competence (e.g., pedagogical/psychological knowledge for T1 and organizational knowledge for T2), they predominantly discuss concrete examples illustrating the high potential of observational learning for enhancing their pedagogical content knowledge for language-aware preparatory academic education in subject classes. Both teachers highlight multiple ideas for this specific teaching context, especially ideas on how to teach academic reading and writing strategies based on their students' requirements.

The potential of observational learning becomes particularly evident for diagnostic purposes (Interview excerpts 1, 2). Our interview data thus

confirm the assumption that Feilke et al. (2016, p. 170) have drawn from their experiences with an observational learning intervention at the university level: By examining students' questions, reports, and performances, the teachers in our study recognized students' challenges and their (heterogenous) prior knowledge. Furthermore, they succeeded in developing a critical perspective on their teaching practice and numerous concrete ideas for future situations of language-aware preparatory academic education. They often derived these ideas directly from diagnostic findings (Interview excerpts 3, 4, 5) and thus linked diagnosis with appropriate support or lesson planning. With regard to explanatory competence, our study suggests that video production has particular potential because it enables teachers to reflect on the quality of their explanations through self-observation and to draw conclusions, especially with regard to the relevance of visual elements (the visible acts of reading and writing as well as visual elements structuring the video to enhance its explanatory quality) in modeling (preparatory academic) reading and writing processes (Interview excerpts 6, 7). One difference between the two teachers is that their ideas for language-aware preparatory academic education are either linked more strongly to isolated tasks/projects (T1; Interview excerpt 5) or are conceived more broadly as a universal teaching principle and an aim of school development (T2; interview excerpts 3, 4). Although these reflections differ in their pedagogical conclusions, both provide evidence of the high potential that observational learning situations can have for teachers of content classes to develop their teaching competencies for language-aware preparatory academic education.

In contrast, the impact of the observational learning intervention on the development of content knowledge for language-aware preparatory academic education appears to be relatively low, as indicated by only five codings for both teachers combined. Possible explanations for this include the teachers' prior academic writing experience from their own studies at university, suggesting limited acquisition of new reading and writing strategies. Another factor may be that the reflective process in their learning diaries, which formed the basis for the subsequent interviews, only started in phase 2 when they started to produce their model videos. The first phase of the in-service teacher training, which focused on the writing-from-sources task and asked the teachers to solve it, had taken place earlier. Periactional reflection processes during the first phase might not have been recorded in the diaries and thus not addressed in the interviews. Future research should systematically investigate potential differences at the various stages of professional development and with teachers bringing along different academic writing experiences, particularly exploring whether

observational learning also promotes content knowledge in the area of preparatory academic writing, thus providing valuable insights.

Bräuer et al.'s (2016, p. 91) conceptualization of teacher competence for preparatory academic writing in upper secondary schools presented a good framework for the analysis presented here. In contrast to the existing research literature on competence development through being the model in an observational learning intervention, Bräuer et al.'s (2016, p. 91) broad view of teaching competencies allowed for openness during the process of analysis and revealed competence development in different areas and facets that have not been addressed so far in quasi-experimental studies on the development of teacher competencies in that area. However, in future studies, the descriptions of the competence areas – especially those for content and pedagogical content knowledge should be further refined and concretized to model teaching competence for language-aware preparatory academic education. Examples from the international research literature on teaching academic writing and language competencies like the BALEAP model (2008) could be useful references for these next steps. Nevertheless, in using existing teacher competence models for academic reading and writing, the applicability of their competence descriptions for the specific context of language-aware preparatory academic education in upper secondary schools (in Austria) has to be closely discussed.

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## Declaration of AI and AI-assisted technologies in the writing process

During the preparation of this text, the authors used DeepL Translator for German–English translations and ChatGPT 3.5 to improve the readability of previously self-written paragraphs. After using these tools, the authors thoroughly reviewed and edited the content as required and take full responsibility for the content of the publication.

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