‘Mhm okay’ – Frequencies of (Non-)Corrective Feedback after Oral Errors in German as a Foreign Language (GFL) Videoconferencing

Julia Lankl

Abstract *In L2 research, only a limited number of face-to-face (F2F) studies have examined oral errors and corrective feedback (e.g., Lochtman, 2002; Lyster, 1998; Milla & Garcia Mayo, 2021; Mori, 2002; Morris, 2002), with even fewer studies focusing on oral synchronous computer-mediated communication (SCMC) (e.g., Akiyama, 2017; Debras et al., 2015; Freschi & Cavalari, 2020; Guichon et al., 2012; Hoshii & Schumacher, 2012; Saito & Akiyama, 2017). Using video interaction analysis, this study looked at the frequency of oral errors and subsequent feedback actions in turn-taking in studio-based and desktop videoconferencing between prospective German as a Foreign language (GFL) teachers in Austria (NS) and GFL-students in Japan and Brazil (NNS). The conventional concept of feedback was expanded to include not only corrective feedback (CF) but also non-corrective feedback (NCF) in the form of listener signals. A novel coding system for NCF was created to supplement existing deductive taxonomies for oral errors (Kleppin, 1997) and CF (Lyster & Ranta, 1997). It was found that interlocutors in both settings rarely reacted with CF after oral errors and almost exclusively with reformulations, especially recasts, so that the majority of responses was non-corrective. Overlapping listener signals with the particles ‘mhm’ and ‘okay’ were most commonly used. Grammatical errors were most frequent and often appeared together with other grammatical errors. CF was utilized most often in response to rare lexical errors; the rarer the error was, the more likely it was that CF would be employed. CF routines amongst interlocutors, apart from a preference for recasts, were not observed, while individual NCF routines were seen with all GFL-teachers.*

Keywords *oral error; (non-)corrective feedback; listener signals; videoconferencing; video interaction analysis*

1. Introduction[1]

Videoconferencing is now a widely employed teaching method in foreign and second language acquisition (hereafter: SLA[2]) and an established interaction setting in distance learning. It allows for an audiovisual exchange in oral synchronous computer-mediated communication (oral SCMC) (Loewen & Wolff, 2016, p. 166). In videoconferencing, communication between participants is technically mediated, both visually and auditorily (Hoshii & Schumacher, 2010, p. 71), with a spatial and physical distance existing between the interaction partners. In addition to traditional e-tandems (the foundational model for reciprocal distance language learning via videoconferencing in a 1:1 setting), other less static videoconferencing formats, such as studio-based or desktop videoconferencing, are increasingly being employed, with varying participant constellations (one-to-one, one-to-many, many-to-many), interaction spaces and spheres (two spaces–one sphere, two spaces–many spheres, many spaces–many spheres) (ibid., pp. 78–82; Prikoszovits, 2020, pp. 125–129). As a result, interaction levels and language learning intentions of interactants (tutor-learner, learner-learner) have become more varied and flexible. For example, digital feedback in SLA videoconferencing can be presented to L2 learners in oral (microphone) and/or written form (text chat). It can refer to verbal utterances or written text products and pursue different intentions with regard to the language output of L2 learners. Thus, corrective feedback (CF) provided by teachers (interlocutors) after oral error utterances represents *one* subset of digital feedback in technology-mediated learning environments.

A review of communication in videoconferencing indicates that the use of listener signals, like the listening conversational particles 'mhm' or 'okay', are not uncommon in or incidental to long-distance verbal interactions (e.g., telephone calls, videoconferences) and, similar to short distance communication (face-to-face: F2F), their use helps to control turn-taking (Ernst, 2011, pp. 258–260). But is it possible, even after error utterances by L2 learners in digital communication formats such as videoconferencing, where language is to be taught and learned, that listener signals not only structure conversation but also take on the role of non-corrective feedback (NCF) after oral errors (OEs)? This forms the basis of the current study and leads to questions such as: Which errors are corrected? How and how often does CF appear? What NCF do interlocutors provide in videoconferencing after L2 error utterances?

1 The article was originally written in German and then translated into English, partly with the help of AI. Many thanks to S. B., who as a non-German speaking English native speaker, proofread the English article. In a further step, the article was "read back" with regard to the original German version and the preservation of the content was matched sentence by sentence.

2 The term "SLA" is used here in as an umbrella term that includes both second language acquisition *and* foreign language acquisition.

This paper presents partial results[3] from a video interaction analysis of recorded videoconferencing sessions and gives insight into verbal communication and turn-taking after errors as well as outlines the range of CF and NCF used by prospective language teachers in this format. The data were drawn from an inter-university project between the University of Vienna and a university in Tokyo and São Paulo, respectively, in which prospective GFL-teachers in Austria (GFL master's program; NS) and international GFL university students in Japan and Brazil (NNS) met group-to-group for a communicative intercultural exchange on several dates over one semester via studio-based (Vienna–Tokyo) and desktop videoconferencing (Vienna–São Paulo).

Two videoconference recordings (each 60 minutes) made up the database and were used as samples for comparison. The study investigates on a micro-level the communicative interactions between the videoconferencing participants by using video-based and structured observation. It focuses on the distribution and correlation of OE and CF/NCF, an area that has not received much attention in previous CF-research in either F2F or SCMC. This research project adopts a cognitivist approach, which is characterized by two main strands of inquiry in contemporary CF-research. One is the study of CF across different SLA interaction contexts and the second is impact studies that investigate CF effectiveness. The present study expands the focus beyond *corrective* actions to include *non-corrective* reactions (listening signals/strategies) after OEs. The analysis concentrates on the distribution rather than the effectiveness of feedback. By putting attention on the modality and frequency of NCF-types (e.g., particles and interjections) provided from interlocutors after L2 error utterances in both F2F and SCMC, the study seeks to address a prevailing research gap in this area.

2. Theoretical Background

2.1. Digital (Corrective) Feedback

Digital feedback in computer-mediated communication (CMC) in SLA varies depending on the type of technical mediation, the interactants involved, and the learning product to be fed back. It can be grouped into computer-supported and computer-generated feedback and refers to either oral learner utterances or written text productions, takes place synchronously and/or asynchronously, is presented orally or in writing (Schluer, 2022, pp. 51–55), and pursues different goals with regard to learner performance. Similar to F2F language learning, digital feedback can be directed at content on the macro-level or at concrete linguistic aspects on a micro-level, be corrective or non-corrective, or used more generally as an appreciative, motivational and reflective feedback procedure.

3 This paper is based on the results of my Master's thesis at the University of Vienna (Master German as a Foreign and Second Language), which was supervised by Univ.-Prof. Dr. Karen Schramm. The contents of the study have been presented in a face-to-face lecture at the international conference "Spotlight on Language Teaching: Digital Feedback in Research and Practice" at the Technical University in Chemnitz (Germany) on June 29, 2023.

While the term feedback in SLA research generally refers to feedback on a learner utterance, corrective feedback from a cognitivist-interactionist perspective is understood as a reaction to a learner utterance that contains an error (Schoormann & Schlak, 2011, pp. 78–79). Sheen and Ellis (2011) define CF as "feedback that learners receive on the linguistic errors they make in their oral or written production in a second language (L2)" (p. 593).

In general, CF (with the error as the starting point) is considered a subset of (digital) feedback, with oral error correction in synchronous CMC (SCMC) being mainly limited to videoconferencing.

2.2. Corrective Feedback in Cognitivist-Interactionist Research

The cognitivist-interactionist approach in L2 research is linked to the individual's cognitive performance and an input-output-interaction in language learning (Schoormann & Schlak, 2012, p. 173). L2 learning is understood as a mental process of acquiring knowledge (Foster & Ohta, 2005, p. 402).

Psycholinguistic communication models like Schmidt's noticing hypothesis (1990), Long's interaction hypothesis (1983, 1996), Krashens's input hypothesis (1981, 1982, 1985) and Swain's output hypothesis (1985, 2005) are fundamental to a cognitivist understanding of SLA[4]. Long's definition of interactional negotiation of meaning in language acquisition is a key concept in the cognitivist school and assumes communication bottlenecks in the interaction between more competent and less competent speakers:

> "Negotiation for meaning is the process in which, in an effort to communicate, learners and competent speakers provide and interpret signals of their own and their interlocutor's perceived comprehension, thus provoking adjustments to linguistic form, conversational structure, message content, or all three, until an acceptable level of understanding is achieved." (Long, 1996, p. 418)

As such, oral error and corrective feedback are central concepts and established cognitivist-interactionist terms. From this perspective, attention is focused on the reaction of the interlocutor in an institutionalized context (for error correction to take place, the interlocutor must first perceive the utterance as an error to be corrected). Conversely, sociocultural theory regards SLA as a social, co-constructing process that includes self-correction or corrections among L2 learners in terms of a shared, dynamic utterance construction (Aguado, 2010, pp. 817–818; Hoshii, 2013, pp. 112–113).

4 These sources have been cited by Aguado (2010, pp. 818–820) and Schoormann and Schlak (2011, pp. 47–49), who also provide a more detailed overview of interactionist-cognitivist language acquisition hypotheses.

2.3. Oral Error

In L2 research, the classical concept of error[5] is deficit-based and errors are understood with a view to target language adequacy as deviations from norm-compliant forms (Settinieri & Jeuk, 2019, p. 7). The cognitivist error-concept is closely interconnected with that of correction; errors require correction and utterances that deviate from the target language's ideal, due to a violation of linguistic norms, require correction to improve the language proficiency of L2 learners (Havranek, 2002, pp. 23–24).

The idea that error prevention is a key goal of interaction in language teaching is also reflected in CF-research as a three-step linguistic interaction pattern (error–CF–learner uptake). In addition to a deficit character, errors are also characterized by an interactional component; only if it is noticed by the interactional partner(s) as an error and is treated as such, will it be considered as an error (Hoshii, 2013, p. 114):

> "We understand errors to be the perceived and/or designated deviations from the linguistic system or from an expected utterance or sequence of utterances. […] The criterion for designating a linguistic utterance as an error is no longer the language system or the language use alone, but the linguistic utterance, through the lens [of the interlocutor, Ed.]." (German quote from Kleppin & Königs, 1991, p. 16, translated by the author JL)

This places the teacher in the L2 classroom as the final authority on whether a verbal utterance is called an error or not. Accordingly, an OE can be perceived as correct by the interlocutor and, conversely an objectively correct learner's utterance can be deemed a linguistic deviation by the teacher and as such an *error*. Conceptualized this way, an error is that which a teacher calls an error (Kleppin, 1997, pp. 16–19).

Regarding reference norms against which errors can be measured, Kleppin (1997, pp. 19–21) cites, in addition to the language system or the linguistic norm (linguistic correctness), the communicative norm (comprehensibility) and the pragmatic norm (situational appropriateness) as benchmarks. Blex (2001, p. 4) conceptualizes a hierarchization of *error severity*, with errors measured against the criteria of acceptability, irritation, and comprehensibility, and weighted according to frequency and generality of rule violations.

