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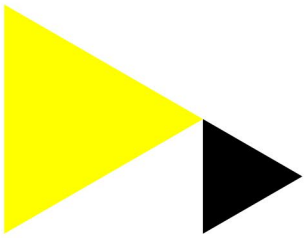

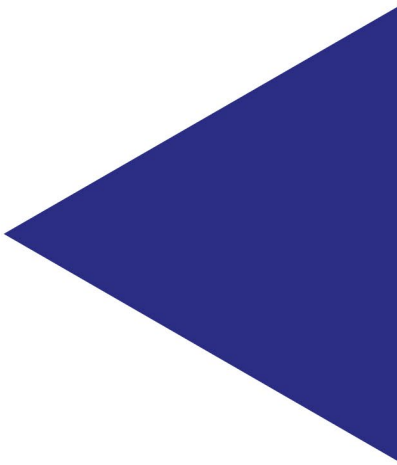

Enhancing target language output through synchronous online learner-learner interaction

The impact of audio-, video-, and text-chat interaction on learner output and affect

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In this study, we compared the impact of audio-, video-, and text-chat interaction on target language use during online learner-learner interaction and on learner affect amongst adolescent learners of German as a foreign language. Repeated measures and ANOVA analyses revealed a high percentage of target language output in all conditions for all four tasks, especially in text- chat. Audio-chatters produced the most output and used the most meaning negotiation, compensation strategies, self-repair and other-repair strategies. Learners in all conditions gained in enjoyment, willingness to communicate and self-efficacy. Anxiety reduced for text-chatters. Task effects partly determined the quantity of L2 output, while condition effects determined meaning-oriented and form-focused processing.

Keywords: SCMC, audio-, video-, text-chat, target language production, focus on meaning and form, learner affect

Introduction

The primary goal of foreign language teaching is preparing learners for independent communication in real-life situations. To achieve this goal, learners need many opportunities to use the target language both inside and outside the classroom (Lee, 2001). Learner-learner interaction in the target language could be an effective way to promote development of the interactional skill and boost L2

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acquisition (e.g., Loewen & Wolff, 2016; Long, 1996; Philp et al., 2014). However, stimulating learner-learner interaction in the secondary school classroom is not easy. Learners often feel anxious and embarrassed during peer-interaction in the target language (TL) in the classroom (Adams & Oliver, 2019). In turn, reduced enjoyment and confidence decrease the extent to which learners are actually willing to communicate in the L2 (e.g., MacIntyre et al., 2002).

In the Netherlands, teachers have indicated that they lack the methodological tools for developing learners' oral skills when faced with large classes and with little class time (Fasoglio et al., 2015). Technology-mediated task-based learner-learner interaction using text-, audio-, and video-chat could help teachers optimize opportunities for learners to use the target language (Lee, 2001; Ziegler & Phung, 2019).

According to González-Lloret & Ortega (2014) tasks that are mediated by new technologies could "help minimize students' fear of failure, embarrassment, or losing face; they can raise students' motivation to take risks and be creative while using language to make meaning..."(p. 4). This idea is supported by a growing body of research that provides evidence for the use of synchronous computer-mediated communication (SCMC) and interaction to promote language learning and the creation of a less stressful learning environment (Lai & Li, 2011; Lin et al., 2013; Sauro, 2011; Ziegler, 2016a, 2016b).

At present, the use of ICT in Dutch secondary language education is generally limited to online practice of watching and listening skills, grammar, and vocabulary learning (Fasoglio et al., 2015). Target language interaction between learners, however, is still largely restricted to face-to-face conversations in the classroom. In this study we therefore wish to investigate the comparative educational gains for each online mode (audio-, video- and text-chat) and how these might support the pursuit of different learning objectives in the secondary school classroom. We will explore how each online mode impacts learners' TL use, and their confidence in, enjoyment of, and willingness to interact in German with their peers.

Theoretical and empirical background

Online interactions in the Foreign Language (FL) have been shown to create similar opportunities for FL learning as face-to-face (F2F) interactions (Ortega, 2009). While interacting, learners are exposed to input and produce output as they engage in negotiation of meaning or form. During these interactions learners use a variety of communication strategies, such as comprehension checks, requests for clarification, language related episodes (LREs) and self-repair to overcome mis-and non-understandings (Lee, 2001). Both these meaning-and form-focused

processes can positively impact L2 acquisition (see Keck et al., 2006; Loewen & Sato, 2018; Mackey & Goo, 2007) and also learners' language development (Long, 1996).

These same interactional features occur during synchronous online interaction, i.e., in text-, audio-, and video-chat (Blake, 2000; Bueno-Alastuey, 2011; Pellettieri, 2000; Smith, 2003; Tudini, 2003). Researchers in the field of synchronous computer mediated communication (SCMC) have thus used the same meaning and form-focused categories that are widely used to analyse F2F interactions, such as meaning negotiation, repair, and LREs (Ortega, 2009).

Regarding language development, several syntheses and meta-analyses have shown that SCMC environments can successfully facilitate language development in terms of quantity and quality of output, and interactional processes (Lai & Li, 2011; Lin, 2014; Peterson, 2010; Plonsky & Ziegler, 2016; Sauro, 2011), even compared to F2F interaction (Lin, Huang, & Liou, 2013; Ziegler, 2016a).

Lin et al. (2013) reported a small overall effect on participants' language acquisition (e.g., oral, grammatical, lexical, writing) for text-based SCMC, and Ziegler (2016a) reported a small advantage of SCMC interaction (text-, audio, and video-chat) on productive measures.

With respect to learners' affective states, several studies have shown that learners feel more relaxed communicating in digital environments than in classrooms (e.g., Chun, 1998; Côté & Gaffney, 2021; Parlak & Ziegler, 2017; Satar & Ozdener, 2008). The fact that teachers' and classmates' eyes and ears are absent during online learner-learner interaction cause learners to worry less about making mistakes. Feeling less stressed leads to more willingness to use and experiment with the TL (Compton, 2004; Freiermuth & Jarrell, 2006; Shao-Thing & Huang, 2021), and positively influences individual practice time (Bueno-Alastuey, 2011) and quantity of language output (Golonka et al., 2017; Philp, Adams & Iwashita, 2014).

Most of the studies included in the SCMC syntheses and meta-analyses concerned written chat and to a far lesser extent audio- and video-chat interaction. Although research suggests there are important differences in the quantity and quality of output and in meaning-and form focused processes across audio, video, and text-chat interaction, very little research has explored the comparative affordances and potential benefits of these three interaction modes (Ziegler & Phung, 2019), especially not in secondary language education. The differential effects of these three interaction modes on the quantity and quality of learner output, interactional meaning- and form focused features, and learner affect will now be discussed.

