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To cite this article: Åsta Haukås, Anja Pietzuch & Jo Helge Ansnes Schei (2022): Investigating the effectiveness of an online language teacher education programme informed by self-determination theory, *The Language Learning Journal*, DOI: [10.1080/09571736.2022.2027001](https://doi.org/10.1080/09571736.2022.2027001)

To link to this article: <https://doi.org/10.1080/09571736.2022.2027001>



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Published online: 02 Mar 2022.



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Investigating the effectiveness of an online language teacher education programme informed by self-determination theory

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ABSTRACT

Despite the centrality of motivation for all learning, few studies have examined the effectiveness of online language teacher education (OLTE) programmes within a psychological framework. This explorative study seeks to address this gap by evaluating the effectiveness of a two semesters OLTE course for German teachers in the Norwegian context. The course was developed to address students' innate psychological needs for autonomy, competence and relatedness within the framework of self-determination theory (SDT). The paper first details the steps taken to meet students' needs, and then evaluates the effectiveness of the programme by analysing the data from students' questionnaires, which were completed after each of the two semesters. The results showed that most students were highly motivated throughout the course, and that their motivation increased over time. Furthermore, most of the students felt that their psychological needs of autonomy, competence and relatedness were met. Thus, we suggest that designing OLTE programmes according to SDT principles can be an effective means of professional training for future language teachers.

KEYWORDS

Online language teacher education; self-determination theory; autonomy; motivation; relatedness

Introduction

Online teacher professional development (OTPD), both pre-service and in-service programmes, are becoming increasingly common across the globe. They are often perceived to have benefits such as higher flexibility and improved access for people living in remote areas, as well as lower costs for both participants and higher education institutions (Dille and Røkenes 2021). Furthermore, they are seen as providing largely similar learning outcomes and levels of student engagement when compared with on-site programmes (Dyment and Downing 2020; Shin and Kang 2018).

In one of the earliest literature reviews on successful OTPD programmes, King (2002) suggested that they should provide accurate and relevant content, include in-depth dialogue among course participants and a supportive, responsive learning environment, facilitate collaborative work, and offer relevant assignments. However, a few years later, scholars warned that existing recommendations were rarely offered based on rigorous research and relevant theory into what is needed to ensure participants' learning (Dede et al. 2009). For improving OTPD programmes, Dede et al. (2009) suggested that teacher educators must aim for empirical evidence of best practices including how teacher-student relationships in OTPD work and can be improved.

Over the past ten years, the availability of OTPD programmes both for pre-service and in-service education has continued to grow. Simultaneously, we have witnessed a steady increase in research

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on OTPD including several recent metastudies. Dymont and Downing (2020) reviewed 492 articles published between 2012 and 2017. They found that around three quarters of the studies explored technological pedagogical innovations, typically describing how the innovations were used including their strengths and weaknesses. The second main area of research was students' experiences of participating in an OTPD programme, often tied to their perceptions of the technological pedagogical innovation(s). Only 14% of the studies explored OTPD programmes related to a specific subject, such as language teacher or drama teacher education. Dymont and Downing (2020) rejected the claim that there is a lack of research in the field. However, they concluded that 'the present research base is fragmented and consists of disparate and unrelated studies that rarely cross reference each other' (329). Lay et al. (2020) reviewed 73 studies on OTPD published between 2009 and 2019. They found that the majority of the studies explored participants' perceived learning and experience while participating in OTPD programmes. However, they identified a positive development of the research field in several respects, such as increased methodological rigour and a stronger tendency to move away from solely focusing on the technological layer of the OTPD to also include the pedagogical layer.

Whereas several metareviews of OTPD research have been published, few publications have examined the key factors for effective online language teacher education (OLTE) programmes, as noted by Shin and Kang (2018). However, their summary of existing research from 2000 until 2016 indicated that the principles and challenges for designing successful OLTE programmes are largely similar to those for other OTPD programmes, such as the issue of developing participants' digital competences, their technological pedagogical knowledge, reflecting on the transferability of knowledge and skills from an online environment to face-to-face teaching in school, and how to interact meaningfully online (see also the discussion in Stadler-Heer 2021). Nevertheless, Shin and Kang pointed to variations in the student population as a particular challenge for OLTE. This can include differences in pedagogical, linguistic and cultural knowledge and experiences that need to be considered when planning and teaching OLTE courses. For example, some participants may hesitate or even refrain from using the target language in synchronous sessions due to language anxiety and perceived low skill levels. Consequently, the instructors must reflect on how they can build trust in the group and create a culture of community building and collaboration. Yet, an OLTE study in the Argentinian context (Banegas and Busleimán 2014) showed that, while autonomy was important to the students, collaborative learning was not considered to be crucial. Furthermore, Shin and Kang (2018) maintained that the use of digital technology can also be demanding for the teacher educators, highlighting the importance of building community among online faculty.

