

7 Interaction in Virtual Learning Environments

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7.1 Introduction and Key Concepts

Interaction plays a central role in educational settings since it acts as a regulator of the teaching–learning binomial. In the context of second or foreign languages, **interaction** can be defined as an activity made up of **tasks** and **participants** who share knowledge, while simultaneously negotiating different ways to view and interpret the world (Kato & Dalsky, 2019: 121). Traditionally, **three main types** of interaction have been identified: (1) learner ↔ teacher; (2) learner ↔ learner; and (3) learner → content or materials (Moore, 1989: 1). Knowledge building in language learning takes place through a process of social interaction (van Lier, 1996, 2004; Vygotsky, 1979) as a mutual understanding of the norms, expectations (Hampel & Stickler, 2015: 75) and roles of the participants as members of a specific group (Hall & Walsh, 2002: 187) is established.

Interaction can be affected by **external factors** that surround the teaching and learning processes:

- (1) the teaching **context** (elementary, secondary, university, non-formal education), the **level** (beginner vs. advanced) or the **resources** available within a given institution may promote interaction to a greater or lesser extent;
- (2) the **environment** or setting in which knowledge is transmitted and interaction takes place (face-to-face, hybrid or fully online) and the **modality** in which this interaction unfolds in the completion of learning tasks: **synchronous** or **asynchronous**;
- (3) the **subject** being taught, which may require more or less interaction, as well as the development of specific skills: traditional math learning vs. language learning. The Council of Europe (2020: 70–89) highlights the importance of developing, beyond linguistic competence, sociolinguistic, pragmatic and intercultural competences as well. Indeed, all of these require a high degree of interaction;
- (4) the **curriculum design**, its duration (month, trimester, academic year, etc.) and the specific learning objectives may require different degrees

- of interaction depending on the tasks to be completed and the skills to be developed: oral production, mediation and interaction vs. written production, mediation and interaction;
- (5) the **cultural component**, from a broad or **macro-cultural** perspective, also conditions interaction. Generally speaking, we can distinguish between **vertical cultures**, where the teacher is considered the central figure, and **horizontal cultures**, characterized by higher levels of participation and interaction in the classroom (Yada *et al.*, 2019: 15–16). In this context, the educational models that shape each system (Canale, 2019: 62, 120) can also be compared (for instance, public vs. private). At the **micro-cultural** level, it is useful to consider aspects such as the training received by the teacher, their professional experience and their teaching style in relation to the classroom space and teaching practices (Hampel & Stickler, 2005: 317).

To understand how interaction works in language learning, it is important to take into account all the social, physical and individual factors that constitute the ecology of the environment in which the learning process, the activities and the tasks take place (van Lier, 1998: 129).

All these external factors, which are summarized in Table 7.1, may have an impact on the development and management of interaction, which is further compounded by the participants' expectations.

Table 7.1 Main external factors that affect interaction

Context	• Elementary, secondary, university, non-formal education • Level: beginner, intermediate, advanced • Available resources
Environment	• Face-to-face, hybrid, online • Modality: synchronous vs. asynchronous
Subject	• Traditional maths teaching (– interaction) vs. language teaching (+ interaction)
Curriculum design	• Length: month, trimester, academic year • Objectives: oral production vs. written production
Cultural component	• Macro-cultural level: vertical culture (teacher as a central figure) vs. horizontal culture (learner participation); educational models (public vs. private) • Micro-cultural level: teacher training received, professional experience and teaching style

Of all the external factors, the **teaching modality** – whether synchronous or asynchronous – allows us to contrast how the negotiation and co-construction of knowledge take place, as well as the role played by interaction in this process.

Synchronous teaching and learning can take place through various means, such as video (screen), text (chat) or audio (phone). It can also occur both inside and outside the classroom or even at the extracurricular level (Sylvén & Sundqvist, 2017), such as through initiatives

like *eTandem* (see Strawbridge, 2021; Yang & Yi, 2017) or conversation exchanges among language learners. Due to its nature, this real-time modality has a series of advantages for learning (see Table 7.2).