Modality and interactional processes

Modality and focus on meaning

Several researchers have proposed advantages of written SCMC, or text-chat, for L2 learning, and for interactional and attentional processes (Van de Guchte & Rijlaarsdam, 2018; Lai & Li, 2011; Lin et al., 2013; Plonsky & Ziegler, 2016; Sauro, 2011; Ziegler 2016a).

These gains are often attributed to the fact that text-chat provides learners with additional processing time both on the productive side, i.e., while typing the message, and on the receptive side, because of permanent visibility of both produced and received messages. The slower pace of discourse may allow learners more time to compose and monitor their messages, which may result in increased attention to meaning and form (Smith & Sauro, 2009). This hypothesis is supported by several studies that report substantial amounts of meaning negotiation in text-chat (Pelletieri, 2000; Tudini, 2003). However, a closer look at the tasks used in some of these studies reveals that tasks purposely containing unknown words evoked high levels of negotiation. It is possible that the high levels of meaning negotiation in these studies cannot be attributed to augmented processing time in the text-chat modality, but to task design. Some researchers (e.g., Blake, 2000) reported very little evidence of meaning negotiation in text-chat, or less negotiation in text-chat than in face-to-face communication (Fernández-García & Martínez-Arbelaiz, 2002).

Comparing text-chat to audio-chat, Loewen & Wolf (2016) found less meaning negotiation (comprehension checks) in text-chat than in audio-chat and F2F interaction. Given the slower nature of text-chat, they reasoned that text-chatters may have fewer opportunities to engage in certain types of meaning negotiation than audio-chatters. They concluded that both face-to- face and online oral interaction contained more interactional features than written SCMC, but that the permanent availability of messages and the extra processing time may simultaneously increase the quality of the interaction in text-chat.

Comparing text-chat to video-chat, Van der Zwaard and Bannink (2014) found that while meaning negotiation occurred in both modes, patterns of negotiated interaction differed per mode. The authors suggested that the "illusion of anonymity" in text-chat leads to more "uninhibited communication" (p.145).

Finally, comparing video-, audio- and F2F-interactions, Yanguas (2010) found that audio- chatters negotiated more for meaning than both video- and F2F-chatters, with no differences between the latter two. To solve communication problems, audio-chatters used more elaborations than F2F- and video-chatters, which were used to compensate for the lack of visual clues available in audio-chat.

Modality and focus on form

Because of its unique characteristics, text-chat is often seen as the ideal mode to direct learners' attention to form. Several studies have shown that text-chat indeed increases saliency of learner output, as well as processing and production time (Pellettieri, 2000; Smith, 2004). Nonetheless, comparing text- to audio-chat, Loewen & Wolf (2016) found that text-chat interactions contained less negotiation of form (LREs) than audio-chat and F2F interactions. Similarly, Jepson (2005) observed more interactional features in audio than text-chat. He compared text-and audio-chat and found that text-chatters produced fewer repair moves than audio-chatters.

Comparing two oral modes, audio- and video-chat, Yanguas & Bergin (2018) found that LREs occurred in both modes, and that task type determined LRE type, i.e., the jigsaw task featured more lexical LREs and the dictogloss task more grammatical LREs. The audio-chatters had more unresolved LREs than video-chatters, which was attributed to the absence of visual clues. Partner visibility also played a role in Yamaha and Akahori's (2007) study. They compared audio-, video- and text-chat, and found that partner visibility in video interaction may have urged learners to help each other, resulting in increased form-focused negotiation and subsequent self- corrections. Findings showed that video-chatters produced the most turns, but also the most L1 utterances, grammatical errors, self-corrections and fillers. Text-chatters produced fewer grammatical errors and fillers and hardly used their L1 during task execution.

Ziegler and Phung (2019) not only compared audio-, video-, and text-chat, but also included multimodal chat, in which learners could combine different modes. Multimodal chat produced the largest number of modified output, corrective feedback, and LREs. The authors explained that "the multiple resources available for negotiation, noticing, and increased salience (e.g., text-chat, video-chat, screen sharing, etc.) may provide additional language learning opportunities" (p. 22).

Modality and learner affect

Learners' actual engagement in both F2F and online interaction largely depends on their affective states, notably on their self-confidence in, enjoyment of and willingness to engage in conversation with others (MacIntyre et al., 1998; Dewaele et al., 2017; Van Batenburg et al., 2019).

Comparing text- and audio-chat, Satar and Özdener (2008) found a significant decrease in anxiety levels for text-chatters only. Less proficient learners strug-

gled to express themselves during audio-chat, which led to disappointment in their own communicative capacities.

Conversely, the additional processing time in text-chat increased their perceived competence in TL communication. To lower anxiety, the authors suggested using text-chat before progressing to audio-chat, and allowing learners to work with familiar partners, ideally in pairs rather than groups. Yamaha and Akahori (2007) looked at the effects of social presence in online interaction by comparing video-, audio- and text-chat with and without the interlocutors' image present. They found that promoting consciousness of presence depended on the availability of the partner's moving image during communication (video), but not on their voice (audio) or picture (text-chat). Audio-chat was perceived as stressful, especially for low-level learners, because it is cognitively taxing: audio-chat requires an immediate response, without access to non-verbal clues to compensate for potential issues.

Conversely, video-chat made learners feel most comfortable. It was considered most enjoyable, because their non-verbal expressions (laughing, nodding) were visible. This motivated and engaged learners both intellectually and emotionally. Van der Zwaard and Bannink (2014), however, found that video conferencing triggered more potential loss of face-issues than text-chat.

In sum, the current body of SCMC comparison studies includes a variety of measures and shows mixed results. Each mode seems to have its own (dis)advantages for language learning and learner affect. Text-chat provides learners with more processing time, and with messages that stay visible throughout the interaction, which can enhance form-focused processing and, by extension, learners' awareness of lexical and grammatical accuracy (Yamaha & Akahori, 2007).

Text-chat also seems to decrease feelings of self-consciousness and anxiety. On the other hand, text-chat does not always evoke meaning negotiation. In contrast, video-, and particularly audio-chat evoke substantial meaning negotiation. The absence of non-verbal cues in audio- chat results in more meaning negotiation through repair moves and elaborate contributions; thus, promoting L2 development. This also makes audio-chat cognitively and emotionally taxing, especially for beginners, which has an adverse effect on anxiety and emotional task engagement. Conversely, video-chat is motivating because seeing each other's expressions leads to greater engagement and joy. On the other hand, video-chat may cause embarrassment and loss of face. Video-chat tends to evoke more turns and self-corrections, but also more frequent L1 use, more grammatical errors and fillers, and more use of non-verbal cues.