Historically, OEs were classified as mistakes (performance errors) versus errors (competence errors) (Corder, 1967, pp. 166–167), or slips, errors and attempts (Edge, 1992, pp. 9–11), or differentiated into global errors, which substantially impair comprehension, versus local errors, which only slightly impede communication (Burt & Kiparsky, 1980, p. 6). Contemporary CF-research has adopted the use of *error* to signify OE (e.g., Mackey, 2020; Nassaji & Kartchava, 2017), with the cognitivist definition of CF as "response[s] to learner utterances that contain an error" (Ellis et al., 2006, p. 340) being firmly established. Kleppin (1997, pp. 42–43) presents a five-part error classification according to linguistic areas, which is divided into phonological, morphosyntactic, lexical-semantic, pragmatic, and content errors. Other CF-research groups errors into

5 The error concept refers exclusively to the *oral* error, although in some cases references or definitions are also valid for written errors.

grammatical, vocabulary, and pronunciation errors (Havranek, 2002, p. 98). A three-part coding into grammatical, lexical, and phonetical errors is the dominant taxonomy in current CF-research (e.g., Brown, 2016; Lyster, 1998; Saito & Akiyama, 2017). This coding model reaches its limits when multiple errors from different linguistic areas occur in one L2 utterance (Lyster & Ranta, 1997, p. 45).

2.4. Taxonomies of CF and NCF

Lyster and Ranta's (1997) classification model continues to be widely cited within the CF domain. It classifies CF into six different types (recast, explicit correction, clarification request, metalinguistic feedback, elicitation, repetition). The six CF-types are further divided into "reformulations" and "prompts" (Ranta & Lyster, 2007, p. 152), and "input-providing" or "output-prompting" (Sheen & Ellis, 2001, p. 594), or "model-providing and eliciting correction strategies" (German quote from Schoormann & Schlak, 2012, p. 174, translated by the author JL). Recasts and explicit corrections are reformulations, with the interlocutor providing the correct utterance, while the remaining four CF-types (prompts) seek the correct utterance from the L2 learner themselves, thus promoting self-correction. Other scholars advance models that distinguish between explicit and implicit feedback (Ellis et al., 2006) and between didactic (explicit) and conversational (implicit) recasts (Sheen, 2006, p. 365; Sheen & Ellis, 2011, p. 594).

To include non-corrective reactions after oral error utterances as part of linguistic interaction in a turn-taking system (Sacks et al., 1974), where non-corrective feedback (NCF) is defined as *any* reaction other than CF that is given by the interlocutor during or after an oral error utterance by a L2 speaker, an NCF classification scheme was needed. An NFC system registers links between error utterances and non-corrective responses and systematizes linguistic properties in such a way that morphological and temporal dimension as well as communicative function are considered.

If one repurposes Kleppin and König's (1991) book-title "Tracking the correction" (translated by the author JL from the German original title "Der Korrektur auf der Spur") to focus on NCF, "Tracking the non-correction" if you like, one might quickly become aware of conversational particles and interjections on the listener's side (Wöllstein & Dudenredaktion, 2022, pp. 893–899). Crucially, not only the speaker, but also the listener participates in an active way in the success of the conversation (ibid., p. 893):

> "The listener is also considered to have certain possibilities of controlling the conversation – e.g., by commenting on, agreeing with, or rejecting what is said; they can send out certain signals which the speaker, in turn, can process and react to." (German quote from Ernst, 2011, p. 560, translated by the author JL)

Listener signals work on the conversation-structuring level, to organize and maintain conversation as well as to convey attention, understanding at the content level, or to evaluate the speech contribution of the other person (Wöllstein & Dudenredaktion, 2022, p. 886). They can operate contemporaneously with the utterance of the interlocutor or be utilized responsively to mark a transition-relevant place (TRP) and to initiate the change between the speaker and listener roles (e.g., Imo & Lanwer, 2019, pp. 173–174).

Rehbein (1979, pp. 59–60), in the context of linguistic interaction and the use of listener-sided particles, writes about the notion of "speaker control by the hearer"[6] and "means by which the hearer influences the utterances of the speaker", while the Duden Grammar (2022, p. 887) uses the terms "hearer-controlling" and "hearer-sided particles", dividing them into two classes: hearer-sided conversational particles and interjections (Table 1).

Table 1: Classification of Listener-Side Conversational Devices in the Current German Duden Grammar (Wöllstein & Dudenredaktion, 2022, pp. 893–898)

Listener-sided Conversational Particles	**Communicative Function**	**Examples (German)**
receptive particles	listening, attention, speaker support	hm, hm, ja, okay
comprehension particles	understanding → interjections used frequently	ach, ah, aha, ach so, ja, ach ja
evaluation particles	reinforcement, empathy → interjections used frequently	gut, super, geil, ui, au, boah, wow, ach du scheiße
responsive particles	agree/disagree, reply	ja, nein, doch
Interjections	expression of emotions, evaluation (expressive character) e.g., astonishment, surprise, admiration, relief, joy, regret, disappointment, pain, disgust, contempt, anger, ridicule, doubt, etc.	aha, oha, ui, juhu, uff, hach, oje, pfui, au, puh, ätsch, nanu, igitt, pff, oh, uff, olala, ups, bäh, uh, phh, wow, hui

Due to multiple overlaps and a fuzziness in the classification (Table 1), delimitation problems arise when separating listener-sided conversational particles and interjections.

Weinrich (2005, pp. 834–841) offers a tri-partite classification, one that distinguishes between listener signals, which include support signals ('hm' or 'mhm') and signal attention to the speaker, and takeover signals, as well as so-called dialogue particles, which are equivalent to the listener-sided conversational particles in the Duden but are not further differentiated.

A crucial feature of listener-sided conversational particles or interjections are the prosodic elements, such as rising/falling pitch, elongation, accentuation, loudness, etc. (Wöllstein & Dudenredaktion, 2022, p. 886). This results in the special feature of multifunctionality in listener signals, which Ehlich (1979) explored in his research on the parti-

6 In this paragraph, the terms and phrases placed within quotation marks have been translated from German by the author JL.

cle 'hm'. He identified, depending on the phonological realization, a manifold, meaning-different usage of that particle:

> "It is obvious […] that there are different forms of 'hm' (with different functions), one of which can by no means simply be replaced by the other. […] It is further obvious that the various realizations of 'hm' differ in their intonation." (German quote from Ehlich, 1979, p. 504, translated by the author JL)

In the absence of an NCF-classification, a new approach and reconsideration of NCF-coding after OEs was warranted, one that would introduce a temporal dimension to the morphological and illocutionary function. A key question was whether to focus exclusively on the word level (particles, interjections) or also to include discursive functions at the sentence level (e.g., topic continuation, change of topic, back-questions to the topic, etc.) in the definition of NCF.

2.5. Videoconferencing as Interaction Context

Computer-mediated communication (CMC) is grouped into written, oral, and oral-visual interaction and into synchronous and asynchronous communication (Wang, 2004a, pp. 375–376). Synchronous computer-mediated communication (SCMC) distinguishes between text-based (e.g., text chat), audio-based (e.g., voice chat), and video-based interaction, and combination forms (e.g., audiovisual videoconferencing with text chat) (Rassaei, 2017, p. 134). In the context of digital interaction, Schluer (2022, p. 55) distinguishes between technology-generated feedback (e.g., automated text correction, chatbots, robots) and technology-mediated feedback formulated by actual people (e.g., in videoconferences). Further technology-mediated communication environments are categorized in oral SCMC and written SCMC:

> "Synchronous computer-mediated communication (SCMC) can be defined as communication that occurs in real time by means of a computer, and it may be either written or oral. An example of written SCMC is a chatroom in which two or more participants are typing and posting messages concurrently, while oral SCMC can take the form of Skype or some other audiovisual computer-mediated communication." (Loewen & Wolff, 2016, p. 166)

Communication in videoconferencing is mediated technically and auditorily and is characterized by physical distance between the interaction partners (Hoshii & Schumacher, 2010, p. 71). Two or more spatially separated communication partners interact with each other from two or more interaction spaces. In terms of the number of interaction spaces and interactants, a distinction is drawn between desktop and studio-based videoconferencing (Wang, 2004b, p. 93), and the interaction settings: one-to-one, one-to-many, many-to-many (Wang, 2004a, p. 375). Historically, the term studio-based videoconferencing was more associated with an audiovisual delivery of lectures in institutional contexts or with group-to-group videoconferencing and the interaction of two groups in two interaction spaces. By contrast, desktop videoconferencing was traditionally understood

as 1:1-settings (e.g., e-tandems) also consisting of two interaction spaces. Since the pandemic, there has been a change in terminology, as desktop videoconferencing has come to encompass a learning environment in which

> "each conference participant interacts from his/her own enclosed interaction space (in this case, own rooms, apartments, houses). There are consequently as many interaction spaces as there are conference participants" (German quote from Prikoszovits, 2020, pp. 128–129, translated by the author JL).

Hoshii and Schumacher (2021, p. 19) speak of it as a common virtual interaction space characterized by a shared sphere of interaction.

3. Previous Empirical Studies

3.1. Literature Review

CF-research in SLA contexts has traditionally focused on F2F-settings in the classroom or laboratory, but since the early 2000s there has been an increased interest in SCMC. CF-research into technology-mediated interaction was initially focused on written SCMC (e.g., Baralt, 2013; Fernández-García & Martínez Arbelaiz, 2003; Gurzynski-Weiss & Baralt, 2014; Kim, 2014; Kourtali, 2022; Sachs & Suh, 2007; Sauro, 2009; Sotillo, 2005; Yilmaz, 2012). More recent research has expanded the focus to include *oral* interaction in videoconference-based language learning (oral SCMC) (e.g., Akiyama, 2017; Bryfonski & Ma, 2020; Debras et al., 2015; Freschi & Cavalari, 2020; Guichon et al., 2012; Hoshii & Schumacher, 2012, 2017; Monteiro, 2014; Parlak & Ziegler, 2017; Rassaei, 2017; Renner, 2017; Saito & Akiyama, 2017; Yanguas, 2010). Similar to CF-research in F2F, the same two focus areas are seen in the SCMC field:

a) impact studies that investigate the effectiveness of CF, and
b) studies that are limited to the CF-type recast.

Moreover, a particular focus on e-tandems as one-to-one-interactions is observable across SCMC-research.

As with F2F, SCMC-research favored a cognitivist-interactionist approach, one that interprets communication according to a sender-receiver principle and follows a three-step interaction matrix: (1) OE, (2) CF, and (3) learner uptake. By contrast, empirical studies from a sociocultural perspective about co-constructive or multimodal negotiation of meaning in videoconferencing are fewer in number (e.g., Arellano-Soto & Parks, 2021; Cappellini, 2016; Hampel & Stickler, 2012; Hoshii & Schumacher, 2017, 2021; Kühschelm, 2019).

Research that provides statements on error and feedback frequencies and the relationship between these two variables are rare, both in the F2F context (e.g., Lyster, 1998; Mori, 2002; Morris, 2002) and in the oral SCMC domain (e.g., Debras et al., 2015; Guichon et al., 2012; Saito & Akiyama, 2017).

If the question is, 'What do we already know?' about frequencies and correlations of OEs and CF, results of distribution studies[7] and meta-analyses show that the CF-type recast is the one most frequently used by interlocutors in F2F contexts (45–57%), with other prompts accounting for 29.5–35% of CF and explicit corrections 9.7–14% (Brown, 2016, p. 445; Lyster et al., 2013, p. 6). By contrast, in NNS-NNS peer-interactions, prompt rates are significantly higher, and elicitations or clarification requests are used more (Foster & Ohta, 2005, p. 417; Iwashita, 2001, p. 276).