It is worth noting that previous research and reviews, both general OTPD studies and OLTE studies, rarely seem to have paid explicit attention to the theoretical frameworks that underpin them (but see the scoping review by Dille and Røkenes, 2021, for an exception). The largely missing epistemological dimension of the studies may be explained by the perceived pressing demand to describe technological innovations and give practical advice in a new field. Yet, there is a need to include relevant theories on learning in general and on language learning and language teaching in particular when evaluating effective OLTE programmes. Importantly, few studies have used theories of motivation as frameworks, even though motivation is highly likely to influence students' participation and learning in online contexts just as much or perhaps even more than in face-to-face contexts (Miltiadou and Savenye 2003). Above all, self-determination theory (SDT) may serve as a useful framework when evaluating effective OTPD programmes, as also suggested by Gorozidis et al. (2020, 2): 'it is of great importance to test research hypotheses based on contemporary socio-cognitive theories (such as SDT) and to examine their applicability in this type of learning contexts/environments.'

Self-determination theory in research on language learning and teaching

Self-determination theory, a macrotheory of human development, and wellbeing, (e.g. Deci and Ryan 1985, 2000; Ryan and Deci 2017) is considered one of the most promising and influential

theories in research on motivation. The theory has received considerable attention in education over the last two decades, as *self-determination*, referred to as, 'a quality of human functioning that involves the experience of choice. [It is] the capacity to choose and have those choices (...) be the determinants of one's actions' is regarded as a prerequisite for learning (Deci and Ryan 1985: 38). Self-determination theory suggests that all human beings have three basic psychological needs that must be fulfilled for them to be motivated and thrive: *autonomy*, *competence*, and *relatedness*. In (online) language teacher education, students experience autonomy when teachers allow them to make choices. To meet students' need for autonomy, teachers can, for example, create opportunities for students to decide between tasks and topics, how and when to respond to the tasks given, and choose how much time and effort they want to invest. When students experience *competence*, they feel mastery of a given subject or development toward obtaining certain skills. To support students' need for competence, teachers can, for example, give formative feedback that focuses on signs of learning and improvement and provides rich context for metacognitive reflection on what students already know as well as their learning needs (Haukås 2018). One key factor of SDT states that motivation is not an entirely cognitive factor within each individual; it is social and situated, meaning that how students interact with others within the learning process plays a major role. *Relatedness* refers to students' feelings of connection and belonging. This psychological need can be fostered through rich interactions with teachers and peers, but also via the learning material. To support students' need for relatedness, teachers should be friendly and accessible, strive to get to know their students, respond to students' questions and comments, acknowledge and accept students' negative feelings and frustrations, create opportunities for group work, and support the development of inter-student relationships. Relatedness also involves strengthening students' connection to the learning material by highlighting its relevance; it is particularly important that teaching approaches, learning materials, including digital technology, and assessment methods are perceived as relevant for the students' future work as language teachers.

A number of studies have used SDT as a theoretical framework for understanding motivation and effective learning in traditional language learning contexts (e.g. Jones et al. 2009; Lou et al. 2018; Noels et al. 2016, 2019). A few studies have also demonstrated the relevance of SDT in effective learning in online studies, including Hsu et al. (2019) and Chiu (2021). However, although SDT may offer an appropriate framework for exploring motivation and success in online teacher training programmes in general, and in OLTE programmes in particular, studies on this topic are surprisingly hard to find. To the best of our knowledge, only two studies have been published so far. Gorozidis et al. (2020) used the principles of SDT for their design of a PE teacher-in-service training programme using Facebook groups and concluded that SDT is well suited to designing teacher training courses and for promoting teachers' professional development. Ranellucci and Bergery (2020) also applied SDT principles to teaching screencasting in online teacher education courses and suggested that they can be used to design effective online instructional practices. Yet, no studies have explored SDT principles in regard to OLTE programmes. The SDT principles of autonomy, competence, and relatedness seem particularly relevant in these contexts in which a foreign language is typically learned alongside technological, cultural, pedagogical and didactic content, as students' potential (un)willingness to communicate in the foreign language, among other factors, could affect their course participation in several ways.

Research question

The overall purpose of this study was to explore whether the SDT principles of autonomy, competence, and relatedness are applicable and effective in an OLTE context. Accordingly, an OLTE course was designed, conducted, and evaluated based on these SDT principles, which allowed for the identification and highlighting of the strengths and weaknesses of this approach to teacher training,

as perceived by the students and the course teachers. We formulated the following research question. To what extent can an OLTE programme based on fostering participants' basic psychological needs according to self-determination theory be effective in promoting motivation for learning?