The reviewed studies show mixed results regarding the effects of audio-video- and text-chat regarding learner output and interactional processes. Moreover, except for Yamaha and Akahori's (2007) observation regarding engagement, the

studies do not provide insight into the effect of SCMC mode on learners' enjoyment of and willingness to interact in the FL. Finally, with the exception of Satar and Özdener (2008), these studies do not provide insight into the applicability of SCMC in secondary education. That is why the present study was set up.

The present study

This study aims to explore how task-based synchronous online interaction can benefit FL secondary education. For this purpose, we (1) set up a community of practice (CoP) in which FL teachers and SLA researchers worked together to practice using online communication tools and to design and implement online communication tasks and (2) designed a study in which we compared the impact of video-, audio-, and text-chat on the quantity and quality of secondary school learners' target language use during online task-based interaction, as well as on learners' affective states. To this end, two research questions were formulated:

RQ1. How do audio-, video- and text-chat interaction impact the quantity of output and form-focused and meaning-focused processing in secondary school learners' German learner-learner interactions?

RQ2. Is learners' confidence in, enjoyment of and willingness to communicate in German best fostered by audio-, video- or text-chat interaction?

Method

Participants

The school that accommodated this project is located in the central region of The Netherlands and offers five- and six-year general secondary education programmes, equivalent to ISCED level 3 (UNESCO, 2012). Participants were academic learners ($N = 44$, 32% male, grade 9) studying German. Of these participants, 91% were monolingual and 9% were multilingual speakers of Dutch. None of these learners reported German as one of their home languages. In accordance with local educational research guidelines and in close collaboration with the schools, parents were informed about the study and the possibility of non-participation. Two participants were subsequently withdrawn from the German sample. We therefore report on a sample of $N = 42$.

Prior to this study, participants (aged 14–15) had received about 1.5 years of compulsory FL instruction in German at CEFR level A2 (Council of Europe, 2001), at an average of about 120 minutes per week. The learners followed a task-based curriculum using materials designed by the teacher, which did not include

online interaction tasks. All participants were taught by a university-trained certified language teacher with over 20 years' experience.

Design

Between October and December 2019, an experimental study was implemented in two intact classes. Learners were randomly assigned within classes to experimental conditions: audio ($n=12$), video ($n=14$), and text-chat ($n=16$). Table 1 summarizes the effect of randomization on the composition of conditions. Conditions were highly comparable with regards to prior experience in the use of digital tools (measured using a 7-scale questionnaire ($\alpha=.66$), vocabulary knowledge (measured using 37 items ($\alpha=.76$) from the Peabody Picture Vocabulary Test (Dunn & Dunn, 2007), and the four affective measures of enjoyment, Willingness to Communicate (WTC), self-efficacy, and anxiety (see 'measures').

With regards to home languages, the distribution was not equal across conditions. More multilingual speakers (18.8%) partook in the text-chat condition than in the audio (8.3%) and video-chat conditions (0%). However, this difference was not statistically significant ($\chi 2\ (8)=8.227$, $p=.41$). With regards to gender, the distribution was also unequal (notably fewer boys than girls in all conditions), but this difference between conditions was not statistically significant ($\chi 2\ (2)=2.051$, $p=.36$).

Intervention

To take into consideration teachers' own teaching contexts (Doughty & Long, 2003), four intervention tasks were co-designed by teachers and researchers partaking in the CoP. Tasks were therefore aligned with the theme and language focus of the standard curriculum followed at the time of the intervention, i.e., "Respect" (see Appendix for a sample task).

The designed tasks matched TBLT Methodological Principles 1, 2, 5 and 9 (Doughty & Long, 2003; Long, 2015). All tasks were meaning-oriented, convergent tasks in which learners (1) exchanged information and (2) worked together towards a common goal. For Task 1 learners had to agree on the person they respect most, for Task 2 they decided on an appropriate gift for their parents/caretakers, for Task 3 they were asked to agree on five class rules, and for Task 4 they wrote an 11-word poem together. To evoke active participation of both learners in a dyad, tasks contained a two-way information gap, using role cards that each contained part of the information required to complete the task. All tasks were designed to follow the same structure (see Appendix for an example). Following Ellis' (2003) task cycle, tasks contained a pre-task phase and a during-task

Table 1. Background inform ation of the sample

		Gender		Home language			Vocabulary	Experience digital tools[a]	Enjoyment	WTC	Self-efficacy	Anxiety[b]
	n	M	F	Monolingual Dutch	Multilingual Dutch	Non-Dutch	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)
Audio-chat	12	4	8	11	1	0	27.45 (3.98)	3.77 (.88)	1.31 (.62)	1.67 (.37)	2.25 (.84)	3.04 (.83)
Video-chat	14	2	12	14	0	0	26.07 (3.43)	4.27 (.52)	1.78 (.99)	1.72 (.52)	2.70 (.93)	3.29 (.98)
Text-chat	16	6	10	16	3	0	26.06 (3.94)	3.79 (.54)	1.50 (.75)	1.53 (.42)	2.97 (.56)	2.33 (.46)

Note. *n* varied due to incomplete answers

a. Experience Digital Tools Audio $n = 10$, Chat $n = 15$ b. Anxiety $n = 9$

phase. Post-task work focusing on other features (e.g., form-features) was beyond the remit of this study but could be added to complete a full task-cycle (for examples, see Baralt & Morcillo Gómez, 2017).

In the pre-task, learners were acquainted with the communicative situation, were given conceptual planning time and received some language support. Some tasks included inquiry-based elements for which learners had to make use of information or pictures found on webpages. To enhance learner motivation, task performance took place in self-selected friend-dyads. Learners worked with the same partner on all four tasks.

Procedure

The experiment took place over a period of five weeks, with week 1 reserved for pre-tests. In weeks 2–5, learners were introduced to the tasks and performed the pre-task during class. They subsequently performed the online tasks in the assigned condition as homework.

The intervention tasks were conducted using the web-based, protected learning management system Canvas by Instructure (www.canvas.instructure.com). One of its applications is "Big Blue Button", which allows for the direct recording and automatic saving of audio-, video- and text- chats. It also prohibits access to other modes during recording or after editing of files after the interaction. To maintain the information gap, separate A and B versions of each task were uploaded for the two learners within a dyad. Student A would then invite student B to join the online session, where they would perform and record the task within the assigned condition. Recordings were subsequently downloaded and saved in a secured environment by the principal researcher, after which they were transcribed by university-trained research assistants.

Measures

Learner output

Table 2 provides an overview of the outcome measures used to analyse learner output.