In distance language learning in e-tandems (oral SCMC), CF distribution follows a similar pattern to F2F with the recast being the dominant CF-type (50–72%). In contrast to F2F, e-tandem partners almost exclusively use reformulations (recasts, explicit corrections) that provide the target language form (M=95.5%) and use prompts, if at all, as clarification requests (M=4.5%). The use of other prompt-types (metalinguistic feedback, elicitation, repetition) is entirely absent (Akiyama, 2017, p. 67; Debras et al., 2015, p. 18; Freschi & Cavalari, 2020, p. 169; Hoshii & Schumacher, 2012, pp. 65–66). The results on CF distribution in e-tandems are consistent and seem typical for this language learning environment. In interviews on feedback techniques in e-tandems, participants expressed a desire to be corrected and cited recasts as the most appropriate CF-strategy for videoconferencing. This is because they are timely, time saving, unobtrusive, and easy to provide (Akiyama, 2017, p. 68). Furthermore, the peer-to-peer nature of e-tandems interactions affects the choice of CF-types: "[T]he preference for recasts can be attributed to the fact that participants viewed themselves as a friend rather than a tutor" (Freschi & Cavalari, 2020, p. 163).

Little research provides data on the frequency of linguistic categories of OE-types by L2 learners. In F2F-research, two studies found that grammatical errors occurred most frequently in L2 utterances. In French immersion classes, Lyster (1998, pp. 198–200) observed grammatical errors to be 50%, while lexical and phonetic errors accounted for fewer than 20% each. Morris (2002, p. 400) found grammatical errors (63%) to be more common than lexical errors (30%) in NNS-NNS peer interactions. In contrast, Saito & Akiyama (2017, pp. 59–61) identified high frequencies of phonetic errors (54%) and fewer occurrences of grammatical (39%) and lexical errors (6.5%) in NS-NNS videoconferencing dyads. Despite an inconsistent error distribution, there is an important overlapping finding in all three studies regardless of the language learning context. Lyster (1998), Morris (2002), as well as Saito and Akiyama (2017) observed that the more often an oral error occurs the less it is corrected, and that conversely, the less often an error occurs the more often it is corrected. Chaudron had already observed this phenomenon of indirect proportionality between error and correction frequencies by the late 1980s:

> "The trends for proportion of errors corrected […] appear to reflect the general rate at which errors are made in classrooms, in an inverse relationship, where the more a type of error is made, the less likely the teacher appears to be inclined to correct it." (Chaudron, 1988, p. 140)

7 A detailed overview about empirical studies on the distribution of oral errors and corrective feedback in F2F and oral SCMC contexts can be found in my master's thesis (Lankl, 2023, pp. 42–57).

Several studies have focused on which error-type was corrected the most and presented frequencies of CF or how often certain linguistic error-types were corrected. From the overview of results, it can be deduced that – contrary to Lyster (1998) and Morris (2002), who reported low CF rates for frequently occurring grammatical errors – grammatical CF was found to be the most frequently occurring (Blex, 2001; Kleppin & Königs, 1991; Havranek, 2002; Ellis et al., 2001; Lochtman, 2002; Mackey et al., 2000). The data also show that CF tends to address phonetic errors of L2 learners less often. Similarly, Brown's (2016, p. 446) meta-analysis finds a significantly high mean for grammatical CF (43%) and lower frequencies for lexical CF (28%) and phonetic CF (23%).

A consistent picture emerges for overall correction rates. On average, OEs are corrected much less often in videoconferencing (oral SCMC) than in the L2 classroom (F2F). From the data of 13 studies in different F2F settings and target groups, a mean of 55% overall correction rate of OEs was established (Lankl, 2023, pp. 151–152), whereas in oral SCMC low correction rates were evident, with 13–43% of all OEs corrected (Akiyama, 2017, p. 67; Saito & Akiyama, 2017, pp. 59–60). Research interprets the low correction rates in videoconferencing as follows:

> "Maintenance of conversational flow and the fear of interrupting or of being interrupted are aspects of the computer mediated interactional phenomenon […] Moreover, avoiding communication breakdowns and face-threatening situations is an aspect of the CMC phenomenon that can be influential in quantity of corrective feedback." (Zourou, 2009, pp. 13–14)

As to what extent error-types correlate with certain CF-types, the data show that phonetic errors are more likely to be responded to with recasts, with lexical errors rather being met with prompts, while grammatical errors primarily elicit recasts (e.g., Havranek & Cesnik, 2001; Lochtman, 2002; Lyster, 1998; Mackey et al., 2000; Milla & García Mayo, 2021; Morris, 2002; Nabei & Swain, 2002). In terms of effectiveness (learner uptake), Lyster (1998, p. 208) considers recasts after phonetic errors and prompts after lexical and grammatical errors to be the most effective options.

As for available data on frequencies of NCF after OEs, there is little and only a few facts to which this study can refer. After the nonverbal nodding of the head, the most frequent verbal listener signals are the reception particle 'hm' or 'mhm' and the response particle 'ja' (Wöllstein & Dudenredaktion, 2022, p. 893). There is also empirical evidence that conversational particles very often occur in tandem or in combination with each other (ibid., p. 887). Weinrich (2005, pp. 834–836) confirms this distribution and describes 'mhm' or 'hm' as the most frequent support signal and 'ja' as the most frequent dialogue particle in German.

3.2. Research Desiderata

With the focus of SCMC CF-research on e-tandems, other videoconferencing settings have been somewhat neglected. Although theoretical explorations of group-to-group videoconferencing, such as studio-based or desktop videoconferencing (e.g., Hoshii & Schumacher, 2010; Prikoszovits, 2020), are taking place, the distribution of CF in

studio-based videoconferencing (e.g., Hoshii & Schumacher, 2012) and desktop videoconferencing (e.g., Guichon et al., 2012) has not been widely studied so far. Almost no comparative work on linguistic interactions in these two videoconferencing formats (e.g., Hoshii & Schumacher, 2021) is available and empirical data and correlative statements on oral error and feedback frequencies do not exist.

This gap in cognitivist SLA research into the interactions that surround OEs in different videoconferencing settings warrants attention. It is remarkable that CF-research only considered *corrective* reactions after OEs on the listener side and completely ignored *non-corrective* reactions in the form of conversational particles or interjections. Consequently, findings on NCF-frequencies after OEs are missing. Those aspects led to the two main research questions of the study:

(1) How do errors and feedback occur in the turn-taking of the interactants in studio-based and desktop videoconferencing?
(2) To what extent do oral error frequencies correlate with frequencies of corrective and non-corrective feedback?

Given the absence of research on type and manner and frequencies of NCF after OEs, this paper will focus on presenting results on this topic.

4. The Present Study

4.1. Participants

The video interaction analysis is based on 120 minutes of recorded videoconferencing data. There was a total of 16 participants, which included GFL-university students (NS) in Austria (N=4) and GFL-university students (NNS) in Japan or Brazil (N=12)[8]. Two 60-minute videoconferencing sessions were taken as comparison samples. In the first, prospective GFL-teachers in Vienna (N=2) interacted with L2 learners (N=5) in Tokyo group-to-group in studio-based videoconferencing. In the second sample, prospective GFL-teachers in Vienna (N=2) interacted with L2 learners (N=7) in São Paulo via desktop videoconferencing (see Table 2 for details).

The videoconferences were created as part of a collaboration project between the University of Vienna, Waseda University of Tokyo, and the University of São Paulo[9]. For one semester, the students in Vienna met in small groups for one-hour sessions on several dates for a communicative exchange with the Japanese and Brazilian GFL-learners. The

8 The students in Vienna studied in the Master program "German as a Foreign and Second Language" and can be regarded as prospective teachers for German as a Foreign Language. The students in Japan and Brazil were involved in different study programs and learn German as a Foreign Language.

9 Prikoszovits (2020) provides information and describes in detail the interaction formats that were used, and the procedure of the videoconference collaboration project named 'Go Global', which was embedded in the "German as a Foreign and Second Language" Master program of the University of Vienna 2019/20.

participants on both sides moderated the videoconferencing sessions, during which various cultural-reflective topics were discussed. Visual and auditory stimuli and aids (e.g., pictures, videos, PowerPoint, audio contributions, quizzes, surveys, etc.) were employed during the meetings. In addition to videoconferencing, participants used the communication platform 'Slack' for written exchange outside the meetings.

Table 2: Data Corpus

	Studio-Based Videoconferencing	**Desktop Videoconferencing**
	Vienna-Tokyo	**Vienna-São Paulo**
recording time	12/2019	5/2020
conference number	4/7	4/5
duration of the recording	60 minutes	
interaction partners	prospective GFL-teachers – GFL university students teachers (NS)– learners (NNS)	
number of participants	N=7 teachers (n=2) – learners (n=5) Vienna Tokyo	N=9 teachers (n=2) – learners (n=7) Vienna São Paulo
interaction level	experts (NS) – novices (NNS) (tutor-learner) university students – university students (peer-peer)	
language learner level	A1-B1	A2-C2
number of interaction rooms	2	9
interaction setting	many-to-many group-to-group	one-to-many shared virtual interaction space
topic of conversation	Working World in Austria	Films and Literature in Austria and Brazil
moderated by	GFL-teachers (Vienna)	
declaration of consent	in advance	afterwards

The videoconferencing formats, as technology-mediated learning environments, differed in the two samples (Figure 1, 2) [10].

The language learning intention for both samples was with the L2 students in Japan (beginners) and Brazil (intermediate level). The interaction level between the prospective GFL-teachers in Vienna and the Japanese and Brazilian GFL-learners was ambiguous, since on the one hand experts (NS) and novices (NNS) interacted with each other (language level: tutor–learner), while on the other hand both groups were students (social level: peer–peer). All of the prospective GFL-teachers in Vienna had little to no teaching experience at the time of the recordings. They did not receive any specific CF-training in advance because the study was developed after the conference recordings.