Methods

Context

The course described and evaluated in this paper was developed for qualified teachers in Norway who lack sufficient qualifications to teach German. It was run for the first time during the August 2020 to June 2021 Norwegian academic year. The course included two 15 European Credit Transfer System (ECTS) points modules, with one module taught in the autumn and the other in the spring. The course was designed to be entirely online and consisted of twelve mandatory weekly sessions on Wednesdays, as well as twelve optional weekly sessions on Mondays, per semester. The course utilised a flipped classroom approach, meaning that students were expected to work through pre-published course materials (videos, literature, tasks) and be appropriately prepared for the synchronous sessions. During the sessions, focus on the teacher was minimised to allow for maximum student engagement and interaction. We used the video conferencing tool Zoom for the sessions, and the learning management platform Canvas was used for written discussions, publishing content, and assignment submissions. Other introduced technologies included Flipgrid, Edpuzzle (interactive video-making tools), Padlet (collaborative web platform), Google Forms (questionnaire), Google Docs (collaborative writing), Quizlet (online tool for language learning), Kahoot (game-based multiple-choice quizzes), Powerpoint (for making video presentations), and various online resources for learning and practising language skills. Additionally, the students were encouraged to explore and use other digital tools of their choice and share their experiences.

The course content was built around the four core elements (communication, intercultural competence, language learning and multilingualism, and language and technology) of the Norwegian school curriculum for foreign languages (Norwegian Directorate for Education and Training 2019) to ensure maximum perceived relevance. It integrated German as a foreign language didactics in all topics with simultaneous reflections on students' own learning processes and their roles as future teachers of German. Furthermore, a number of steps were taken to create and maintain students' motivation according to the principles of self-determination theory as described below (Deci and Ryan 1985).

Autonomy support

Most importantly, the students had rich opportunities to make choices. For example, they could choose to attend voluntary Monday sessions, or only stick to the mandatory Wednesday sessions. They could base their readings on the required course materials or also engage with the additional materials provided each week. In addition to four compulsory assignments in the first semester and three in the second, there were weekly voluntary assignments with a choice between two or more tasks related to cultural and didactic content, students' linguistic competency, digital competency, or a combination thereof. Also, they could meet the teachers online for individual supervision and take part in oral mock exams and presentations with feedback from teachers and peers. Furthermore, the exam was a portfolio which included the compulsory assignments, but with the deselection of one assignment based on the student's own choice. The course teachers had previously given formative feedback on each of the compulsory assignments, and it was the students' decision how much they wanted to improve on them before final submission. Finally, the students were given the opportunity to join an online tandem programme with German speaking students. In sum, the students were continuously and explicitly encouraged to choose between tasks and topics depending on their own perceived learning needs and interests. Furthermore, they could decide how much time and effort they wanted to invest in the course, as long as the minimum requirements were met.

Competence support

Giving frequent and timely formative feedback focusing on what the students already mastered and what could be improved was seen as a main tool to foster a steadily increasing feeling of progress in the students. Regarding developing the students' language competences, oral German was practised mainly in smaller peer groups and with the German tandem partners to optimise mastery in a safe atmosphere. The use of German as the language of instruction and for assignments was gradually increased over time as the language skills of the students improved. An important component of the course was the frequent emphasis on competence in various domains, including, but not restricted to, increased linguistic skills, mastery of digital tools, and a deeper understanding of and more reflected approach to teaching. Additionally, the students were continuously encouraged to use their existing competencies as teachers and language users in group discussions and tasks. The students' backgrounds and skills were also implemented into the course schedule in several ways. A questionnaire in advance of the course provided important information about particular skills and qualifications that could be drawn on throughout the course. For example, one student was an expert in the pedagogy of Maria Montessori and introduced the topic to her peers when discussing adapted language teaching. Another student was a trained classical musician. She discussed the use of classical music in foreign language learning as a part of teaching culture and gave a concert to the others online. Indeed, sharing good examples of student assignments and work was one of the main objectives when sending out weekly newsletters. However, it is important to note that developing competence should not be seen as an entirely individual process, as it also results from meaningful interactions with teachers and peers. To this end, collaborative tasks such as material development, presentations, and lesson planning were frequently adopted. Lastly, meta-cognitive reflection was integral to the course, allowing students to gain insight into their own attained competence. For this purpose, the concept of *teacher beliefs* (Pajares 1992) was introduced early on and used by the students to reflect on their development and to challenge own beliefs.

Relatedness support

As it was an entirely online course, developing relatedness between the students, the students and their teachers, and the teaching staff, was both a major challenge and key goal. To get to know the students as soon as possible, a pre-course questionnaire about students' backgrounds, interests, goals, and abilities was administered. Additionally, students were asked to present themselves to teachers and peers through Flipgrid videos early in the first semester. The course teachers made sure to always come first to each session, to allow for informal smalltalk and to greet everyone when entering the online room. During each session, most tasks and discussions were done in smaller core groups that remained the same throughout both semesters; the small sizes were intended to make connection easier. The students were eventually given more tasks that could only be completed through collaborative learning within their core groups. Developing a sense of relatedness or community with the content of the course and the teaching approaches was also essential; as such, students were given tasks and feedback that they could apply directly to their own practices. Another central aim was to create relationships between the course teachers to obtain mutual trust and a shared approach to teaching. Thus, the three course teachers had weekly meetings and regular e-mail exchanges.

Data collection

Given the lack of research in this area, we designed an exploratory study. Relevant data was collected via an online questionnaire, which was to be completed by the students at the end of each semester (in December and June), as well as evaluations from the course teachers.