Quantity of Output was measured by the number of turns per student, the number of words per student per task, the average task completion time (in minutes), the number of L1 words used per student, and the percentage of TL use per student.

Focus on Meaning was analysed by identifying occurrences of meaning negotiation (e.g., indicating incomprehension; asking for and supplying elaboration,

Table 2. Overview of outcome measures

Quantity of Output	1. Turns per student	
	2. Words per student per task	
	3. Task completion time	
	4. L1 words per student	
	5. Percentage of TL use per student	
Focus on Meaning	6. Meaning negotiation	**S1:** Er ist eine Sturner uh Strunter (targeted form: Störmer). [*He is a sturner uh Strunter*] **S2:** Was ist ein Strunter? [*What is a strunter?]* **S1:** Ist eh, an die Vorkant, who eh, who eh scores [*Is at the front, who eh scores*]
	7. L1 compensation strategy	**S1:** Er ist ein voetbal Spieler (targeted form: Fußballspieler) [*He is a football player*]
	8. L2 compensation strategy	**S1:** Eine Person die Bücher schreibt (targeted form: Autor) [*A person who writes books*]
Focus on Form	9. LRE discussion	**S1:** Menschen wollen Gefühle [*People want feelings*] **S2** Nein, Menschen haben Gefühle ist besser [*No, people have feelings is better*] **S1:** OK, haben [*Okay, have*]
	10. LRE assistance	**S1:** Wat is een 'Geige' ook alweer? [*What is a 'Geige' again?*] **S2:** Viool [Violin]
	11. Self-repair	**S1:** Du habt uh hast [*You have*]
	12. Other-repair	**S1:** I habe vijf Schulregeln [*I have *vijf schoolrules*] **S2:** fünf [five]

clarification or repetition of the message) and the use of either L1 or L2 compensation strategies. *Focus on Form* was analysed by identifying occurrences of LREs in the form of discussion and language assistance, self-repair, and other-repair.

Affect

To obtain measures of participants' affect, identical questionnaires were administered before and after the intervention. Since affective measures are largely situated (MacIntyre et al., 1998, 2001), items in each scale contained a generally formulated item (e.g., "I enjoy speaking German') and further distinguished between interacting in different interaction modes (F2F, text-, audio- and video-interaction) and with different audiences (known and unknown speech partners). The questionnaire was administered in Dutch. Items were based on and adapted from Van Batenburg et al. (2019), using 5-point Likert scales (1–5) for the following:

- *Willingness to Communicate:* the extent to which learners are willing to engage in conversation using the TL, e.g., "If I get the chance to speak German, I'll take it." (10 items, $\alpha = .78$ and .91 for pre- and post-tests).
- *Enjoyment*: the extent to which learners enjoy interacting in the target language, e.g., "I enjoy chatting with someone I know in German" (9 items, $\alpha = .83$ and .87).
- *Self-efficacy*: learners' perceived competence in their ability to use the TL in interaction, e.g., "I am convinced that I can manage a phone conversation in German with someone I don't know" (9 items, $\alpha = .83$ and .71).
- *Anxiety*: the extent to which learners feel apprehension or nervousness (cf. Horwitz et al., 1986) when using the TL in interaction, e.g., "I get nervous when I have to speak German to someone I don't know" (10 items, $\alpha = .83$ and .85).

Vocabulary

To establish whether learners' FL knowledge was similar across conditions at the start of the intervention, participants' vocabulary knowledge was measured using the Peabody Picture Vocabulary Test (Dunn & Dunn, 2007), adapted for use in a FL setting. The test covered different content areas (e.g., actions, sports, animals) and parts of speech (nouns, verbs, and adjectives). In a whole class setting, participants matched orally delivered vocabulary items with one of four pictures projected on a smart board by circling the correct number of the picture on their answer sheets. Tests were piloted with learners of a similar age and level, and reliability analyses were run to optimize the test. After deletion of items on the basis

of negative item total correlations, this resulted in a test consisting of 37 items ($\alpha = .76$).

Experience using digital tools

Participants' experience using digital tools was measured, prior to the intervention, by asking them to indicate on a Likert scale of 1–5 how often they performed a range of activities on their mobile phones, tablets or computers, regardless of the language they used for communications such as "Text-chats (e.g., via *Whatsapp, SMS or MSN*)" or "Using social media (e.g., Instagram, Snapchat, Facebook or Twitter)". This newly developed scale consisted of six items and proved to be reliable after the deletion of two items ($\alpha = .66$).

Data analysis

Task performances were transcribed and analysed both quantitatively and qualitatively using Atlas.ti (version 8.4.24). Inter-rater reliability was determined by two raters independently coding 10 percent of the transcripts. 95% agreement was reached. Instances of disagreement were then discussed, until the raters reached consensus on their interpretation of the codes. All remaining tasks were subsequently coded by a single rater.

The variables were examined for accuracy of data entry, distributions, and missing values. To determine the impact of audio-, video- and text-chat interaction on learner output (RQ1), repeated measures analyses (GLM) were carried out for tasks 1 to 4, with task and condition as independent variables and the aforementioned twelve measures as dependent variables (see Tables 3 and 4). Repeated measures analyses (GLM) were carried out to determine the effects of condition on learners' affective states (RQ2). Here, time (pre- and post-test) and condition were included as independent variables and the four affective measures (WTC, enjoyment, self- efficacy, and anxiety) were included as dependent variables. For all GLM analyses, the degrees of freedom were Greenhouse-Geisser-corrected where assumptions of sphericity were violated.

Furthermore, the two dyads for task 1 were missing due to technical issues and were excluded from the analysis. Bonferroni post-hoc tests were used to determine which differences between conditions were significant. Finally, to facilitate comparison between conditions and metrics, effect sizes were reported using *r* rather than Cohen's *d* for which the interpretation differs for between- and within-subjects contrasts (Plonsky & Oswald, 2014, p. 889).

Results

Below, a summary of results is presented. To optimise readability of this section, all Ms, SDs and significant *F* and *p*-values and effect sizes (*r*) are reported in Tables 3 and 4.

The effect of audio-, video-, and text-chat interaction on learner performance (RQ1)

Output quantity

Table 3 displays results for the measures pertaining to output quantity. Significant main effects for task were found for four of the five variables, which indicates that learners' interaction behaviour varies per task. In addition, significant main effects for condition were found for all five variables.

A significant interaction effect between task and condition was found for the number of turns per student: $F(3.72, 72.51) = 3.34$, $p = .017$. For task 3 there were no differences between conditions while for task 4 these were significant ($p < .001$). More specifically, regarding the main effects for task, Bonferroni post hoc tests revealed that learners use significantly more words per task on average in Task 1 and also spent more time on average on Task 1 than Task 3.