Table 7.2 Advantages of synchronous learning for interaction

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- Immediate and just-in-time access to peers, instructors and knowledge experts.
 - The ability to interact and share ideas concurrently.
 - Hands-on tools through which learners can react to presented concepts or apply knowledge in real time.
 - Direct connections to real-world situations and primary resources.
 - The means to demonstrate and assess real-time skills, and to foster analytical thinking.
 - The ability to create more diverse learner groups in real time.
 - The capacity to integrate guest expertise into the learning environment.
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Source: Adapted from Finkelstein (2006: 6).

To lay the groundwork for interaction, it is a good idea to begin with an agreement, whether implicit or explicit, among the participants, in order to reduce potential distractions or interruptions during the activities as far as possible. Consequently, the aim is to make the most of the online experience in a meaningful way (Finkelstein, 2006: 5). In face-to-face teaching, technology tools are mainly used to *support* the presentation of information and concepts. In online environments, however, it is essential to approach their use differently, instead viewing them as *the setting* in which the teaching–learning process takes place. The significant increase in the use of these tools during the COVID-19 pandemic was a clear example of their redefinition and usability due to the importance and pedagogical value they acquired (see Fayed & Cummings, 2021).

In **asynchronous teaching and learning**, teachers and learners do not interact in real time: rather, the resources and activities (for instance, an online forum) are accessed individually within a specific timeframe (for example, the total duration of the course) and depending on each user’s availability. This modality also offers certain advantages for interaction (see Table 7.3).

Table 7.3 Advantages of asynchronous learning for interaction

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- The ability for learners to control how they present themselves to the rest of the learning community (biography, photo, etc.).
 - The opportunity to create an environment with greater equity in terms of turn-taking and communication among participants.
 - More opportunities for participants to express themselves, especially when it comes to written interaction (e.g. forums, blogs, etc.), no matter their level.
 - The chance to improve learners’ attitudes towards learning thanks to the relaxed atmosphere in asynchronous settings and the absence of group pressure inherent to synchronous education.
 - The reduction of social pressure by allowing for more time and planning ahead.
 - The opportunity to respond thoughtfully to ideas expressed by other participants.
 - The ability to interact with a higher degree of independence, agency and inclusion among participants.
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Source: Adapted from Arasaratnam-Smith and Northcote (2017: 193).

One of the main advantages of this modality is that there are fewer constraints when it comes to the time dedicated to learning, which provides the learner with a higher degree of flexibility. Some of the primary internal factors that appear in the three main learning environments – face-to-face, hybrid/blended and online – are listed in section 7.2.

7.2 Interaction and Dynamics in Language Learning

The environment in which the face-to-face, hybrid or online teaching–learning process takes place leads to the development of its own dynamics, which are influenced by **internal factors** (Gironzetti *et al.*, 2020: 509). Contrasting interaction in these environments helps us to understand the factors that impact its development, as well as to identify which aspects can be enhanced to foster this dynamic.

7.2.1 Face-to-face environments

Interaction in **face-to-face environments** can be predetermined and conditioned by specific factors that have to do both with the **physical space** (the classroom) and with the **participants** (roles) in the communication process. Some examples of these conditioning factors include: the design and configuration of the space and its usual function; physical elements in the classroom; the distribution of the participants during the class; the distance between the teacher and the learners; and the devices used or the level of access to technology (projector vs. interactive whiteboard) (see Chapter 1 of this book). All these components either restrict or give way to numerous possibilities for interaction, determining whether this dynamic is focused on the teacher or promoted among the learners during an activity.

In addition to these factors, in face-to-face interaction it is essential to keep in mind the **multimodal components** of the communication process that are related to social presence, which also play an important role in both perceptions and expectations derived from interaction. Specifically, these include facial expression, gaze direction, posture, clothing, paralinguistic features (tone of voice, volume and pronunciation, hesitation, silence) and other non-verbal elements of communication (Tu & McIsaac, 2002: 133), such as spatial management, which collectively influence the speakers' perceptions during the communicative act.