As the curriculum and course design was built around the principal needs defined by SDT, the questionnaire mainly explored students' perceived level of competence, autonomy, and relatedness,

their motivation over time, and possible challenges coming from the digital environment. It consisted of seven open-ended questions related to the perceived learning outcome of the course, its structure and its relevance to being a German teacher. The students were also asked to list three positive characteristics they showed during each semester to explore if their free answers could be related to the SDT principles. Additionally, the questionnaire included 11 Likert-scale items where participants were asked to rate each statement on a five-point-scale from 'Strongly agree' to 'Strongly disagree.' The statements consisted of both positive and negative descriptions of the learning experience, such as, 'I was motivated most of the time,' or 'It was scary to speak German in class.' An open-ended question encouraged the students to offer any additional comments (see Appendix for the full questionnaire). Ideally, every questionnaire should be piloted before being put into use, to ensure maximum comprehensibility and trustworthiness. This was not possible in the context of this exploratory study, however, as the course took place for the first time. Nevertheless, given the three researchers' experience both as language teachers in school, as teacher educators, and their engagement with SDT before and throughout teaching the course, we believe that the questions are sufficiently valid for exploring students' evaluations of the course and the fulfilment of their basic psychological needs.

The questionnaires were the main basis for the data analysis, though they were supplemented by the three course teachers' observations and reflections. After each teaching session, a short evaluation was written in a shared online document, to be further discussed at the weekly teacher meetings. Additionally, students were continuously encouraged to give feedback and make suggestions to help the course teachers improve the content and organisation of the course which some students did via email, among other methods. Consequently, teachers' evaluations also stem from reflections on their individual communications with students.

Participants

The course had 29 participants during the first semester. All students were qualified teachers that were not qualified to teach German, though ten had some experience teaching German in Norwegian schools. The attrition rate for the first semester was extremely low; all students completed the course and successfully passed the exam, except for one student who quit after two weeks due to the time commitment. The 28 remaining participants were invited to complete the questionnaire after completion of their first semester. Following the guidelines of the Norwegian Centre for Research Data, the students were informed that their participation was voluntary and that they could answer anonymously. In all, 21 participants (75%) completed the questionnaire. The second semester was successfully completed by 25 of the students from the first semester; three had paused their studies for personal reasons. Out of the 25 participants, 18 (71%) answered the questionnaire.

Data analysis

The responses from the first and second semesters were initially analysed separately. For the 11 Likert scale items, frequency and percentages were calculated to get a first overview of the students' perceptions regarding key components of the course related to SDT. Thereafter, the answers to the open questions were analysed using qualitative content analysis, which refers to 'the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns' (Hsieh and Shannon 2005: 1278). Students' answers to each question were read multiple times by all three researchers to get an overview of the data. Next, one of the researchers organised the answers by each question, with similar responses clustered together as potential themes. These first codings were followed by discussions to achieve mutual understanding of the main themes. Then students' responses were analysed in more detail both inductively and deductively, searching for and coding content related to autonomy, competence,

and relatedness. Similarly to Davis (2020), representative quotations from the collection of open-ended responses that expressed either satisfaction or frustration in terms of the three basic needs were then selected. Finally, the analyses of the data from the two questionnaires were compared to determine to what extent students' evaluations and perceptions of need fulfilment had changed over time. Throughout the analysis, teachers' logged observations, reflections, and discussions, both during and after the course, were referred to as valuable additional information to achieve a fuller understanding of the questionnaire data. As we were the designers and teachers of the course, we cannot claim absolute analytical objectivity. Nevertheless, we regard our experiences during the course and our complementary backgrounds as schoolteachers and language teacher educators as a strength in obtaining a critical approach to and a deepened insight of the data.

After the final round of analysis, the following major themes (with sub-categories in brackets) appeared:

- autonomy (autonomy as self-management, voluntariness, increased autonomy over time)
- competence (domains of competence, competence growth, competence through collaboration)
- relatedness (course teachers, peers, own responsibility, relatedness to course contents)

Results

In the following, each main theme with sub-categories is addressed. Students' quantitative answers are presented in percentages to enable easier comparison across participants and semesters. One key finding is that students' motivation levels remained very high throughout the course; most students agreed or strongly agreed with the statement 'I was motivated most of the time,' across both semesters (91% vs. 94%). In fact, as shown in Table 1, the percentage that strongly agreed with this statement increased from 43% in the first semester (S1) to 61% in the second semester (S2). It should be noted, however, that one student strongly disagreed with this statement after the first semester.

The linkages of these results to each of the three main themes of the analysis are discussed below to examine the reasons for this high and lasting motivation over time.

Table 1. Students' motivation levels throughout the course.