Learners in the audio-chat condition used significantly more words per task on average than those in the text-chat condition. On average, text-chatters spent significantly more time on their tasks than audio- and video-chatters. In addition, both audio- and video-chatters used significantly more L1 words on average than text-chatters. Overall, the percentage of target language use was high (79–95%); although, target language use was significantly higher in the audio- and text-chat conditions than in the video-chat condition. Effect sizes were calculated for all the significant effects reported as advised by Plonsky and Oswald (2014) (see Table 3) and were found to be small to large effects in line with their recommendations for interpreting effect size measures (p. 889).

Table 3. Outcomes for Quantitative output measures (Audio-chat, $n = 12$; video-chat, $n = 14$; text-chat, $n = 16$)

		Task 1 M(SD)	Task 2 M(SD)	Task 3 M(SD)	Task 4 M(SD)	Condition M(SD)	Task effect (GLM, Post hoc & effect size[b])	Condition effect (GLM, Post hoc & effect size[b])
Turns per student[a]	Audio-chat	29.50 (21.12)	12.17 (4.93)	9.58 (4.81)	19.42 (16.22)	17.67 (10.42)	Overall: $F(1.86, 72.51) = 25.35$, $p < .001$ Bonferroni post-hoc test: T1>T2 ($p < .000$; $r = .44$) T1>T3 ($p < .000$; $r = .49$) T1>T4 ($p < .000$; $r = .35$)	Overall: $F(2, 39) = 5.75$, $p = .006$ Bonferroni post-hoc test: Audio> Chat ($p = .005$; $r = .47$)
	Video-chat	18.50 (10.50)	12.14 (6.19)	9.14 (5.91)	10.93 (5.57)	12.68 (4.33)		
	Text-chat	16.06 (3.80)	8.00 (3.08)	8.63 (1.71)	6.25 (2.57)	9.73 (1.47)		
	Task M (SD)	*20.71 (13.88)*	*10.57 (5.13)*	*9.07 (4.30)*	*11.57 (10.59)*			
Words per student per taska	Audio-chat	152.42 (125.95)	92.67 (27.17)	82.17 (33.86)	108.25 (71.30)	108.87 (54.60)	Overall: $F(1.81, 70.50) = 5,82$, $p = .006$ Bonferroni post-hoc test: T1>T3 ($p = .015$; $r = .23$)	Overall: $F(2, 39) = 11.27$, $p < .001$ Bonferroni post-hoc test: Audio>Video ($p = .032$; $r = .38$) Audio> Text ($p < .000$; $r = .59$)
	Video-chat	86.21 (34.40)	84.36 (42.72)	68.29 (20.05)	62.71 (34.12)	75.39 (18.24)		
	Text-chat	61.38 (30.47)	51.56 (14.24)	57.37 (15.34)	35.19 (19.76)	51.37 (11.84)		
	Task M (SD)	*95.67 (80.02)*	*74.24 (34.44)*	*68.10 (24.98)*	*65.24 (52.65)*			
Task time (minutes) a	Audio-chat	5.96 (4.25)	2.25 (.60)	1.77 (1.01)	2.90 (2.68)	3.22 (1.96)	Overall: $F(1.66, 64.68) = 3.577$, $p = .042$ Bonferroni post-hoc test: T1>T3 ($p = .001$; $r = .21$)	Overall: $F(2, 39) = 45.76$, $p < .001$ Bonferroni post-hoc test: Text> Audio ($p < .001$; $r = .77$) Text> Video ($p < .001$; $r = .85$)
	Video-chat	2.79 (1.79)	2.63 (2.17)	1.69 (.88)	1.75 (1.07)	2.22 (1.24)		
	Text-chat	9.58 (3.25)	9.05 (3.50)	8.57 (4.74)	9.00 (6.77)	9.05 (2.73)		
	Task M (SD)	*6.28 (4.26)*	*4.97 (4.07)*	*4.34 (4.47)*	*4.84 (5.49)*			
L1 words per student[a]	Audio-chat	22.67 (32.97)	6.08 (3.63)	6.08 (6.08)	9.67 (6.71)	11.13 (8.72)	$F(1.45, 56.71) = 4.075$, $p = .034$ Bonferroni post-hoc test: T1>T3 ($p = .046$, $r = .24$)	$F(2, 39) = 10.048$, $p < .001$ Bonferroni post-hoc test: Audio> Text ($p = .016$; $r = .52$) Video> Text ($p < .001$; $r = .66$)
	Video-chat	20.14 (20.75)	16.64 (18.43)	9.36 (7.31)	11.29 (12.35)	14.36 (8.66)		
	Text-chat	3.19 (3.67)	3.25 (1.98)	3.44 (2.99)	3.25 (3.07)	3.28 (2.37)		
	Task M (SD)	14.40 (22.66)	8.52 (12.16)	6.17 (6.71)	7.76 (8.78)			

Table 3. *(continued)*

		Task 1 M(SD)	Task 2 M(SD)	Task 3 M(SD)	Task 4 M(SD)	Condition M(SD)	Task effect (GLM, Post hoc & effect size[b])	Condition effect (GLM, Post hoc & effect size[b])
Percentage of target language use per student[a]	Audio-chat	.89 (.11)	.93 (.03)	.94 (.04)	.90 (.08)	.92 (.03)	n.s.	Overall: $F(2,39)=8.617$, $p=.001$ Bonferroni post-hoc test: Audio > Video ($p=.009$; $r=.53$) Text > Video ($p=.001$; $r=.54$)
	Video-chat	.79 (.15)	.80 (.19)	.86 (.11)	.84 (.14)	.82 (.11)		
	Text-chat	.95 (.06)	.93 (.04)	.94 (.04)	.90 (.11)	.93 (.05)		
	Task M (SD)	*.88 (.13)*	*.89 (.13)*	*.91 (.08)*	*.88 (.12)*			

a. *Mauchly's* test of sphericity was violated, Greenhouse-Geisser corrected tests are reported; only significant effects are reported. Others are marked n.s.=not significant

b. To facilitate comparison between conditions and metrics, effect sizes are reported using *r* rather than Cohen's *d* for which the interpretation differs for between and within- subjects contrasts (Plonsky & Oswald, 2014, p. 889).

Focus on meaning and focus on form

Table 4 displays results pertaining to learners' focus on meaning and focus on form.

For *Focus on Meaning*, a medium-sized condition effect was found for meaning negotiation, and a strong condition effect for the use of L1 compensation strategies. This indicates that audio- chatters negotiated and compensated in the L1 significantly more than text-chatters. Regarding the use of L2 compensation strategies, an interaction effect between task and condition was found. This indicates that while audio-chatters used significantly more L2 compensation strategies than text-chatters (strong effect), this effect differed per task, i.e., strategies were used significantly less in Task 3 ($p = .015$) and Task 4 ($p = .022$) than in Task 1 (medium effects).