7.2.2 Hybrid or blended environments

This type of **hybrid or blended interaction** (Dziuban *et al.*, 2015; Garrison & Vaughan, 2008; Martín-García, 2020; Picciano *et al.*, 2014)

combines face-to-face teaching with teaching through online platforms or virtual learning environments (VLEs). Not only this, a flipped classroom dynamic may also come into play (Mehring & Leis, 2018) (see Chapter 9 of this book), in addition to resources that are used in both synchronous and asynchronous learning. One of the main advantages of hybrid environments is the fact that they promote **active learning** (Babb *et al.*, 2010: 735). Consequently, this leads to a higher degree of autonomy by requiring the learner to take a more structured approach to their learning process. In fact, the learner is also more likely to make the most of both the online resources as well as the face-to-face contact hours. As noted by Martín-García (2020: v) hybrid modalities involve adapting and allowing for greater flexibility in face-to-face and online environments, as well as during the learning time available. The aim of this is to promote group interaction, social collaboration and, consequently, efficient knowledge building. All this should be done keeping the learner in mind as the protagonist of the learning process, also considering a set of skills they should develop. Specifically, these include being active, autonomous, strategic, thoughtful, cooperative and responsible (Martín-García, 2020: v).

In terms of interaction, it is important to take into account that, despite it being a blended method (to a greater or lesser extent, depending on the course objectives), this dynamic should be managed as per the medium used, with both spaces (face-to-face and online) being independent of each other. This is because they involve different types of social presence and are also influenced by factors including the learner's personality, motivations, interests and learning style. For example, Hun Lim *et al.* (2007) studied the level of satisfaction of participants in hybrid and online courses from a learner-focused perspective. They concluded that, while online teaching can isolate or make certain people feel disconnected, it can also have a liberating effect for those who are not as comfortable when it comes to socializing and interacting in face-to-face learning environments (Arasaratnam-Smith & Northcote, 2017: 192). Hence, aspects such as the course's quality, its effectiveness and the participants' level of satisfaction (Jackson & Helms, 2008: 7) are just as important for assessing the success of this modality. In this type of course, of the three kinds of interaction during the learning process (Moore, 1989: 1) – (1) learner ↔ teacher; (2) learner ↔ learner; and (3) learner ↔ content or materials – the third is particularly relevant in this context, since it can directly impact the autonomous development of learning and, therefore, its degree of success (Murray *et al.*, 2013).

7.2.3 Online environments

As in the case of face-to-face and hybrid teaching, in **online environments** both meaning and linguistic form are also negotiated.

When it comes to language learning, interaction involves the practical application of communication strategies to make up for the lack of linguistic knowledge. Learners negotiate meaning and structure using resources such as circumlocation, approximation, repetition, made-up words, requests, self-correction or translation between the L1 and the L2 (Lee, 2001: 234). **Interaction in online environments** is characterized by: (1) more **equal participation** than face-to-face interaction; (2) the **option to adjust the learning pace** to individual needs and expectations; and (3) more opportunities for **more complex and greater volumes of linguistic production** compared to face-to-face interactions (Cerezo, 2021; Lee, 2001: 234–235).

However, personal commitment to the course's workload and cognitive efforts to process learning materials are two essential elements when it comes to promoting autonomous learning (Lee, 2016). This is especially true in the case of LMOOCs (Language Massive Open Online Courses), which are not without limitations, since language acquisition is greatly dependent on opportunities for practice and interaction (Martín-Monje & Borthwick, 2021: 108). Even so, Comas-Quinn *et al.* (2012: 142) point out that online settings can promote the protagonism of learners, thanks to being a more relaxed environment compared with face-to-face contexts. Online, learners feel more empowered to play a more active role in managing interaction, which ultimately has a positive impact on learning. Even though this type of environment has numerous advantages, interaction is still a complex process subject to several external and internal variables. In this regard, it is useful to ask the question: Which components are essential to analyze this dynamic in a technology-mediated environment?