10 The pictures from Figure 1 and Figure 2 were sourced from Prikoszovits (2020, pp. 127–129).

Figure 1: Studio-Based Videoconferencing (Vienna–Tokyo): GFL-Teachers in Vienna (above) and GFL-Students in Tokyo (below)

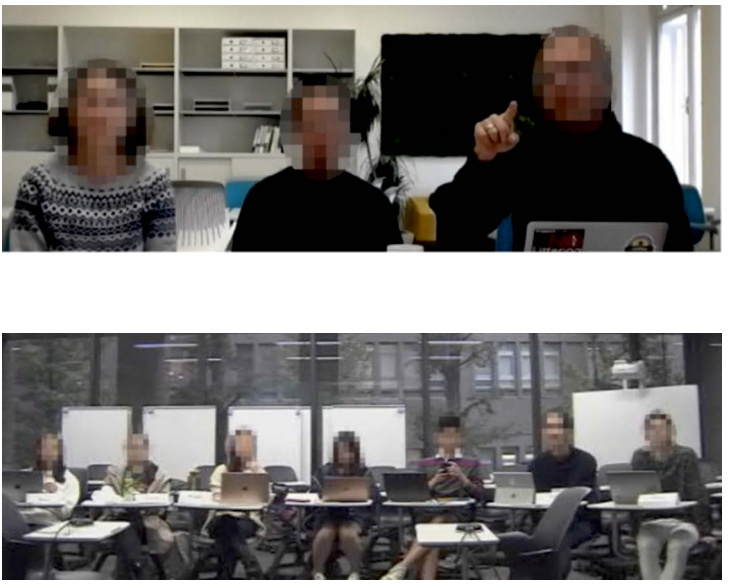
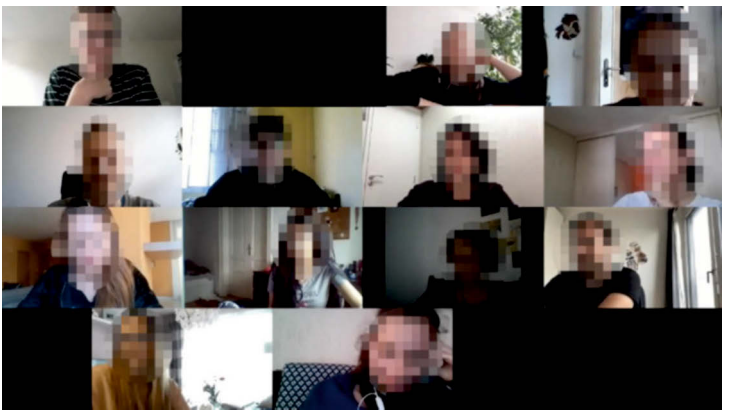


Figure 2: Desktop Videoconferencing (Vienna–São Paulo) between GFL-Teachers (Vienna) and GFL-Learners (São Paulo) in a Shared Virtual Interaction Space



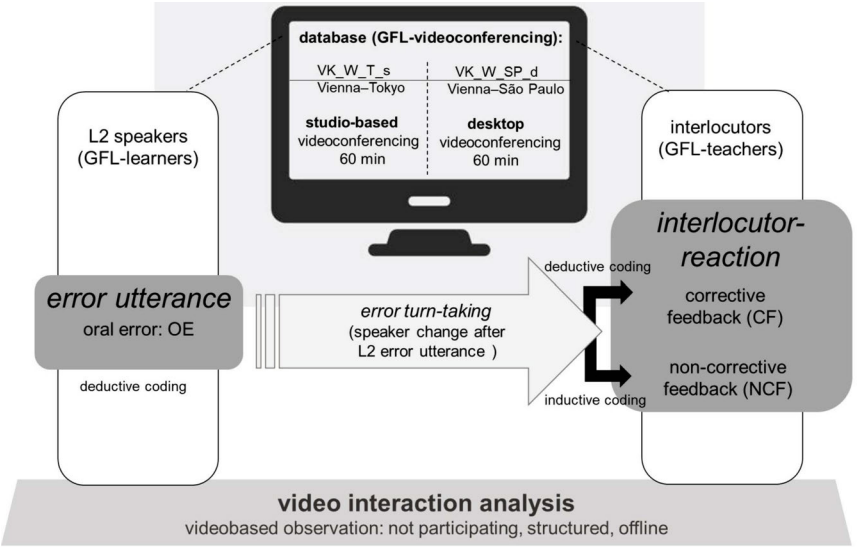
4.2. Methodological Framework

The methodology followed video-based L2 interaction research and took a descriptive approach, applying a theory-based event sampling and searching of the data corpus for observable phenomena. The unit of analysis was error turn-taking[11] between L2 learners

11 The term "error turn-taking" denotes a speaker change, one initiated by an interlocutor's reaction after or during an L2 utterance, including an oral error, in which they assert the right to speak. The

and GFL-teachers (interlocutors). OEs in utterances of the L2 speakers (error utterance) and the subsequent reactions of the GFL-teachers (interlocutor reactions) by means of CF or NCF were considered as observational phenomena (events) and constituted the focus of interest. The study aimed to shed light on the sequential interplay between error utterance (action) and interlocutor reaction (reaction) in verbal interaction processes between L2 speakers and interlocutors (Figure 3).

Figure 3: Research Design



The research questions were as follows for both samples (studio, desktop):

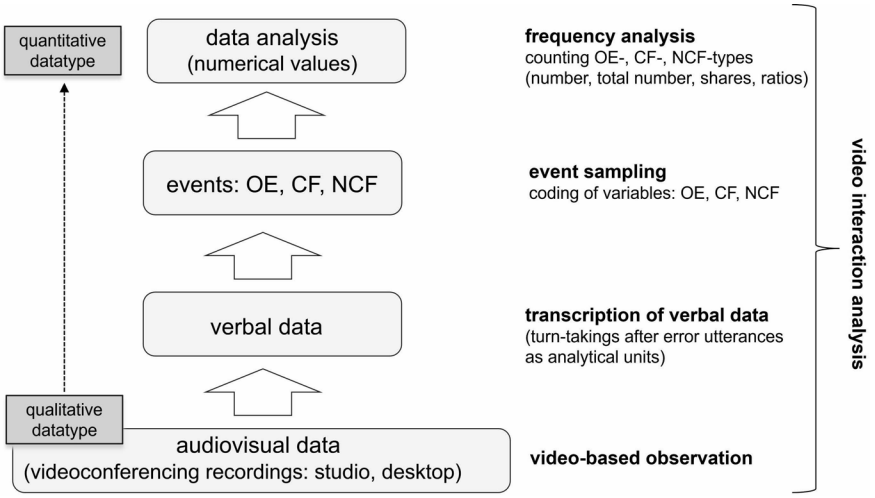
(1) How does the videoconferencing format influence turn-taking structures after L2 error utterances?
(2) What is the distribution of oral errors in L2 utterances?
(3) Which reactions of interlocutors appear after L2 error utterances? What is the distribution of corrective feedback and non-corrective feedback?
(4) How are non-corrective feedback-types realized?
(5) What correlations exist between oral errors and (non-)corrective feedback?
(6) What feedback routines do the interlocutors employ?

The study quantified events from audiovisual observation data and generated findings on frequencies and correlations of the variables OE, CF, and NCF. From a non-involved external perspective, the aim was to translate observed reality into numbers (Schmelter, 2014, p. 37). The qualitative research design combined two methodological approaches as

terms "L2 error utterance" and "error turn" are used synonymously. Studio-based videoconferencing is replaced by "studio" and desktop videoconferencing by "desktop".

a parallel design and integrated a quantitative paradigmatic basis by converting verbal communication phenomena from qualitative data material into numerical values (Figure 4).

Figure 4: Change of Data Type and Methodical Process Steps



For the video interaction analysis, video-based observation was used as a methodological tool for data collection, which can be characterized as open, structured (also: systematic), non-participatory, and offline (Ricart Brede, 2014, pp. 137–139). The observation took place in the natural field of group-to-group videoconferencing and can be considered as stringently monitored. The coding strategy employed event-sampling, which seeks to quantify observed events. Generally, the identification of error-types and feedback-types is marked by a high level of inference and demands sophisticated interpretive power in analytic decisions within the sampling process (Schramm & Schwab, 2022, p. 154).

The study followed an etic perspective, which, in contrast to the emic perspective, is not interested in the external understanding of the research partners' internal view, but already presupposes a certain theoretical understanding of the object of study to be observed and consistently applies it to it (ibid., p. 148). Due to the partially elaborated state of CF-research statements on error and CF distribution, it was possible to follow a hypothesis-testing approach. However, the research design cannot provide causal relationships, but can only describe frequencies and correlations of the variables OE, CF and NCF.

Error turn-taking was defined as the unit of transcription and analysis in the videoconference recordings. For the variables OE and CF, theoretical coding schemes were available, whereas for the NCF domain, coding was developed inductively from the material. The coding of OEs, CF, and NCF was performed separately for each sample and the frequency values obtained were then compared to identify any differences in the two specific videoconferencing formats.

4.3. Data Analysis

For data processing, each error turn-taking was marked as an interaction sequence. A prototypical speaker change after an oral erroneous L2 utterance was divided into three steps: (1) input (interlocutor), (2) error utterance (learner), (3) feedback/reaction (interlocutor) (Table 3).

Table 3: Prototypical Analytical Unit

VC_V_SP_d/12
GFL-teacher: Vanessa, wirst du sagen- hast du Christoph Walz gekannt‘ zum&Beispiel-
Vanessa, would you say, did you know Christoph Walz, for example?
= input (interlocutor)
GFL-learner: (.) Äh:, ich habe:‘ (.) ihren Name‘ in einem: Musiklyrics- gehört‘
Ahm, I have heard her name in a music lyric.
= error utterance (learner): OE
GFL-teacher: O:kay? (.) wirklich.
Okay? really.
= feedback/reaction (interlocutor): NCF

The transcription method[12] considered paralinguistic means of communication (e.g., volume, pitch, speech melody, tempo, laughter) and timing as factors (overlapping of speech, score writing). Non-verbal speech acts or self-corrections of the L2 learners were not included in the data analysis.

The selected interaction sequences were searched for the variables OE, CF, and NCF at a micro-level in a four-step event sampling and multiple material process. After an initial precoding of all three variables in the transcripts, separate detailed coding for OEs and CF/NCF was undertaken. Thereafter, the frequencies and correlations of OEs, CF, and NCF were merged in a final coding overview. The iterative-cyclical (Settinieri, 2014, p. 58) small-step approach to data preparation, which compares and references the individual coding runs (Mayring, 2015, pp. 97–99), increased the accuracy and reliability of the data (ibid. pp. 128–129). The coding procedure was applied identically and independently for both samples. Data triangulation by cross-comparison of two different data sets (studio, desktop), which were collected using the same method (within method), supported the internal consistency and validity of the results (Lamnek, 2005, p. 278, Settinieri, 2015, pp. 20–23).

12 The model by Fuß and Karbach (2019, pp. 40–57) was largely adopted as the transcription method.

4.4. Coding

Event sampling focused on frequencies and correlations of the variables OE and CF/NCF (Table 4).

Table 4: Coding Categories

					Coding Categories
1	videoconference				
2	event-nr.				
3	time (h/min/s)				
4	speakers				
5	*single error*	OE-style	**Oral Error**	error utterance (L2 learners)	
6	*uniform error*				
7	*multiple error*				
8	gram	OE-type (Blex, 2001; Kleppin, 1997)			
9	lex				
10	phon				
11	gram–lex				
12	gram–phon				
13	lex–phon				
14	recast	CF-type (Lyster & Ranta, 1997)	**Corrective Feedback**	interlocutor reaction (GFL-teachers)	
15	explicit correction				
16	clarification request				
17	metalinguistic feedback				
18	elicitation				
19	repetition				
20	listening overlap	NCF-type	**Non-Corrective Feedback**		
21	expressive overlap				
22	listening final				
23	responsive final				
24	expressive final				
25	topic continuation				
26	totally ignored	*no reaction*			
27		*sequential feedback*			
28	OE–CF	*correlations*			
29	OE–NCF				

OEs were separated into two coding categories. *OE-style* refers to the number and linguistic category of errors in an L2 utterance, for which a triple coding (single error, uniform error, multiple error) was used. Single errors denote one error occurring in one L2 utterance, while uniform errors indicate more than one error (n > 1) of the same linguistic category (e.g., 3 x gram) in one learner utterance, whereas multiple errors represent two or more errors from two different linguistic categories (e.g., gram-lex). Utterances with errors from three linguistic areas (gram-lex-phon) were not coded. *OE-type* includes the linguistic level of the error(s). Here, a 6-tiered coding (grammatical, lexical, phonetic, grammatical-lexical, grammatical-phonetic, lexical-phonetic) was used, which comprises two linguistic categories (multiple errors). The 6-tiered coding of error-types was designed in such a way that even if several errors of the same linguistic category occurred numerically in a learner utterance, these were coded together into a single error category. This way, a 1:1 relation between error-type and reaction-type can be established.