For *Focus on Form*, no significant effects were found for LREs related to discussion. LREs related to language assistance rarely occurred, but an interaction effect was found. Specifically, language assistance was observed in audio-chat in task 1 and in video-chat in task 2 but not in any of the other conditions or tasks. A significant interaction effect between task and condition was found for self-repair.

Self-repair was observed significantly more amongst audio-chatters than amongst text-chatters (strong effect) in tasks 1 and 2, but differences between conditions were not significant for tasks 3 and 4 (medium effects). Other-repair occurred sometimes in audio-chat, but never in either video- or text-chat. Therefore, the medium to strong main effects found are due to the occurrence of other-monitoring for Task 1 in the audio-condition.

Table 4. Outcomes for focus on meaning and focus on form (Audio-chat, $n = 5$; video-chat, $n = 6$ text-chat, $n = 8$)

		Task 1 M(SD)	Task 2 M(SD)	Task 3 M(SD)	Task 4 M(SD)	Condition M(SD)	Task effect (GLM, Post hoc & effect size[b])	Condition effect (GLM, Post hoc & effect size[b])	Interaction effect
Meaning negotiation[a]	Audio-chat	2.60 (3.65)	.60 (.55)	1.00 (1.00)	2.80 (3.03)	1.46 (1.70)	n.s.	Overall: $F(2, 16) = 4.69$, $p = .025$ Bonferroni post-hoc test: Audio >Text ($p = .023$; $r = .52$)	n.s.
	Video-chat	1.17 (1.60)	1.17 (1.94)	.33 (.52)	.33 (.82)	.64 (.88)			
	Text-chat	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)			
	Task M (SD)	*1.05 (2.20)*	*.53 (1.17)*	*.37 (.68)*	*.84 (1.92)*				
L1 compensation strategies[a]	Audio-chat	8.40 (9.66)	4.00 (4.30)	4.40 (4.72)	3.80 (4.09)	4.68 (3.96)	n.s.	Overall: $F(2, 16) = 7.27$, $p = .006$ Bonferroni post-hoc test: Audio >Text ($p = .006$; $r = .62$)	n.s.
	Video-chat	2.83 (1.83)	4.83 (4.58)	1.50 (1.97)	3.67 (1.63)	3.51 (1.75)			
	Text-chat	.00 (.00)	.62 (1.06)	.12 (.35)	.12 (.35)	.22 (.43)			
	Task M (SD)	*3.10 (5.81)*	*2.84 (3.77)*	*1.68 (3.04)*	*2.21 (2.80)*				
L2 compensation strategies[a]	Audio-chat	.00 (.00)	2.00 (2.55)	2.40 (1.82)	1.60 (1.14)	1.47 (1.10)	Overall: $F(2.14, 34.27) = 4.60$, $p = .015$ Bonferroni post-hoc test: T3>T1 ($p = .015$; $r = .32$) T4>T1 ($p = .022$; $r = .36$)	Overall: $F(2, 6) = 7.64$, $p = .005$ Bonferroni post-hoc test: Audio>Text ($p = .004$; $r = .67$)	$F(4.28, 34.27) = 3.74$, $p = .011$
	Video-chat	.33 (.52)	.33 (.52)	.67 (.82)	.67 (.52)	.50 (.70)			
	Text-chat	.12 (.35)	.00 (.00)	.00 (.00)	.12 (.35)	.06 (.12)			
	Task M (SD)	*.16 (.37)*	*.63 (1.50)*	*.84 (1.38)*	*.68 (.88)*				
LRE discussion	Audio-chat	.00 (.00)	.00 (.00)	.00 (.00)	.80 (.84)	.20 (.21)	n.s.	n.s.	n.s.
	Video-chat	.00 (.00)	.00 (.00)	.50 (1.22)	.33 (.82)	.18 (.31)			
	Text-chat	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)			
	Task M (SD)	*.00 (.00)*	*.00 (.00)*	*.16 (.69)*	*.32 (.67)*				
LRE language assistance	Audio-chat	.40 (.55)	.00 (.00)	.00 (.00)	.00 (.00)	.08 (.13)	n.s.	n.s.	$F(6, 48) = 3.77$, $p = .004$
	Video-chat	.00 (.00)	.83 (1.17)	.00 (.00)	.00 (.00)	.18 (.28)			
	Text-chat	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)			

Table 4. *(continued)*

		Task 1 M(SD)	Task 2 M(SD)	Task 3 M(SD)	Task 4 M(SD)	Condition M(SD)	Task effect (GLM, Post hoc & effect size[b])	Condition effect (GLM, Post hoc & effect size[b])	Interaction effect
	Task M (SD)	*.10 (.31)*	*.26 (.73)*	*.00 (.00)*	*.00 (.00)*				
Self-repair[a]	Audio-chat	5.80 (3.70)	2.40 (2.07)	1.60 (2.07)	1.80 (2.49)	2.53 (2.17)	Overall: $F(2.02, 32.33) = 6.66$, $p = .004$ Bonferroni post-hoc test: T1>T3 ($p = .021$; $r = .31$) and T4 ($p = .001$; $r = .31$)	Overall: $F(2, 16) = 4.003$, $p = .039$ Bonferroni post-hoc test: Audio>Text ($p = .04$; $r = .60$)	$F(4.04, 32.33) = 3.21$ 5, $p = .025$
	Video-chat	2.17 (2.40)	3.00 (4.98)	.83 (.98)	.83 (1.60)	1.56 (2.12)			
	Text-chat	.37 (.74)	.25 (.71)	.25 (.46)	.00 (.00)	.22 (.28)			
	Task M (SD)	*2.37 (3.15)*	*1.68 (3.11)*	*.79 (1.27)*	*.74 (1.63)*				
Other-repair	Audio-chat	.60 (.55)	.00 (.00)	.00 (.00)	.00 (.00)	.12 (.14)	Overall: $F(3, 48) = 9.76$, $p < .001$ Bonferroni post-hoc test: T1 > T2, T3 & T4 ($p = .039$; $r = .29$)	Overall: $F(2, 16) = 8.84$, $p = .003$ Bonferroni post-hoc test: Audio>Video ($p = .007$; $r = 52.$) and Text ($p = .004$; $r = .52$)	$F(6, 48) = 8.84$, $p < .001$
	Video-chat	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)			
	Text-chat	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)			
	Task M (SD)	*.16 (.37)*	*.00 (.00)*	*.00 (.00)*	*.00 (.00)*				

a. Mauchly's test of sphericity was violated, Greenhouse-Geisser corrected tests are reported; LRE = Language Related Episodes; only significant effects are reported. Others are marked *n.s.* = non-significant

b. To facilitate comparison between conditions and metrics, effect sizes are reported using *r* rather than Cohen's *d* for which the interpretation differs for between and within- subjects contrasts (Plonsky & Oswald, 2014, p. 889).