García Cabrero *et al.* (2008: 6–9), based on the work of Benbunan-Fich *et al.* (2005), propose a model for analyzing interaction in **computer-mediated communication** (CMC) in learning environments. This model considers the following factors: (1) **contextual factors** that can promote or limit interaction and learning outcomes, including the participants (roles and characteristics), instructional design (course content, activities and assessments) and access to technology (platforms and resources); (2) **interaction processes** or how technology resources are used, for instance, how effectively resources are managed, how much time is invested or how interaction takes place between the teacher and the learners; and (3) **learning outcomes** or how knowledge is built, for example, how information is shared, how discrepancies between ideas are explored, how meanings are negotiated, how knowledge is assessed and modified (co-construction) and how these new meanings are applied (García Cabrero *et al.*, 2008: 6–9) (see Figure 7.1).

During the interaction process, it is important to pay special attention to the content of the different exchanges to ensure that they cater to three aspects in particular: **teaching presence**, that is, how the

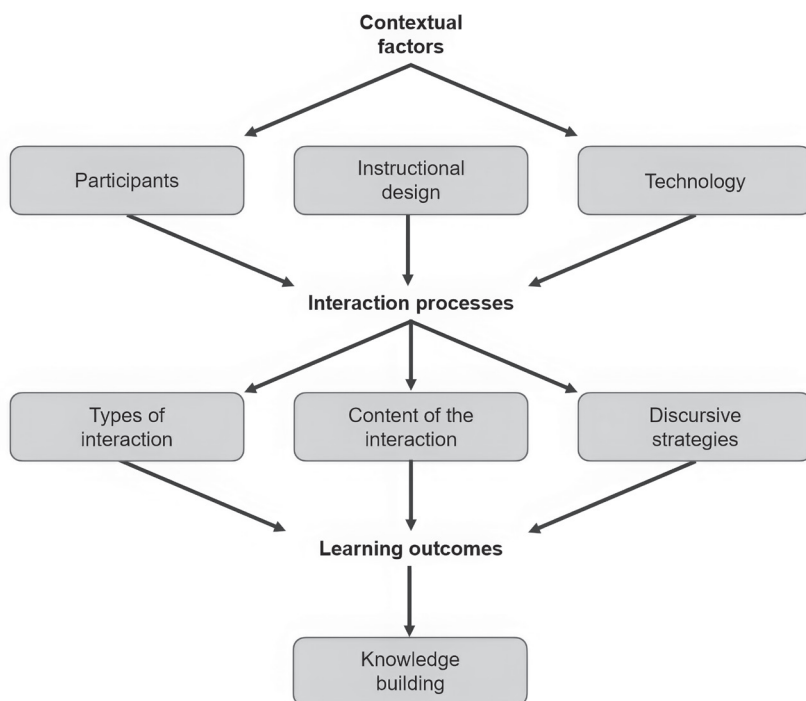


Figure 7.1 Model for the analysis of technology-mediated interaction

Source: García Cabrero *et al.* (2008: 6).

content is presented; **cognitive presence**, or the degree of reflection with which meaning is constructed and shaped; and **social presence**, in other words, the participants' ability to project personal characteristics and contribute to fostering motivation and creating a relaxed, cooperative atmosphere which includes aspects such as affection, empathy and cohesion within the group (García Cabrero *et al.*, 2008: 8–9). Similarly, in terms of teaching presence, it is essential to consider **discursive strategies** that look at how teachers and learners use language to build a network of semantic relationships between the key concepts, with **teacher talk** being particularly relevant when it comes to managing interaction. As will become clear later, this refers to, for instance, how the teacher intervenes to check whether the learners have understood the instructions or the ways in which information and instructions are provided or explained.