The OE-coding was based on an error classification according to linguistic categories (grammatical, lexical, phonetic), as defined by Kleppin (1997, pp. 42–43), as well as its extended operationalization, as suggested by Blex (2001, pp. 77–78). To increase reliability, two external raters (experts) were engaged to provide advice on error-coding in borderline cases.

For CF-coding, the study used the widely accepted six-part classification by Lyster and Ranta (1997, pp. 46–49), which groups CF into reformulations that provide the target language form and prompts that require the target language form from the L2 learner.

While theory-based classifications were available for OEs and CF, this study worked inductively to develop a taxonomy for NCF after error turns. It follows the categorization of conversational particles and interjections on the listener side at a morphological level as proposed by the German Duden (2022). In addition, the coding of NCF-types also integrates an illocutionary dimension, which focuses on speech intention, communicative function, and action character (Brinker & Sager, 2010, p. 64) (listening, responding, expressing, continuing), as well as the temporal dimension (overlapping/at the end of L2 utterance).

Similar to the CF domain, a six-part coding scheme emerged for NCF (Table 5), one divided into a) listening and b) expressive listener signals from the interlocutor that overlap with the L2 utterance, c) listening, d) responding, or e) expressive listener signals after the L2 utterance has been finished. The sixth category, f) continuing the conversation, is less a listener signal and more a non-corrective listener strategy at the content level, one that includes, e.g., asking questions, interjecting, or thematizing an aspect.

Table 5: Coding Examples[13] of Non-Corrective Feedback (NCF), part 1

NCF-type	Prototypical Coding Examples
a) listening overlap	learner: Er gehte [ins Kino gestern. He goed [to the cinema yesterday. teacher: mhm-] hm-] okay-] kay-] ah:] ahm:] ja-] ja&ja-] gut-] stimmt-] kla:r] g'nau-]
b) expressive overlap	learner: Er gehte [ins Kino gestern. teacher: aah-] aha-] oh-] o:ha-] ui!] uff!] hui'] wo:w!] hey!] pu:h! ju-hu!] nanu'] oje.] autsch-] pfff:-] ach'] achherrje:] neeiii:n-] ye:ah-] boa:h] geh!] (laughing)]
c) listening final	learner: Er gehte ins Kino gestern. teacher: mhm. (.) mhm- mhm' hm- okay. okay- kay. a-h: (.) ja.

13 The coding examples given represent examples that have occurred and examples that were expected.

Table 5: Coding Examples of Non-Corrective Feedback (NCF), part 2

d) responsive final	learner: Er gehte ins Kino gestern.	
	teacher:	ja:‘ ja&ja:- nein. okay? wirklich? okay‘ gut- o-ka:y! okay, interessant- m-h:mm‘ *(expressive)* na:ja. doch. super, okay‘ perfekt-, genau: passt‘ stimmt. echt? ach so:. e:ben. nicht doch. a‘bsolut, ja. scho:n. klar. su:per. richtig. alles klar, verstehe natürlich. hoffentlich. vielleicht‘ na und? allerdings. lei:der.
e) expressive final	learner: Er gehte ins Kino gestern.	
	teacher:	(laughing) o-kay- (+) o::-kay::‘! (laughing) hui! haha! pff! pu:h! uff! oh! ach‘! achherrje! eijajei: wo:w! oh la la:‘! nei:::n! wo:w! ye:ah- boa:h‘ ju-hu! geh komm! nanu‘ oje::! au:tsch-! hurra:!
f) topic continuation	learner: Er gehte ins Kino gestern.	
	teacher:	Echt? In welches Kino? Really? In which cinema? Gestern war ja perfektes Kino-Wetter! Yesterday was perfect weather for going to the cinema. Ah, ich mag Filme auch sehr gern! Ah, I like movies a lot, too!

The data shows that the same particle (especially 'mhm'/'hm' and 'okay'), depending on prosodic performance (word accent, stress, intonation, loudness), can be used in a listening, expressive or responsive manner and could therefore appear in more than one coding category.

Within the feedback-coding matrix (Table 4), there are two additional categories. If overlapping or successive feedback from both interlocutors occurs, *sequential feedback* is coded, whereas the category *totally ignored* denotes no reaction at all after an L2 error utterance.

To cleanly map error-feedback correlations, this study follows the 1:1 interaction principle: error-type (learner-action) – feedback-type (interlocutor-reaction). However, this method can lead to fuzziness in the coding, so exact and detailed coding rules are necessary, especially when errors (n > 1) meet feedback (n > 1) in turn-taking. Several errors (uniform errors, multiple errors) in an error utterance are subsumed into one error category; in cases of several reactions (sequential feedback) after an error utterance only the first feedback is coded, while at the same time CF is given greater weighting than NCF. For example, coding according to the 1:1 principle in the error-feedback correlation leads to distortions when CF follows multiple errors, correcting only one error-type and ignoring another. Despite the existence of theoretical coding guidelines for OEs and CF, the presence of borderline cases challenges the consistent categorization and standardization of errors.

5. Findings

5.1. Turn-Taking Pattern in Studio-Based and Desktop Videoconferencing

Different verbal interaction patterns were observed between studio-based and desktop videoconferencing.

Table 6: Prototypical Error Turn-Taking in Studio-Based Videoconferencing

VC_V_T_s/30			
learner:	ja: (.) und&darum:, hab ich schon- (.) das, Wort verstanden, aber' (.) ich glaube es gibt keine: (.) Wort in: (.) Ja:pan. (.) [So eine:- ja-		L2 error utterance
teacher 1:	Okay.]	(.)Aha- Verstehe.	sequential feedback
	Okay.]	(.)Ah-, understand.	
teacher 2:	Okay.		
	Okay		
teacher 1:	Okay. Interessant.		
	Okay. Interesting.		

Due to the technical conditions in the studio setting (Vienna–Tokyo), the two interlocutors on the Viennese side had the same right to speak in one interaction room. Consequently, more than half (55%) of the sampled error turn-taking involved sequential feedback reactions from the GFL-teachers after error utterances by the Japanese learners. This means that multiple feedback (n > 1) – CF and/or NCF – performed by both interlocutors occurred after L2 errors in an overlapping or successive manner (see Table 6).

In contrast, in desktop videoconferencing (Vienna–São Paulo) participants interacted from their own interaction space. Due to the microphone-loud/quiet function, usually only one participant had the right to speak at a time, leading to one interlocutor taking the feedback role. Generally, the same interlocutor who provided input earlier (e.g., questioning) reacted to L2 utterances. Feedback after error turns in desktop occurred as discrete utterances and were less interactive compared to studio (e.g. Table 7).

Table 7: Prototypical Error Turn-Taking in Desktop Videoconferencing

VC_V_SP_d/5		
learner:	Äh::, n]ormalerweise:‘ Aktion:filme- [akˈtsi̯o:nfɪlmə] oder Kommodie [koˈmodi̯ə], und&ah auch Triller [ˈtʰʁɪlɐ]. (.) mag ich gern.	L2 error utterance
teacher 1:	Super, okay‘	single feedback

Apart from the static error turn-taking, the desktop environment also produced some confusing speaker change structures, mostly caused by the fact that L2 speakers did not switch the microphone back to silent after finishing their contribution. This led to the phenomenon that over the course of multiple turns the learners in Brazil also gave support with listening signals (NCF) to an L2 utterance of a fellow student and consequently acted, in addition to the GFL-teachers in Vienna, as second feedback providing interlocutors.

5.2. Distribution of Oral Errors

In the two sixty-minutes videoconferences, a different total number of error turns was observed among the L2 learners (studio: N=59, desktop: N=76). However, when OEs were counted individually, almost the same number of errors on the L2 side were found (studio: N=114, desktop: N=119), which led to a higher error density rate per L2 utterance in studio.[14]

14 In all tables and graphs, the numerical values have been rounded to single digits, which may result in minimal rounding errors in individual cases.

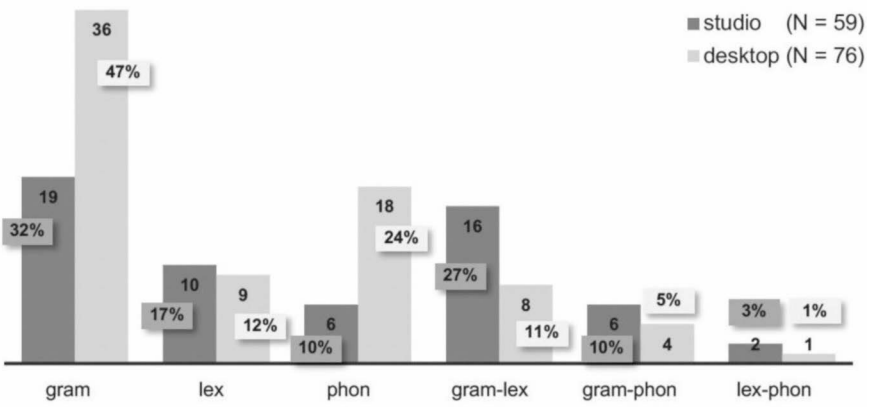
In both samples, single errors were the most frequent (49–59%), with uniform errors occurring less often (10–23%). The frequencies of multiple errors (errors from two different linguistic areas) were not consistent, with multiple errors being most prevalent in studio (41%), while in desktop they accounted for fewer than one in five errors (18%) (Table 8). In studio, almost every second error was a multiple error, which reduced the total number of error turns and resulted in a higher error density, with 1.93 errors per error turn. Conversely, in desktop, only 1.57 errors per error utterance were made by the L2 learners.

Table 8: Number and Percentage of Oral Errors (Style) per Error Utterance

oral error-style	**studio** (N = 59)	**desktop** (N = 76)
single errors	29 (= 49%)	45 (= 59%)
uniform errors	6 (= 10%)	17 (= 23%)
multiple errors	24 (= 41%)	14 (= 18%)

In the 6-tiered coding per error turn (Figure 5), the grammatical error was proportionally the most frequent (studio: 32% of 59 error turns, desktop: 47% of 76 error turns).[15] Amongst multiple errors, the error combination grammatical-lexical dominated in both samples (studio: 27%, desktop: 11%), while the other two multiple error categories (gram-phon, lex-phon) occurred only rarely in L2 utterances. Another consistent result across both samples was that lexical errors as single errors appeared at relatively low rates (studio: 17%, desktop: 12%).

Figure 5: Number and Percentage of Oral Errors-Types per L2 Error Utterance



15 In the individual count of all oral errors (studio: N=114, desktop: N=119), the grammatical error reached even higher frequencies in both samples, representing over half of all errors (studio: 57%, desktop: 60%), while lexical errors (studio: 30%, desktop: 17%) and phonetic errors (studio: 13%, desktop: 24%) were less present and were more inconsistent.

Uniform errors were almost exclusively grammatical (studio: 100%, desktop: 76%). They accounted for one third (32–36%) of all grammatical errors, which means that grammatical errors often happened together with other grammatical errors. This phenomenon was not observable for other error-types and therefore stood out as a notable result.