The effects of condition on learners' affective states RQ2)

Repeated measures analyses (GLM) revealed a significant increase in enjoyment, WTC and self-efficacy at post-test for all conditions, which were all small- to medium-sized effects. Furthermore, a medium sized main effect for condition indicated that text-chatters reported significantly lower levels of anxiety than video-chatters.

Table 5. Outcomes for affective measures (Audio-chat, $n = 12$; video-chat, $n = 14$; text-chat, $n = 16$)

	Audio-chat M(SD)		Video-chat M(SD)		Text-chat M(SD)		Overall M(SD)		Main effect for time & effect size[a]	Interaction effect & effect size[a]	Condition effect & effect size[a]
	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test			
Enjoyment	1.31 (.62)	2.13 (.80)	1.78 (.99)	2.37 (.84)	1.50 (.75)	2.28 (.79)	1.55 (.81)	2.27 (.79)	$F(1,35) = 40.16$, $p < .001$, $r = .41$	n.s.	n.s.
WTC	1.67 (.37)	2.10 (.86)	1.72 (.52)	2.02 (.69)	1.53 (.42)	1.78 (.42)	1.63 (.44)	1.94 (.70)	$F(1,35) = 13.15$, $p = .001$, $r = .26$	n.s.	n.s.
Self-efficacy	2.25 (.84)	2.71 (.44)	2.70 (.93)	3.00 (.85)	2.97 (.56)	3.07 (.45)	2.69 (.81)	2.95 (.62)	$F(1,35) = 6.75$, $p = .014$, $r = .18$	n.s.	n.s.
Anxiety	3.04 (.83)	2.95 (.85)	3.29 (.98)	2.85 (.97)	2.33 (.46)	2.35 (.60)	2.83 (.86)	2.67 (.82)	n.s.	n.s.	$F(1,33) = 4.16$, $p = .024$ Text<Video ($p = .039$, $r = .37$)

Note. Only significant effects are reported. Others are marked *n.s.* = non-significant
a. To facilitate comparison between conditions and metrics, effect sizes are reported using r rather than Cohen's d for which the interpretation differs for between and within-subjects contrasts (Plonsky & Oswald, 2014, p. 889).

Discussion and conclusion

To our knowledge, this is the first study that investigated the benefits of task-based learner- learner interaction in secondary education by comparing three different modes of synchronous computer mediated communication (SCMC). The objective was to gain insight into the effects of text-, video- and audio-chat on learners' target language use during online task-based interaction, as well as on learners' affective states, i.e., WTC, enjoyment, self-efficacy and anxiety.

Results showed that task-based pair interactions in different SCMC modes elicited substantial amounts of TL use, suggesting that online interaction can extend opportunities to use the TL beyond the classroom (Hampel & Hauck,

2004; Satar & Özdener, 2008). Audio-chatters used more turns than text-chatters and more TL words than both text-and video-chatters. Even though text-chatters took the most time to complete their tasks, they produced the least amount of TL words. However, their messages hardly contained L1 words. This is in line with Yamaha and Akahori's (2007) findings, which they explain by pointing out that text-chat gives learners more time to think about the conceptualization and formulation of their intended messages.

Additionally, Nik and Adams (2009) posit that text-chat evokes less L1 use, because it allows learners to scroll back and re-read their partners' message. Thus, while text-chat is more time-consuming than audio-or video-chat, learners can benefit from having more processing time to enhance their consciousness of lexical and grammatical accuracy (Yamaha & Akahori, 2007).

Further analysis of L1 use in audio- and video-chats revealed that where learners used the L1, they did so: (a) to solve technical problems (e.g., loss of sound or image); (b) for organizational talk (e.g., "Who speaks first?"); (c) for off-topic talk, (e.g., "I have hockey-training at 5 pm"), and (d) to use humour as a reaction to their partner's contributions. Use of L1 humour did not occur in text-chat interactions, but this might be because the online platform Big Blue Button does not facilitate the use of emojis, which is commonly used to express humour in text-chat.

Regarding meaning-focused processes, the results showed that audio-chatters were more actively engaged in meaning negotiation (e.g., elaboration, clarification, or repetition of the message) and made more use of both L1 (e.g., foreignizing) and L2 (e.g., paraphrasing) compensation strategies than text-chatters (although less in tasks 3 and 4 than in other tasks). These findings suggest that safeguarding mutual understanding while using audio-chat evokes substantial effort. It misses the support from non-verbal clues that video-chat offers and the additional thinking time that text-chat offers (Yanguas, 2010), which is known to reduce attentional pressure and by extension, the need for compensation strategies. However, since no screen-recordings were made of text-chat interactions in this study, it is not known whether text-chatters used other supporting resources, such as online dictionaries or translation tools.

Furthermore, since the online platform used in this study (*Big Blue Button*) did not facilitate the use of emojis, text-chatters may have been deprived of using emojis to compensate for unknown lexis. In line with Loewen & Wolf (2016), these results show that audio-chat leads to significantly more focus on meaning than text-chat. Video-chatters were also seen to be actively engaged in meaning-making, but differences with text-chatters were not statistically significant.

Regarding focus on form processes, results showed that discussion of form features rarely occurred, regardless of condition. Being at A2 level, learners might

have lacked the linguistic resources to notice or talk about form features in the L2. However, since learners did not use the L1 for this purpose either, it is more likely that they were so focused on the content of the task that no attentional space was left to discuss form features. From an attention-driven perspective, we might conclude that learners did indeed prioritize meaning over form during task performance (VanPatten, 2004).

In line with Loewen & Wolf (2016) and Jepson (2005), who respectively reported more LREs and more repair moves amongst audio-chatters than text-chatters, audio-chatters in this study showed significantly more instances of self-repair than text-chatters, and more instances of other-repair than both video- and text-chatters; although, these effects varied between tasks. On the one hand, this might be explained by audio-chatters having a heightened awareness of their own speech in the absence of visual clues that are available to both text- and video-chatters (cf. Ziegler & Phung, 2019). On the other hand, text-chatters might have had less need for self- repair because of increased processing time and opportunity for self-monitoring before sending their messages, but this cannot be confirmed due to the absence of screen-recordings in this study.