Language learners tend to identify anxiety as one of the most common variables in such environments (see Chapter 6 of this book). Furthermore, dissatisfaction with respect to interaction, both within and beyond the classroom, represents another fundamental aspect in online teaching (Carbajal-Carrera, 2021: 2). Therefore, given its significance, in

section 7.3 of this chapter a case study is presented. The aim of this is to illustrate how interaction works in online environments by observing real recordings of interaction dynamics in Spanish language classes. Analyzing interaction in this way allows us to understand how the tasks are implemented and how the participants engage during this process, both in terms of managing interaction and in terms of discourse and, therefore, through the inclusion of language samples. In section 7.4, considering the data obtained from the observation and contrasting this information with specialized literature on the subject, a series of recommendations is proposed for fostering and managing interaction in online language teaching.

7.3 Research on Interaction in Online Environments

7.3.1 Contextualization of the study

Presented below are the results of a pilot study analyzing the communicative strategies used by participants in an online Spanish learning environment. Specifically, six tutorials from the Spanish courses offered by the Open University were observed. The Open University is a British higher education institution specializing in distance learning for more than 50 years. As a pioneer in technology-mediated education, in 2002 it began offering synchronous online classes that have since become an integral part of the institution's teaching practices. As a result, it is considered an ideal setting for conducting a study of these characteristics (see Hampel, 2007).

At the Open University, Spanish modules are taught as part of a languages degree, although they can also be taken as elective subjects. They are taught through materials (developed entirely by the Spanish teaching team) available in the virtual learning environment, where learners also have access to various forums to communicate with their teachers and peers. The tutorials observed are voluntary group classes that serve as reinforcement to expand and practice the content of the modules and prepare for exams. They are taught by associate instructors who also monitor the learners' progress individually and grade the assessment activities within the modules. The topics of the tutorials are announced at the beginning of the course, and each of them is taught at least three times at different times of day to maximize attendance. Learners can book a place in as many tutorials as they like with different instructors, regardless of whether they are regularly taught by them.

In the sample on which the study is based, all the attendees belong to the groups taught by one instructor in particular, who is responsible for designing the tasks as well as designing the complementary material used in the tutorials. The tasks used, whose main objective is to review topics covered in the learning materials and prepare for assessments,

are mostly controlled or semi-controlled practice activities. In this case, the instructor is present, directing and facilitating the tasks in question. This, in fact, constitutes a significant difference compared to other studies on interaction in which this dynamic is explored among learners in guided tasks where the teacher does not intervene (Bueno-Alastuey, 2011, 2013) or in telecollaboration activities where the provision of thorough instructions is avoided (Strawbridge, 2021).

According to internal studies conducted by the Open University, approximately 50% of learners take part in at least one tutorial throughout the course. Furthermore, so-called vicarious students watch the tutorials asynchronously instead of attending (Pleines, 2020). Table 7.4 summarizes the context in which the study was conducted, in line with the external factors described earlier in Table 7.1 that influence interaction between teachers and learners.

Table 7.4 Data collection information

Context	University: The Open University (United Kingdom) Level: beginner, intermediate, advanced (A1–C1)
Environment	Online (platform: <i>AdobeConnect</i>)
Subject	Spanish
Curriculum design	• Duration: academic year • Objectives: oral production, preparation of assessment tasks
Cultural component	• Macro-cultural level: horizontal culture; public institution • Central teaching figure vs. greater learner spontaneity • Micro-cultural level: teacher with more than 20 years of experience

The research adopts an emic, or internal approach, as it seeks to analyze, through the viewing of real recordings, how interaction is managed in relation to the participants.

7.3.2 Methodology

7.3.2.1 Participants

The participants in this study include one instructor with more than 20 years of experience in distance and online teaching, as well as attendees of the six tutorials analyzed. For the observations, groups of different levels (A1–A2, B2 and C1; cf. Council of Europe, 2020), all taught by the same instructor, were selected in order to analyze interaction according to the linguistic competence of the participants. Given that this is an exploratory study, it was decided to follow the same instructor, since interaction, among other factors, is also linked to aspects such as teaching style, as explained previously. Furthermore, to ensure that the observations did not influence any interactions during the tutorials, it was decided to use recordings instead of attending live sessions. In fact, this is a common practice in studies of this nature