5.3. Feedback-Moves After Error Turns

Only 13–20% of the L2 error utterances were corrected with CF, with around 80% of interlocutor reactions after error turns being non-corrective. From 59 error turns NCF appeared 47 times (studio), and from 76 error turns NCF occurred 60 times (desktop). These NCF frequencies represented a very high proportion in both samples. In contrast, on average fewer than every fifth error utterance was corrected with CF. After almost all L2 error turns an interlocutor reaction (CF, NCF) took place, whereas non-reactions (totally ignored) ranged from 1–7% (Table 9).

Table 9: Number and Percentage of Interlocutor Reactions after L2 Error Utterances

interlocutor reactions	**studio** (N = 59)	**desktop** (N = 76)
CF	8 (= 13%)	15 (= 20%)
NCF	47 (= 80%)	60 (= 79%)
totally ignored	4 (= 7%)	1 (= 1%)

Overall, the correction rates of erroneous L2 utterances (13–20%) were strikingly low in both samples. Moreover, the correction rate was calculated per error utterance, and when several errors (uniform, multiple errors) occurred in an error utterance, they were coded together in one error category. So, if the correction rate referred to the total number of errors and not to the error utterances, the rate would have been even lower.

In terms of feedback-giving, almost all CF was carried out by the two prospective GFL-teachers from Austria (studio: N=5, desktop: N=14). Only occasionally was CF offered by the Japanese (N=1) or Brazilian students (N=1) to each other or by the supervisor in the interaction room in Tokyo (N=2).

Table 10: Number and Percentage of Feedback Actions Provided Per Teacher

CF (interlocutors)	**studio** (N = 5)	**desktop** (N = 14)
GFL-teacher 1	2 (= 40%)	12 (= 86%)
GFL-teacher 2	3 (= 60%)	2 (= 14%)
NCF (interlocutors)	**studio** (N = 47)	**desktop** (N = 60)
GFL-teacher 1	15 (= 32%)	44 (= 73%)
GFL-teacher 2	32 (= 68%)	16 (= 27%)

Both samples (Table 10) clearly showed that, of the two prospective GFL-teachers in Vienna, there was always one dominant and one reserved interlocutor. It is interesting to note that the feedback dominance was valid for providing CF *and* NCF and was not limited to one feedback domain (CF *or* NCF). In studio it is teacher 2 who provided 60% of the CF and 68% of the NCF, whereas in desktop teacher 1 was the more dominant providing 86% of CF and 73% of NCF.

The data analysis of the studio sample showed an unexpected feedback phenomenon when there were two potential interlocutors in one interaction room. Over half of the sampled CF (75%) and NCF (51%) was performed with the participation of *both* interlocutors, either sequentially or partially overlapping. That is, in most cases *both* GFL-teachers in the Viennese studio responded correctively or non-correctively after error turns from their videoconference partners in Japan, not just one.

5.4. Distribution of Corrective Feedback

The CF-distribution (Table 11) showed nearly identical results in studio and desktop, with reformulations (recasts, explicit corrections) accounting for 87.5–90% of the interlocutors' error corrections. Prompts were used rarely (7–12.5%) and only in the form of clarification requests (studio: N=1, desktop: N=1). The remaining CF-types (repetition, metalinguistic feedback, elicitation) did not appear at all in either sample. This means that the interlocutors, when they corrected an error, predominantly provided the target language form and only in exceptional cases demanded, by way of clarification requests, the target language form from the L2 videoconferencing partners.

Table 11: Number and Percentage of CF-Types

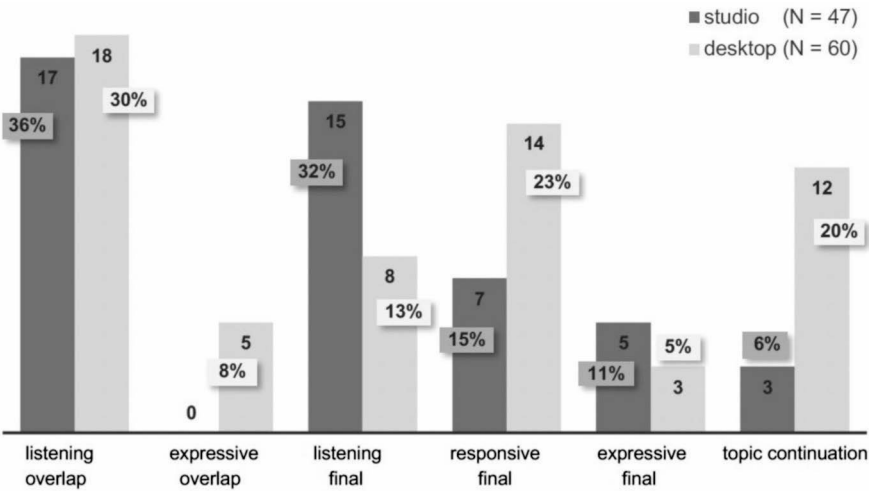
CF-types	**studio** (N = 8)	**desktop** (N = 15)
reformulations	7 (= 87.5%)	14 (= 93%)
prompts	1 (= 12.5%)	1 (= 7%)
recast	6 (= 75%)	12 (= 80%)
explicit correction	1 (= 12.5%)	2 (= 13%)
clarification request	1 (= 12.5%)	1 (= 7%)
metalinguistic feedback	—	—
elicitation	—	—
repetition	—	—

Recasts were by far the most frequently used CF-type (75–80%). The prospective GFL-teachers exclusively employed implicit, conversational recasts. There were no explicit, didactic ones in either sample. Due to the low total number of CF collected (studio: N=8, desktop: N=15) and the apparent *reformulations-only policy*, no noteworthy correction routines were identified among the Viennese interlocutors, apart from a consistent preference for the recast.

5.5. Distribution and Realization of Non-Corrective Feedback

The GFL-teachers in Vienna provided NCF after error utterances of the Japanese and Brazilian GFL-learners with the following frequencies (Figure 6):

Figure 6: Number and Percentage of NCF-Types



Compared to CF, the NCF-distribution was more diffuse (Figure 6). Nevertheless, some consistent results emerged from both samples. A total of 47 incidences of NCF in studio and 60 NCF in desktop were collected on the part of the interlocutors after L2 error utterances. Listener-sided conversational particles (receptive particles) with a listening function (listening overlap, listening final) dominated as non-corrective responses and accounted for 68% of all NCF in studio and 43% in desktop. Overall, listening overlaps were the most frequent non-corrective reaction in both samples (studio: 36%, desktop: 30%) after OEs and overlapped as a support signal to the actual L2 error utterance which was not yet finished.

About every third case of NCF was a listening overlap. In contrast, expressive responses to error turns (expressive overlaps, expressive final) were rare (5–11%). The frequency of topic continuation was inconsistent across the two groups (studio: 6%, desktop: 20%), just as in studio rather listening signals (32%) and in desktop rather responsive signals (23%) were used after L2 utterances by the interlocutors and constituted the second most frequent non-corrective reaction after OEs.

Looking at the morphemic realization of the applied NCF (Table 12) independent of the assignment in the 6-fold coding (and not considering prosodic, temporal, or illocutionary aspects), the data showed noteworthy results concerning the use of pure word forms. The receptive particle 'mhm' or 'hm' was the most employed conversational particle on the listeners' side in both samples (studio: N=18, desktop: N=14). The frequencies of the responsive particle 'okay' were also high in both samples (studio: N=7; desktop: N=13), while in studio the responsive particle 'ja' (N=9) occurred second most.

Table 12: Distribution of NCF (Word Form)

NCF-realization	**studio** (N = 47)	**desktop** (N = 60)	
/mhm/ /hm/	18	/mhm/	14
/ja/	9	/okay/	13
/okay/	7	/mhm okay/	3
/okay mhm/	1	(laughing)	3
/okay aha verstehe/	1	/ja/	2
/aha/	1	/genau ja/	2
/ah/	1	/okay mhm okay/	2
/ah aha/	1	/ah okay/	1
/ah okay okay/	1	/ja mhm okay/	1
/ah okay mhm cool/	1	/okay okay/	1
/wow okay/	1	/okay wirklich/	1
/ja ja/	1	/okay also/	1
/verstehe/	1	/okay aber/	1
/achso/	1	/ja aber/	1
/gesundheit/	1	/super naja/	1
/und/	1	/super okay/	1
topic continuation	3	/perfekt/	1
		/ah/	1
		/aha/	1
		/aha genau genau/	1
		/genau/	1
		/genau genau ja/	1
		/mhm genau mhm/	1
		/absolut ja/	1
		/achso/	1
		/versteh okay alles klar okay okay versteh/	1
		topic continuation	12

If the frequencies of the particles 'mhm'/'hm' and 'okay' are grouped together (Table 13), we obtain noteworthy values. These two particles together accounted for 46% of all feedback actions (CF/NCF) in studio and for 36% in desktop after or during L2 error utterances. This means that in studio almost every second reaction of the Viennese interlocutors after an L2 error turn was either 'mhm'/'hm' or 'okay', while in desktop it was more than every third. These high values clearly show what a negligible role CF plays in the examined SLA context.

Table 13: Number and Percentage of Particles 'mhm'/'hm' and 'okay' of All Feedback Actions

FB-moves (total)	**studio** (N = 55)	**desktop** (N = 75)
mhm/hm	18 (= 33%)	14 (= 19%)
okay	7 (= 13%)	13 (= 17%)
	25 (= 46%)	27 (= 36%)

An interesting result of the study is that NCF delivery was characterized by a variety of particle combinations (doubling, interchanging, different order, etc.), with the data showing a certain linguistic systematics in the variation of particle use (Table 14) by the interlocutors.

Table 14: Prototypical Examples of Particle Combinations

mhm	okay	mhm okay	okay mhm	okay mhm okay	mhm okay okay
genau	genau ja	ja genau	genau genau	aha genau genau	mhm genau mhm
ah	aha	ah aha	ah okay	ah okay okay	okay aha verstehe

Among these particle combinations, the frequency of the responsive particle 'okay' stood out particularly (Table 15). Of all NCF collected in both samples (N=107), variations that included 'okay' occurred in 38 cases and accounted for 36%.

Table 15: Distribution of Listener Signals with the Particle 'okay'

/okay/- variations	**NCF total* (N = 107)**
/okay/	20
/mhm okay/	3
/okay mhm okay/	2
/okay mhm/	1
/ja mhm okay/	1
/okay okay/	1
/okay aha verstehe/	1
/ah okay/	1
/ah okay okay/	1
/ah okay mhm cool/	1
/wow okay/	1
/super okay/	1
/okay wirklich/	1
/okay also/	1
/okay aber/	1
/versteh alles klar okay okay versteh/	1
	38/107 = 35.5% (of all NCF)

*total = studio und desktop (NCF from both samples)

In CF distribution, no obvious correction routines were found, except for the preference for recasts, but the data provided unexpectedly strong evidence that individual NCF routines were present amongst the prospective GFL-teachers (Table 16).