The results furthermore showed that task effects occurred mainly with regards to the quantity of output, where task 1 evoked more output than the other tasks. This task contained a game element, which engaged learners in a guessing game. This may have affected the quantity of output required to complete the task. With regards to meaning-processing and form- processing, however, condition effects play a much more prominent role.

From a practitioner's point of view, this means that task design is important for optimising TL output, but that the choice of practice medium can be aligned with practitioners' lesson goals, i.e., with specific aspects of L2 interaction that they wish to focus on. For example, if a teacher wishes to practice the use of compensation strategies, audio-chat will be more conducive to this purpose than text-chat, but if the teacher would like learners to be focused on language accuracy, text-chat might be a more solid choice.

Turning to the effects of practice medium on learners' affective states, we found a significant increase in learners' WTC, enjoyment, and self-efficacy across conditions. This is a very welcome result, especially since previous studies have shown that boosting adolescent learners' WTC and enjoyment through teaching interventions is not straightforward and did not prove to be successful in interventions requiring spoken interaction with learners comparable to those in our study (Van Batenburg et al., 2019). At present, little is known about the timespan and conditions required for developing WTC (Van Batenburg et al., 2019), while foreign language enjoyment tends to drop around the age of 14–15, especially for learners with lower proficiency (Dewaele et al., 2017). However, self-efficacy and

enjoyment are important antecedents of WTC, which in turn determines whether L2 learners will actually engage in communication (cf. MacIntyre et al., 1999). It is thus encouraging to conclude that engaging in online L2 communication impacted positively on learners' affective states, regardless of condition. In addition, and in line with previous research, text-chatters reported significantly lower levels of anxiety than learners in the video-chat condition. This might be due to the additional processing time afforded by text-chat (Satar & Özdener, 2008), or because text-chatters experience more anonymity, resulting in fewer loss-of-face issues (Van der Zwaard & Bannink, 2014). For this reason, implementing text-chat in the classroom before progressing to audio-or video-chat might be beneficial to learners' affective states.

Limitations and suggestions for future research

In all, this study shows that using online communication in the classroom yields positive effects on the quantity of TL output and on learners' enjoyment of, willingness to and confidence in engaging in (online) TL interaction. It furthermore shows that the three different modes have different (dis)advantages with regards to, meaning negotiation, strategic behaviour and anxiety- reduction. However, certain limitations need to be considered.

First, the small sample size and single focus on German as a foreign language do not allow for a broad generalization of results to other learning contexts and languages. Using a larger sample and including other foreign languages in future studies will provide better insight into the differences between the various modes. Second, text-chat interactions in this study were not screen-recorded. As a result, no process data were available on how text-chatters composed their messages, i.e., whether they self-monitored and self-repaired message before sending. Making use of screen-recording in future research would be conducive to gaining a broader understanding of the text-chat process (see Smith, 2008). Third, the online platform used in this study (*Big Blue Button*) did not facilitate the use of emojis. This may have deprived text-chatters of opportunities to express emotions such as humour, or to use emojis for lexical compensation purposes. Future studies will ideally make use of interaction platforms that offer the use of emoticons during text-chat interaction.

The focus of our study was the facilitation of meaning-oriented interaction rather than language accuracy. However, to gain an in-depth understanding of the effects of additional processing time during text-chatting on language accuracy, future studies could include more form-focused tasks, along with a solid accuracy measure.

Implications for practice

This study was conducted in real classrooms and embedded in an existing teaching curriculum. We therefore feel confident to present some important implications for the use of synchronous online interaction in foreign language classes.

First, adopting online task-based activities in text-, audio- and video-chat may help extend learners' practice time beyond the classroom. This optimises opportunities for learners to connect their intended messages with TL lexis, syntactic structures, and sounds, which is beneficial to foreign language development. Second, online tasks can be performed time- and place-independently. Setting these tasks as homework (as was done in this study) frees up class time in which pre- and post-task work can be conducted with guidance from the teacher.

Moreover, this creates a safe environment for learner-learner TL interaction without the eyes and ears of the entire class and teacher being focused on them (Philp et al., 2014). This can be further optimised by allowing learners to choose their own partner, which will further reduce anxiety and increase output production. Asking learners to record and share their interaction with the teacher allows teachers to maintain control over task performance, provide feedback or discuss linguistic or grammatical aspects of the output with the whole class.

All three practice modes have their own (dis)advantages for classroom use. Teachers can thus choose the practice medium that best aligns with their lesson goals, i.e., with specific aspects of L2 interaction that they wish to focus on. Audio-chat leads to more TL use because facial expressions and non-verbal communication (NCV) cannot be used to convey messages. Video does allow for this, and the visibility of each other's facial expressions might lead to more joy and increased engagement. This, however, may also lead to more loss-of-face sentiments. In terms of learning gains, the difference between audio- and video-chat was relatively small in this study.

Therefore, learners could be given the choice to use audio-or video-chat for their interactions. However, since audio- and video-chat involve a higher cognitive load and seem to be a more stressful experience for some learners, teachers could implement text-chat in the classroom before progressing to audio-or video-chat, especially with beginner-level learners. This way, learners can benefit maximally from the additional processing time and anonymity that text-chat affords, which may prepare and motivate them to engage in audio-and video-chat, as well as F2F interaction.

In all, complementing existing teaching curricula with opportunities to engage in online interaction will increase time spent interacting in the TL and will benefit learners' enjoyment of, willingness to communicate and self-confidence in using the TL for interactional purposes.

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Appendix. Respect in the classroom

German task 3

Situation

In the classroom, it is important we treat each other respectfully. But that is not so easy. How do *you* want to interact with each other so that everyone feels respected and comfortable?

Goals

You have finished the task successfully, when you have

1. *exchanged* your opinions about important class rules
2. *agreed* on five class rules that you think are most important for the class. Write these down!

Preparation

Individually prepare for the discussion by:

- studying the rules of this German school as an example: https://www.flickr.com/photos/buttercuptragedy/121432245/
- writing down the rules that are most important to you.
- studying the language support below.

Task

- Go to Canvas, get in touch with your partner and carry out the discussion in the assigned condition (chat/audio/video).
- discuss which five class rules are important to you personally.
- agree on the five most important rules for your class.
- save your task in Canvas.

Language support	
Ich finde es wichtig, dass	I find it important that.
Ich bin damit (nicht) einverstanden.	I don't agree with that.
die Klassenregeln	The classrules
respektvolles Verhalten	Respectful behaviour
Mobbing	Bullying
der Mobber	The bully
Das Mobbingopfer	The bullying victim
To begin the conversation	Hallo, wie geht's? Wollen wir mit dem Auftrag anfangen?
To end the conversation	Ich glaube, wir sind fertig. Danke und Tschüs.

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