	Strongly agree S1/S2	Agree S1/S2	Neutral S1/S2	Disagree S1/S2	Strongly disagree S1/S2
I was motivated most of the time.	43%/61%	48%/33%	5%/6%	-/-	5%/-

Autonomy

The analysis of the participants' answers shows a slight change in their perception of autonomy over the course of their studies. After the first semester, nine participants focused less on the opportunity for choice and more on self-management, planning, and time-management as both challenges and opportunities. This is seen in the following responses:

I have had good learning outcomes. They have mostly depended on my own efforts and the opportunities I've taken to maintain my level of learning during autumn. (Stu1)

These studies demand a lot of work, but if you do it all, it is impossible to not learn anything. (Stu6)

When I take the time, (this book) leads to good learning outcomes as well. (Stu18)

Making a deliberate choice of what to prioritise was often mentioned as a learning strategy that helps make students more aware of their own needs:

I have done a good job of deciding what is important for me in these studies and what is not. (...). The most important thing for me is to learn something on the way, not the grade I achieve. (Stu3)

Participants also commented on the type of exam (portfolio assessment), one of them pointing out that it added flexibility for teachers studying part-time: 'It was a good way to evaluate, especially for people who also have a teaching job in addition to their studies' (Stu2). Interestingly, none of the students mentioned the fact that they could choose three of the four portfolio assignments as adding to their feeling of autonomy. A third relevant aspect of autonomy that appears in participants' answers is individual goal setting (Klimas 2017). When asked what they expected of themselves as students in the upcoming semester, participants answered that they would, 'make use of the voluntary assignments more often' (Stu9), work on a 'better organisation of my work' (Stu10), 'spend more time on consolidation (...)' (Stu11,) and 'make better use of my time,' (Stu15). Many participants mentioned, 'improving my language skills,' (Stu5, 7, 13, 16, 17, 18) as well.

When asked to list three positive characteristics describing themselves during the first semester, several students mentioned that they deliberately chose to be active participants in the lessons and in group work, instead of passively listening to the content presented: 'I participated actively in classes' (Stu2, Stu7, Stu3), 'I participated whenever I could' (Stu2) and 'I contributed a lot in collaborative tasks' (Stu19). Seen in the light of some students' struggles with expressing themselves in oral German, being active participants might have taken some will-power and can be interpreted as a sign of autonomy.

After the second semester, the focus, in terms of autonomy, seemed to shift. Participants were still concerned with their work-study-life balance, but they focused more on the many ways in which they could make choices during the studies:

The good thing is that we are given written assignments each week that connect to the subjects that we had in class that we can hand in if we want. Voluntariness has been important. (Stu24)

Voluntary assignments are a good option that, I think, many do not have time to take advantage of due to the amount of content in the course. (Stu26).

The same can be said about students' evaluation of the type of exam (portfolio assessment & oral exam) after the second module:

It is good that we can choose which work to not use; we can deselect one of our works. (Stu26)

There has been a wide variety of tasks to choose from, which also integrates digital skills in a good way. (Stu2)

Most students stopped handing in voluntary written assignments during the second module; this could be for several reasons, such as high levels of perceived time pressure. However, some students mentioned that they improved their time management skills and were more able to determine which elements of their studies to prioritise, meaning that they might have chosen to neglect voluntary assignments in favour of compulsory tasks that they perceived as more pressing and relevant.

Student responses on the two questionnaires showed that the number of choices involved in the course might have been overwhelming to some students in the beginning. This could be one reason for the observed focus on self-management, planning, and balancing preparation and class work, especially during the first semester. When students had come to terms with the organisation of the course, they became more conscious of the ways in which they could take control of their learning process.

Competence

There were different areas in the course in which competence could be developed, including the students' language skills, digital competencies, and teaching competencies. The first statement in [Table 2](#) is concerned with students' perceived competence in general; it shows that most students strongly agreed or agreed with the statement that they regularly felt competence, which is defined as a 'basic need to feel effectance and mastery' (Ryan and Deci 2017: 11).

Regarding the statement, 'It was challenging to figure out all the technical aspects of an online study,' the answers were spread across all alternatives after the first semester (S1). After the

second semester (S2), however, there was an increase in the percentage of participants that agreed with the statement. These answers harmonise well with the course teachers' observations; while some participants eagerly explored new digital technology and seemed comfortable using it, others consistently expressed frustration and even anxiety. The latter group was dependent on regular additional support from the course teachers as well as from family and colleagues.

Participants were asked to give feedback on their oral German skills. After the first semester, 11 out of the 21 students responded to the statement, 'It was scary to speak German in class,' with 'strongly agree,' or 'agree,' while 10 of 21 disagreed or strongly disagreed. This corresponds with the teachers' observations; while some students felt that their oral skills were quite rusty and needed work, others seemed immediately comfortable speaking German. 10 out of the 21 students agreed or strongly agreed that they spoke more German after the first semester than they had before, while 10 responded with 'neutral.' The fact that teachers spoke mostly German in class was challenging for some students, while others found it to be positive:

I have had a steep learning curve this semester. When you began our online lessons by speaking German on the first day, I became stressed out, but I soon noticed that it really was an advantage, and I understood more than I expected. (Stu17)

As shown in Table 2, there was a decrease in reported language anxiety after the second semester and an increase in the use of the language in class. Several participants also pointed out the positive effect that feeling more competent as a language user had on their confidence as language teachers, especially after the second semester:

Finally, I can safely say that I am a better German teacher than a fluent German speaker who has not studied the language. (Stu7)

Working with written assignments, using digital tools to check them, and finding synonyms, among other things, have taught me a lot that I can use in my own classroom. I can give advice to students when they are working on their writing skills; I have determined what can be difficult for them. (Stu24)

I feel more confident when I am writing German, like in my lesson plans, for example. (Stu3)

As a student, I have gained a better understanding of how my students experience their lessons. This is why I think that I have become a better teacher. (Stu21)

Table 2 also shows that the students overwhelmingly reported that they learned a lot from collaborating with each other; for example:

I think group work has been important for helping us actively use the language. We would have learned less through teacher lectures alone. (Stu2)

They also gave the compulsory assignments good reviews, like in the following responses:

It was a little challenging to collaborate for the compulsory assignments because there were differences in language skills. At the same time, you learn a lot in the process. (Stu22)

Table 2. Students' perceived competence.

Statements	Strongly agree S1/S2	Agree S1/S2	Neutral S1/S2	Disagree S1/S2	Strongly disagree S1/S2
I regularly felt competence/mastery.	29%/39%	57%/44%	10%/11%	5%/6%	-/-
It was challenging to figure out all the technical aspects of an online study.	19%/17%	5%/33	29%/-	33%/28%	14%/22%
It was scary to speak German in class.	19%/17%	29%/17%	19%/28%	10%/6%	24%/33%
I speak much more German now than I did at the beginning of the semester.	29%/44%	19%/17%	48%/22%	5%/17%	-/-
I learned a lot from collaborating with others.	48%/61%	48%/39%	5%/-	-/-	-/-
I learned a lot from the compulsory assignments.	48%/78%	43%/22%	10%/-	-/-	-/-

Compulsory assignments with formative feedback and portfolio assessment are perhaps the most useful exam form I can imagine. It makes us aware of our own mistakes, and we have to implement the feedback we get along the way. (Stu21)

The number of students who strongly agreed with the statements related to the positive effect of collaboration and assignments increased after the second semester, as shown in [Table 2](#).

Another aspect that students pointed out after the first semester, especially when asked which three traits described them best during their studies, was *hard work*. They expressed that they 'have worked continuously' (Stu21, Stu18, Stu6), 'worked really hard' the (Stu7) or that they worked 'dutifully' (Stu3, Stu7) to reach their goals. Similar terms were used after the second semester: 'I have worked hard' (Stu23), 'I worked as much as I could all the time' (Stu26), 'I worked well between the lessons' (Stu21). It seems that students see a connection between their learning efforts and their growing competence, and that they take pride in it.

In sum, most students experienced a growing feeling of competence throughout the course, depending on their individual expectations:

I might not have shown the most progress in developing my language skills, but I have worked hard to keep up. (Stu23)

The course has been very instructive and important for me. (...) I really needed to refresh my knowledge of didactics and I needed confirmation that I am still good enough to teach German. (Stu24)

The idea of persistence (Noels, Lascano and Saumure 2019) in the future was also observed in the questionnaires. Several participants mentioned plans to continue their studies of German as a foreign language:

I surely would have benefitted from a conversational partner, but I will find one! I like German cars, so when I have more time, I am going to focus on talking about everyday things, like cars! (Stu23)

Now I have read several books in German and I am going to continue with that – lifelong learning. (Stu13)

I have set myself a goal: to pass C1 in the future. Now I know that I can do it. (Stu7)

Relatedness

As previously discussed, feelings of relatedness can be particularly difficult to achieve in an online environment, which is why various measures were taken to help students get to know each other and the teachers ([Table 3](#)).

As shown in [Table 3](#), the students had feelings of both relatedness and safety within their groups. For all statements, the percentage that strongly agreed increased after the second semester. Most students found working in their groups to be positive; it promoted their feelings of security, which, for some, ultimately helped them overcome speaking anxiety:

When it comes to oral tasks, it was scarier than I had expected to get going with a conversation in German. I was quite afraid to make a fool of myself in front of the whole class. The work in the core groups has been very helpful in that regard. (Stu17)

I think it was important to work in groups. We students got to know each other better, and we worked actively with different topics. (Stu14)

Table 3. Students' perceived relatedness.

Statements	Strongly agree S1/S2	Agree S1/S2	Neutral S1/S2	Disagree S1/S2	Strongly disagree S1/S2
I felt seen by the course teachers	62%/67%	33%/33%	5%/-	-/-	-/-
I felt relatedness with the group	38%/67%	52%/33%	5%/-	5%/-	-/-
I felt safe in the core groups.	71%/89%	19%/6%	10%/6%	-/-	-/-
I read the Friday news every week.	76%/89%	19%/11%	5%/-	-/-	-/-

I noticed that I was more open during group work with those I spent more time with. (Stu18)

It is important to feel like a part of a bigger class while also getting to know each other better in a smaller group in which it is easier to be orally active. I wish we could work in the core groups during class even more. (Stu 9)

I have really liked the people I have met in this course. Good people, all of them. (Stu23).