Table 16: Number and Percentage of NCF-Types (word form) Used Most per Interlocutor

NCF	**studio** (N = 47)	Ratio value to the total number of occurrences of the respective word form
teacher 1	n = 15	
mhm/hm	6 (= 40%)	
ah/aha	3 (= 20%)	**3/3 = 100%**
/okay/-variations	3 (= 20%)	3/12 = 25%
/verstehe/-variations	2 (= 14%)	**2/2 = 100%**
…		
teacher 2	n = 32	
mhm/hm	11 (= 34%)	11/18 = 61%
ja	9 (= 28%)	**9/9 = 100%**
/okay/-variations	8 (= 25%)	8/12 = 67%
…		
NCF	**desktop** (N = 60)	
teacher 1	n = 44	
okay	12 (= 27%)	**12/13 = 92%**
/okay/-variations	12 (= 27%)	12/12 = 100%
/genau/-variations	6 (= 14%)	**6/6 = 100%**
…		
teacher 2	n = 16	
mhm/hm	8 (= 50%)	8/14 = 57%
(laughing)	3 (= 19%)	**3/3 = 100%**

It appears that certain particles were used exclusively by one interlocutor, and not at all by the others. In studio teacher 1 used three from three of the occurring 'ah'/'aha' (100%) or two from two 'verstehe'-variations (100%), while teacher 2 delivered nine out of nine 'okay'-variations (100%) after L2 error utterances. In desktop, a similar picture emerged with teacher 1 being responsible for 12 from 13 occurring 'okay' (92%) and six from six 'genau'-variations (100%). Laughter as a non-corrective response after errors occurred three times in desktop and was performed all three times (100%) by teacher 2.

5.6. Correlations between Errors and Feedback

The data showed that CF was used most (67–75%) in both samples after single errors and less often (13–27%) after L2 utterances with more than one error (uniform/multiple errors).

If we look closely at which errors, according to their linguistic category (Table 17), were corrected most and least with CF, we see consistent results across both samples. Lexical errors (30–33%) and grammatical-phonetic errors (16–50%) were corrected relatively often, while lexical-phonetic errors were consistently left uncorrected. For all other error categories, the correction rates were too varied and inconsistent to be of research value.

Table 17: Corrected Oral Errors by Linguistic Category

Corrected errors in %	studio		desktop	
1.	lex	(30%)	1. gram-phon	(50%)
2.	phon	(17%)	2. lex	(33%)
	gram-phon	(17%)	3. gram-lex	(25%)
3.	gram	(11%)	4. phon	(17%)
4.	gram-lex	(6%)	5. gram	(14%)
5.	lex-phon	(0%)	6. lex-phon	(0%)

If the correction percentages of the individual error-types are compared with the actual error frequencies, the following points can be made:

a) Lexical errors, which are the third most frequent of all OEs (12–17%), are corrected relatively often (30–33%).
b) The most frequently occurring grammatical errors (32–47%) are corrected relatively infrequently (11–14%).

Consequently, there is a discrepancy between how often errors occur and how often they are corrected. In other words, the data shows a tendency to correct the least occurring errors the most and most occurring errors the least.

In the OE-CF correlation it is further striking that, within all reformulations (recasts, explicit corrections) of grammatical-lexical errors, 100% of the lexical errors were addressed while 100% of grammatical errors were left unaddressed. In contrast, recasts used after grammatical-phonetical errors always covered both error-types and grammatical-phonetical errors correlated with 'double-recasts', so to speak. This result was remarkable in that both phenomena were consistent in both samples and grammatical-lexical and grammatical-phonetical error-types were to 100% corrected only in this way.

Due to the small total number of CF provided in both samples, it is unclear how meaningful the correlations between CF and error-type are. Moreover, given the low number of CF and the basic recast dominance in the data, the present study cannot confirm the findings of other studies (chapter 3.1) that phonetic errors are preferentially answered with recasts and lexical errors are more likely to be answered with prompts.

One third of all listening overlaps (33%) occurred during L2 utterances with phonetic errors, while 25–66% occurred together with grammatical-phonetic error turns. From this, one can infer a correlation between overlapping listener signals and phonetic errors. A more definite result was that expressive NCF (expressive overlap, expressive final) was used by the interlocutors exclusively after single errors (100%), with expressive listening signals after uniform or multiple errors being absent. The NCF-types listening final and responsive final tended to be used after L2 utterances with grammatical and lexical errors, respectively. Over half of all topic continuations (58–67%) occurred after grammatical errors.

Similar to the CF domain, and due in part to the recast dominance, statements on correlations for the NCF domain were also complicated by the dominance of the NCF-type listening-overlap after all error-types.

6. Discussion

6.1. Responses to Research Questions

The purpose of the study was to provide a detailed overview of the distribution of OEs and CF/NCF in NS-NNS-interactions within oral SCMC and to advance research into *non-corrective* feedback. The data analysis provided answers to the following research questions:

(1) How does the videoconferencing format influence turn-taking structures after L2 error utterances?

The different technical conditions between videoconference formats produced different *right-to-speak* conditions (studio: equal, parallel right-to-speak of both interlocutors in one interaction room; desktop: the microphone-loud-quiet function created an individual right-to-speak for a single interlocutor). While in desktop usually only one interlocutor in Vienna reacted to an L2 error utterance on the Brazilian learners' side (static turn-taking), the data from a studio setting showed more interactive turn-taking, with 55% sequential feedback after error turns in which both interlocutors in Vienna reacted simultaneously or successively to erroneous speech utterances of the Japanese learners (dynamic turn-taking).

(2) What is the distribution of oral errors in L2 utterances?

Single errors were most frequent in both samples (49–59%). Multiple errors occurred more frequently in studio (51%) than in desktop (41%). This caused a comparatively higher error density per error turn in studio, which was also due to a lower language level of the Japanese L2 learners. The grammatical error was the most frequent error-type (32–47%), while lexical errors (12–17%) and phonetic errors (10–24%) appeared less often. Among multiple errors, the error combination grammatical-lexical was the most common (11–27%), while grammatical-phonetical and lexical-phonetical errors were less evident. In respect of uniform errors, grammatical errors (77–100%) stood out, with one third of all grammatical errors being uniform errors. This was an unexpected secondary finding of this study. The data provided strong evidence that grammatical errors often occur together with one or more errors of the same linguistic categories in L2 utterances. This phenomenon was not observable for other error categories.

Other F2F studies have concluded, like this one, that grammatical errors are the most frequent error-type (Lyster, 1998; Mori, 2002; Morris, 2002), while an oral SCMC study by Saito and Akiyama (2017) and a F2F study by Milla and García Mayo (2021) cited phonetic errors as the most frequent. Due to the lack of studies on error frequencies in SLA contexts, it remains unclear whether grammatical errors are always the most frequently occurring error-type. Nevertheless, error distribution analyses point to this being the case. It seems that contextual factors, such as the learning environment (F2F, SCMC),

the interaction context (NS-NNS, NNS-NNS), the specific target language (L2) or the L1 of the L2 learners, do not affect error distribution. Further research is needed to establish if there is a correlation between learner-external or learner-internal factors and OE-frequencies.

(3) Which reactions of interlocutors appear after L2 error utterances? What is the distribution of corrective feedback and non-corrective feedback?

Interlocutors provided either a corrective or non-corrective response after nearly all error utterances (93–99%). Most feedback after errors were non-corrective listener-side responses (80–85%). Only up to one-fifth of all error turns (13–20%) were corrected by interlocutors with CF. Videoconferencing, as a low-correction environment, appears typical of language learning via CMC (Zourou, 2009, pp. 13–14).

Despite a lack of CF frequency studies, the few existing distribution studies in oral SCMC observed similar low correction rates (13–23%) in NS-NNS-peer-dyads (Saito & Akiyama, 2017, pp. 59–60) or found only 22 instances of CF in 7.5h group-to-group videoconference recordings (Hoshii & Schumacher, 2012, pp. 64–65).

In F2F, significantly more CF occurs, and an average correction rate of 55% for OEs was identified in prior research.[16] The data provided clear evidence that a low use of CF is common in distance language learning via videoconferencing, while in classroom-based SLA there is a significantly higher rate of CF.

This study cannot categorically assert an interrelation between the specific technical videoconferencing setting (studio, desktop) and how often errors are corrected, because in both samples the correction rates were similarly low.

In both videoconferencing settings, the interlocutors almost exclusively applied reformulations (86–93%) as CF. 7 out of 8 instances in studio and 14 out of 15 CF in desktop were reformulations. The recast was the most used CF-type (75–80%), with explicit corrections accounting for about 13% of all CF. Prompting was utilized only once in each videoconference and only as a clarification request (7–13%). The CF-types metalinguistic feedback, elicitation and repetition did not appear in the data material. It is noteworthy that the results for CF distributions from the few existing oral SCMC studies (e.g., Akiyama, 2017, p. 67; Debras et al., 2015, p. 18; Hoshii & Schumacher, 2012, pp. 65–66) correspond exactly to the results of this study. They observed the same ranking in CF frequencies and confirm the limited use of the three CF-types. As in this study, only recasts, explicit corrections and clarification requests were used in videoconference-based SLA peer-settings, making the identified CF distribution of this study representative of such interaction contexts.

In studies examining similar interaction settings, reformulation and recast preferences have previously been interpreted to mean that interactants value these CF-types as appropriate and time-efficient feedback in videoconferencing, that participants have little experience using CF and consequently focus on the flow of communication, or that there is uncertainty about their appropriate role (tutor-peer) or fear of appearing too dominant through prompting (Akiyama, 2017; Cavalari et al., 2022; Debras et al., 2015,

16 To generate this value, a meta-analysis was carried out based on 13 selected F2F-studies in various language learning contexts (Lankl, 2023, pp. 151–152).

Freschi & Cavalari, 2020; Hoshii & Schumacher, 2012; Zourou, 2009). Applied to this study, the lack of teaching experience of the prospective GFL-teachers appeared to have a limiting effect on the range of CF-types being used, with recasts being favored over a fuller range of correction strategies. Furthermore, contextual factors, such as a lack of clarity about the correct interaction level of the videoconferencing participants (tutor-learner or peer-peer), the technical conditions of the computer-mediated language learning environment, and the limited experience of the interlocutors with CF, jointly produced a lack of variation in CF behavior.

It remains unclear whether the CF-distribution observed here or in other studies is specific to distance language learning via videoconferencing and the influence of external factors such as the learning environment, or whether intrapersonal factors related to the interaction partners are determinative of CF distribution. However, the connection between a low overall correction rate of oral errors (compared to F2F) and the videoconferencing environment was evident from an empirical standpoint. The NCF-distribution after error utterances was more complex than in CF. Listening overlap was the most frequent NCF-type (30–37%) utilized by prospective GFL-teachers after or during error turns in both samples. Thus, particles were most frequent in receptive function and overlapping with L2 utterances. NCF delivered after the completion of the L2 utterance and expressing listening or responding (listening final, responsive final) ranked second quantitatively (13–32%), whereas expressive listening signals (expressive overlap, expressive final) were used less often (5–11%). The different frequencies in the NCF-type topic continuation (studio: 6%, desktop: 20%) indicate a different moderation style of the NS-interlocutors. It is outside the scope of this study to draw conclusions about the distribution results in the NCF area, since the participants were not questioned about this with retrospective interviews or stimulated recalls in the context of a mixed-methods design.

(4) How are non-corrective feedback-types realized?

Regardless of the temporal dimension, 43–68% of NCF performed a listening function and 15–23% a responsive function. This fact was also reflected in the frequencies of the listener-side conversational particles used, as in sampled NCF (studio: N=47, desktop: N=60) the receptive particle 'mhm'/'hm' was used most by the NS interlocutors after L2 error utterances (studio: N=18, desktop: N=14). The responsive particles 'okay' (studio: N=7, desktop: N=13) and 'ja' (studio: N=9) also appeared frequently as non-corrective responses after OEs. High frequencies of the reception particle 'mhm'/'hm' and response particle 'ja' are confirmed by previous research (chapter 3.1).

In total, 39–46% of all NCF were executed with the use of the particles 'mhm'/'hm' or 'okay', which is a noteworthy percentage. The repeated use of the same particle illustrated a one-sided, monotonous, non-corrective reaction pattern by the interlocutors after errors and highlighted a clear reluctance to correct errors.

The present study was able to observe for the NCF-domain numerous systematic forms of combination (doublings, sequence permutations, etc.), which are typical of particles. The range of variation of particles was especially evident around the responsive particle 'okay'. 36% of all NCF from both samples were particle combinations in which 'okay' was included (e.g., 'mhm okay', 'aha okay', 'okay mhm okay', 'okay okay', 'ja mhm

okay', etc.). The data indicated further that the particles 'mhm'/'hm' or 'okay' could be phonetically performed in different ways and fulfil different conversational functions (e.g., listening, responsive or expressive character), depending on prosodic variation. For the particle 'hm', Ehlich (1979) pointed out this aspect several decades ago. For a more extensive contextualization of this phenomenon, sociolinguistic studies working with interview data of speakers may offer a possibility to investigate the functional-pragmatic use of particles in more depth.

(5) What correlations exist between oral errors and (non-)corrective feedback?

More CF (67–75%) was delivered after single errors than after L2 utterances that contained more than one error (uniform errors, multiple errors). Debras et al. (2015, p. 18) found similar results and observed an increased use of CF after single errors and less after multiple errors in oral SCMC. In the NCF domain, the interlocutors delivered relatively balanced auditory signals, such that no obvious correlation between NCF and error-type was apparent. Whether the single errors-CF correlation was due to the working memory of interlocutors being overloaded during responses after multiple errors remains a subject of conjecture.

Probably one of the most interesting questions of this study is which linguistic error-types the interlocutors tended to correct. Here the data showed consistent and revealing results regarding the correlation between error-types and CF. The more low-occurring lexical errors were corrected relatively often with CF (30–33%), and one in three lexical errors was followed by CF. Conversely, the most frequently occurring grammatical errors were rarely corrected by the interlocutors (11–14%). These findings are consistent with observations from F2F studies (e.g., Lyster, 1998; Morris, 2002; Saito & Akiyama, 2017) and confirm Chaudron's (1988, pp. 140–141) claim from the 1980s that the most frequently occurring errors are corrected the least and the least frequently occurring errors are corrected the most.[17]

That CF after grammatical-lexical errors in both samples addressed only the lexical error and left the grammatical error uncorrected, while recasts after grammatical-phonetic errors always addressed both error categories, was a noteworthy finding of this study. However, due to the low incidence of CF after multiple errors, the significance of these results is limited.

The correlations between OE-types and NCF were less clear than in the CF domain. The data only indicated correlation tendencies, e.g., that listening overlaps correlated with phonetic errors and topic continuation correlated with grammatical errors. However, one aspect that clearly emerged from the data in both samples was that expressive

17 While numerous CF distributional studies have found CF to occur mostly after grammatical errors (e.g., Blex, 2001; Brown, 2016; Ellis et al., 2001, Havranek, 2002; Kleppin & Königs, 1991; Lochtman, 2002; Mackey et al., 2000; Nabei & Swain, 2002) or lexical errors (e.g., Debras et al., 2015; Ziegler & Mackey, 2017), they have not investigated error frequencies or correction proportions. Therefore, they cannot provide information about how frequently a particular error-type is proportionately corrected, which must be considered critically in terms of their explanatory power.

listening signals (expressive overlap, expressive final) occurred exclusively after single errors and not after multiple errors, which implies that the correlation between expressive listening signals and single errors is relatively stable.

(6) What feedback routines do the interlocutors employ?

The distribution analysis of feedback also made the feedback activity of the interlocutors visible and showed that one interlocutor of the two prospective GFL-teachers in Vienna always acted as the dominant feedback provider. This finding was consistent across both samples and applied to the provision of CF and NCF. In studio, this interlocutor provided 60% of CF and 68% of NCF, while in desktop they provided 86% of CF and 73% NCF. The second interlocutor in studio and desktop was significantly more reluctant to respond to erroneous learner utterances.

The data showed no apparent correction routines apart from a general recast preference among the interlocutors. In contrast, the NCF domain revealed very strong routines in particle application. The data analysis demonstrated that some interlocutors exclusively used very specific particles (e.g. 'aha', 'ja', 'genau', 'okay') while others did not use them at all. Such results were unexpected and can be considered as an additional achievement of this study.

6.2. Pedagogical Implications

When it comes to the transferability of the results to video-based SLA contexts and the handling of oral errors as well as the application of feedback, the main findings of this study can be described with the keywords *reflection*, *awareness*, and *variation*. For (future) language teachers, the results of this study provide:

a) an insight into the structure of speaker changes,
b) an insight into the type, nature and possible combinations of oral errors and feedback,
c) an insight into the average frequency of occurrences of oral error-types and feedback-types and their correlative relationships.

The following pedagogical recommendations for (prospective) language teachers interacting with L2 learners in videoconferencing can be made:

- 'Courage to correct' even in SCMC; open discourse with L2 learners about dealing with errors and focus on form;
- Checking error foci (feedback on different error-types, not neglecting one error level: eyes on grammatical errors);
- Awareness of corrective behavior in the case of multiple errors in learner utterances;
- Reflecting on correction routines, applying different CF-types, using the whole CF-spectrum, e.g., alternating CF-types, using not only reformulating but also eliciting CF-strategies;

- Checking one's own signalling routines as listener: use of different particles/interjections; avoidance of monotonous non-corrective response patterns in communicative interactions with L2 learners;
- Understanding the different functions of listener signals in conversational situations (focused, purposeful use of certain listener signals adapted to the target group: e.g., expressive listener signals promote learners' motivation to speak; language learners at a beginner level or younger learners);
- Awareness of timing of own feedback (overlapping, interrupting, after L2 error utterances), critical questioning of frequent use of overlapping listener signals as it can disturb the interaction flow of L2 learners or cause acoustic problems in videoconferencing;
- Perceiving each other's feedback (in the case of a second interlocutor);
- Awareness of any dominant interlocutor role (in the case of two interlocutors): Self-perception and perception of others.

6.3. Limitations of the Study

Firstly, it is important to acknowledge that the cognitivist approach utilized in this research project, which was based on a 1:1 understanding of communicative interaction in terms of action (error) and reaction (feedback), has distinct limitations. In particular, the coding process is problematic, as it produces many borderline cases and definitional fuzziness that could only be resolved via the use of highly interpretive coding decisions. Necessarily, it can be unhelpful to represent linguistic interaction as a 1:1 action-response pattern when communication around erroneous L2 utterances is often dynamic, complex, unpredictable, and manifold. The data showed that error and feedback was rarely in a 1:1 relation to each other and that multiple errors in L2 utterances or multiple incidences of feedback from several interlocutors seemed to be more the rule rather than the exception. This reality could only be accommodated in the coding by grouping errors (uniform errors, multiple errors) or sampling the first occurring feedback only, which distorted the actual error and feedback frequencies.

Furthermore, the causal relationship between particles, such as 'mhm' or 'hm' or 'okay', and oral errors and whether they should rightly be classified as *non-corrective feedback* is still an unsettled question. After all, particles are basically omnipresent in any communication regardless of errors. Thus, it is legitimate to question the extent to which conversational particles should be defined as NCF and considered as a specific reaction to OEs.

Further, the application of a transcription system originating from the social sciences for a video interaction analysis with linguistic or conversation-analytic interest was not unproblematic. Time-intensive transcription processes turned out to be disadvantageous, with autonomous transcription decisions producing measurement errors and reducing the comparability of results. Use of a computer-assisted transcription method would likely have yielded more accuracy and greater standardization in data preparation and analysis, which would have increased the validity and reliability of the results.

Regarding the selected sample, it is critical to consider that on the one hand, the L2 learners in Tokyo and São Paulo had different L1s (Japanese, Brazilian). In addition, the German language level of the L2 learners varied, which limited the validity and comparability of the error frequencies. The study reached its limits here and the question remains to what extent contrastive linguistics should have been included.

Even though the study expanded the focus from CF to NCF, included prosodic criteria in the data analysis, and ventured an inductive approach in the NCF domain, multimodal feedback or self-regulatory learner corrections were excluded from consideration. Nevertheless, the data showed some places where negotiation of meaning was dynamic and interactive across repeated turn-taking. A holistic, interpretive approach may have been more appropriate here than a largely deductive-quantifying sampling that captured only the interlocutors' initial reaction after an erroneous L2 utterance.

The study further reached its limits when it comes to explanations of the observed error and the feedback frequencies. To address this shortcoming, it might have been helpful to use a mixed-methods design, one that included retrospective interviews or stimulated recalls with the videoconference participants. Consequently, the study presents scores for error and feedback distributions but cannot provide a contextualization of the phenomena on the part of the participants. Also, the fact that there were no meaningful differences in error and feedback distribution in the two videoconferencing formats calls into question the selection of the data corpus and the importance placed on the technical differences between the two computer-mediated settings within the study.

7. Conclusion

The purpose of the study was to provide micro-level insights into error and feedback occurrences for the specific language learning context of group-to-group videoconferencing (NS-NNS). The results from both studio-based and desktop videoconferencing were consistent, resulting in no noticeable correlations of error or feedback frequencies that can be attributed to one videoconferencing format.

In terms of the future applications of this study, attention can be drawn to the fact that videoconference-based SLA contexts should be given a prime place in future CF-research, and that a shift in focus from CF to the NCF domain may provide deeper insights in L2 interaction research.

For future CF-research, approaches that fully consider findings from distribution and correlation studies should be conducted, e.g., those that ask, 'which errors and feedback occur, how often, and what is the relationship between the two?'. In addition, more efficacy studies which focus on the question 'what works best for which error?' are needed. The results of both are likely to be relevant and necessary for language teachers and transferable to their everyday work.

If one wants to derive pedagogical recommendations from the study, it appears important to promote reflection, awareness, and variation of the use (non-)corrective feedback among language teachers in dealing with the oral errors of L2 learners. Teachers can review their handling of errors in videoconferencing, compare it to F2F and become aware of their routines or certain error foci. For L2 learners, in turn, awareness of the

nature and frequency of their own errors in the target language can support their metalinguistic awareness.

The results of this paper highlight the need for qualitative interview research and for teachers themselves to have an open discourse with L2 learners regarding attitudes, wishes or fears that exist on both sides (teacher and learner) about oral error correction, especially in the interactive context of videoconferencing. Moreover, it needs to be determined which (non-)corrective feedback strategies are preferred over others.

Finally, it remains to be seen what emphasis should be placed on the correctness of linguistic form and oral error correction in distance language learning between peers, given that incorrect form does not necessarily result in incomprehensibility. It could be argued that as long as meaning is understood intersubjectively between communication partners, corrective focus on form is of only secondary importance. Ultimately the question of conceptualizing and defining correctness arises, just as the question of weighting accuracy relative to complexity and fluency (Michel, 2017, pp. 52–56) in L2 speech remains a legitimate one.

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