Interestingly, several participants mentioned their own role in the core groups as one of three positive things about themselves as students:

I was nice to everyone that I worked with. (Stu 17)

I take care of myself and others. (Stu7)

(It was) nice (...) to learn from each other, help other students, and get help from others. (Stu25)

I supported my fellow students as much as I could. (Stu9)

I was generous with my fellow students during group work. I listened more than I talked. (Stu7).

Another important factor in promoting relatedness is the feeling of being seen and respected by both teachers and fellow students. The course teachers made efforts to learn about the students' backgrounds, work environments, interests, and goals while also creating a welcoming and relaxed atmosphere during class. The results in Table 3 indicate that course teachers succeeded in making the students feel seen.

Some participants also commented on this when responding to the open-ended questions:

I have felt well taken care of, and I especially appreciate the efforts of the teachers to create a good class climate in a digital environment. (Stu9)

Teachers made me feel seen by saying hello and addressing me by name when I logged in. (Stu17)

One student contacted the course teachers after the second term and explained:

It wasn't only the course content which made it so good, though that was fantastic, it was your way of being and the way you accommodated us. Being met and welcomed to every lecture by nice, calm teachers was magical to me. Some Wednesdays I thought, "How will I be able to get myself to class and keep going until 7:30, when I am so tired and exhausted?" Thanks to you, it was much easier than expected.

The students' perceived relatedness to the course content was also important. The question 'How would you evaluate the relevance of the course content to the German teacher profession?' was rated either as relevant or highly relevant by all participants in both semesters as follows:

Very relevant. I have downloaded all materials for future use and inspiration. (Stu7)

The content is very relevant. A lot can be used in our teaching immediately, and we have learned a lot regarding useful didactics. (Stu21)

I would say that this is definitely related to being a language teacher today. I am a different language teacher now than I was when I applied for the course, though I have to improve more and get better at digital tools. (Stu23)

Finally, the students seemed to be quite conscious of how challenging it can be to learn and teach in a digital environment. One student emphasised the importance of teachers taking students' need for relatedness seriously:

Do not underestimate how long it can take to get to know each other in a digital environment! This is crucial for language anxiety, too. The teachers should think about how to build positive relationships with their students, in order to avoid language anxiety. (Stu26)

Discussion

Previous research and metastudies have suggested several characteristics of effective OPTD and OLTE programmes, but at the same time pointed out the difficulty of comparing results across

contexts and approaches (e.g. Dille and Røkenes 2021; Dymont and Downing 2020; Shin and Kang 2018). Furthermore, they have highlighted some main areas of research in the field, such as the use of technological innovations and how OPTD and OLTE programmes are perceived by the students. However, there is a tendency in previous research to have investigated these issues without a well-defined theoretical framework. Moreover, very few studies have investigated OPTD and OLTE programmes using psychological learning theories. This study, on the other hand, set out to explore to what extent designing an OLTE course around the three basic psychological needs of autonomy, competence, and relatedness in SDT can be an effective means of motivating participants and help them succeed in their learning efforts.

As previously suggested, fostering the SDT principles of autonomy, competence, and relatedness may be particularly relevant in OLTE programmes where a foreign language is studied alongside cultural, pedagogical, and didactic content. The low attrition rate of the course presented in this study and the high and continued motivation over two semesters indicate that the course was successful in meeting the needs of the participants. Although the study is exploratory and has a limited number of participants, these positive results call for an increased attention to students' basic psychological needs when designing OLTE courses and when researching their effectiveness.

A key finding of the study was that the three needs for autonomy, competence, and relatedness seemed to develop positively over time; this is important when considering students' motivation and learning outcomes. It is possible to develop autonomy, competence, and relatedness in shorter courses, as shown after one semester in this OLTE programme, but consistent endeavours over longer stretches of time can strengthen the positive effects even further. For example, developing a sense of belonging among students should not only be centred around the beginning of a study or school year; continuous efforts should be made to enhance the relationships to ensure both motivated students and teachers and successful learning outcomes.

Regarding autonomy, the students' perceptions of their autonomy and choices changed throughout the course. Particularly during the first semester, some students expressed frustration over having to make choices and feared missing out on learning opportunities if they did not do everything that was suggested to them. This is an interesting finding that requires further attention, because it indicates that autonomy is not necessarily always perceived as an asset. As pointed out by Evans and Boucher (2015: 90), too much choice has been shown to inhibit learning for many students. The students' feeling of being overwhelmed could, to some extent, be related to this. In the second semester, the students expressed a more relaxed attitude toward choices they had, perhaps having reflected more on what to prioritise. Nevertheless, the perceived stress among some students regarding having to choose shows the importance of explicitly and frequently addressing the principle of autonomy to students and how autonomy can foster motivated, active, and adaptive learning for them, regardless of previous competencies or current constraints. Furthermore, by offering increased autonomy in OLTE programmes, Shin and Kang's (2018) concerns regarding the challenges involved in designing courses for students with highly varying competencies and motivation levels may be mitigated.

Although the students felt that their need to feel competent was generally met and that their own progress had positive and motivating effects on their confidence as language teachers, their responses to the items in the questionnaire that explored perceived competence were mixed. Responses concerning their overall learning indicated that many students felt more competent as language users at the end of their studies. Nevertheless, although motivation levels remained high and even increased, language anxiety persisted throughout for some participants, suggesting low levels of competence. One possible explanation for perceived increased motivation despite language anxiety could be that the latter, to a large degree, was problematised as part of the curriculum. Thus, the students could have seen language anxiety as natural, thereby reducing its potential negative effects on their motivation. In the same vein, digital anxiety did not seem to decrease motivation either, which could be due to the fact that these frustrations were met with acceptance and support from both teachers and fellow students. Yet, future studies should explore to what

extent the three basic needs have equally weighting in the individual, or to what extent fulfilling the needs for relatedness and autonomy can compensate for lower levels of perceived competence.

According to Deci and Ryan (2000: 71), intrinsic motivation is, 'more likely to flourish in contexts characterized by a sense of security and relatedness.' They argued that even students who start their studies in order to achieve extrinsic motivators like study points or better job opportunities can 'internalise' them and become more intrinsically motivated when they feel connectedness with others. The course teachers' continuous efforts to foster relatedness was successful in the OLTE programme described here, though an interesting finding was that the students also judged themselves to be responsible for creating a sense of relatedness by supporting each other, being friendly, and showing an appreciation for group work. It remains to be explored to what extent the students' perceived responsibility of creating relatedness arose because of how they were approached by the course teachers, or whether it is a typical trait of teachers in general to strive for creating a sense of community. Nevertheless, in contrast to the findings of Banegas and Busleimán (2014), collaboration was an important key to success for both the students and teachers in this study.

As emphasised by Hall and Knox (2009) being an online teacher educator can be frustrating: 'Unfortunately, few opportunities are available for online faculty to interact or collaborate with their colleagues with respect to computer technologies and instruction, which often leads to their sense of isolation' (277). A rather unexpected outcome of designing an OLTE programme based on SDT theory, was the high and persisting motivation of the teacher educators during the course. Although being experienced language teachers and teacher educators, the constant emphasis on meeting the students' needs influenced all parts of the course including planning, the online teaching, the formative assessment practices, and how we interacted with each other. Seeing how the students thrived in the online learning context, individually and together, also boosted our motivation. Thus, designing OLTE courses based on SDT principles may not only be of high value to the students, but also to the teacher educators' motivation and wellbeing.

Conclusion

This paper described an OLTE course in the Norwegian context that was developed according to the three principles of self-determination theory, autonomy, competence, and relatedness (Deci and Ryan 1985, 2000), and examined how students perceived it. A number of measures were taken throughout the course to ensure that the students' needs were met. The data analysis showed that the participants reported being motivated or highly motivated most of the time. This high level of motivation could be linked to perceived autonomy, competence, and relatedness. Furthermore, we documented that the students' motivation and perceived autonomy, competence, and relatedness increased over time. These insights suggest that designing an OLTE programme based on SDT can be beneficial in terms of ensuring students' motivation levels, positive learning outcomes, and low attrition rates.

The qualitative, non-generalisable nature of this exploratory study and the lack of other research examining the use of self-determination theory in designing OLTE programmes shows a clear need for further research. First, the transferability of these findings to other contexts and participants needs to be examined. Second, future intervention studies could also systematically explore the extent to which OLTE programmes based on the three SDT principles result in more motivated students, better learning outcomes, and less attrition as compared to OLTE programmes that are not based on these principles.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Appendix

Questionnaire (Translated from Norwegian into English by the authors.)

Evaluation of the course modules Tysk621 (autumn 2020) and Tysk622 (spring 2021)

We would appreciate if you would take the time to answer the questions in this evaluation. What worked well, and what can be improved?

1. How would you evaluate your personal learning outcome as a whole this semester?
2. How would you evaluate the relevance of the course content to the German teacher profession?
3. How would you evaluate your language learning progress this semester?
4. To what degree do you think the provided course literature was relevant to your studies?
5. Can you comment on the assessment design, including compulsory assignments, process-oriented formative feedback, and the final portfolio?
6. Please rate each statement:
(The five Likert scale options were: Strongly agree – agree – neutral – disagree – strongly disagree)
 - I felt seen by the course teachers.
 - I felt relatedness with the group.
 - I was motivated most of the time.
 - I regularly felt competence/mastery.
 - It was scary to speak German in class.
 - It was challenging to figure out all the technical aspects of an online study.
 - I felt safe in the core groups.
 - I learned a lot from collaborating with others.
 - I learned a lot from the compulsory assignments.
 - I speak much more German now than I did at the beginning of the semester.
 - I read the Friday news every week.
7. Would you like to add anything to the aforementioned statements? Please write your comments here:
8. How did you experience switching between whole-group teaching and group work during class?
9. List a minimum of three positive characteristics of yourself as a student during this semester.
10. (Only for first semester) What expectations are you setting for yourself for next semester?