(Bazán Ramírez *et al.*, 2009). Another advantage of this approach is that it facilitates data processing and the identification of interactional phenomena. This is because the material can be transcribed and reviewed. In an initial selection, instructors who teach classes across several Spanish modules were identified (a total of 42), to ultimately select an instructor who teaches across the A1–A2, B2 and C1 courses. All the tutorials recorded in 2019–2020 and 2020–2021 were viewed (a total of 14) and it was decided to include only those with a minimum of 8 attendees ($N = 6$) in this study. This is because this number is considered optimal for analyzing interaction (see Table 7.5).

Table 7.5 Number of attendees at the observed tutorials, classified by level

Course code	Level	Tutorial 1	Tutorial 2	Total
L194	A1–A2	11	12	23
L226	B2	9	9	18
L336	C1	19	9	28
<i>Total number of participants in all six tutorials</i>				69

The tutorials include an average of 11–12 attendees across all levels. To guarantee data protection, tutorials are recorded without registering the attendees' personal details. Many learners prefer to remain anonymous and most of them turn off their cameras during class, although some participants turn their cameras on when making a contribution. No noteworthy differences were observed across the different levels in terms of using the camera, which suggests that camera use is linked to personal preferences.

7.3.2.2 Observation template and data coding

The data collection tool used was a template for observing interaction between the teacher and the learners (see Table 7.6). The template was developed based on the studies conducted by González Argüello (2010) and Sutherland *et al.* (2016), keeping in mind the nature and content of the communicative exchanges in the classroom (see, for example, Reinke and Herman, 2016). Additionally, the template was redesigned and extended to facilitate its handling and better adapt it to the objectives of this study: to observe interaction in online Spanish tutorials. The instrument was validated, before its application, by four specialists in classroom management, interactional competence and teacher talk, who provided feedback that was incorporated into the final version.

The template considers both the nature and the content of the interactions, proposing different items for teachers and learners. For teachers, the nature of the interaction includes aspects such as its character (**positive** [when behaviors and reactions are affirming or validating]; **neutral** [when the interaction does not include positive or negative elements]; or **negative** [when the interactions or behaviors are

Table 7.6 Template for observing interaction

Descriptor	CODE	(1) Teacher Definition
(A) Nature of the interaction		
(1) Positive/neutral (teacher) interaction	+ TI	Teacher–learner exchange where the teacher exhibits a positive/neutral attitude/relationship.
(2) Negative (teacher) interaction	- TI	Teacher–learner exchange where the teacher exhibits a negative attitude/relationship.
(3) Organization of turn-taking	OTT	Interventions to assign turns (subtype of OTR).
(4) Opportunities to respond	OTR	Questions, requests, guidelines or cues that solicit a response.
(5) Active engagement	AE	The teacher actively engages with the learner.
(6) Passive engagement	PE	The teacher passively engages with the learner (they simply listen).
(B) Content of the interaction		
(1) Discussion about content	DC-T	Introduction and discussion about the content to be addressed, teaching goals and purpose, and assessment details.
(2) Answers to questions	AQ-T	Answers to learners' questions.
(3) Instructions and expectations	IE	Reminding the learners about what is expected before doing an activity.
(4) Instructional feedback	IF	Additional or contextual information is provided without focusing directly on mistakes.
(5) Corrective feedback	CF	The error is acknowledged and the correct form is provided.
(6) Social interventions	SI-T	Discussion about non-academic topics.
Others (use of emoticons, non-verbal interaction through visual cues, e.g. raised thumb, raised hand, etc.)		
(Continued)		

Table 7.6 (Continued)

Descriptor	CODE	Definition	(2) Learner
(A) Nature of the interaction			
(1) Positive/neutral (learner) interaction	+LI	Teacher–learner exchange where the learner exhibits a positive/neutral attitude/relationship.	
(2) Negative (learner) interaction	-LI	Teacher–learner exchange where the learner exhibits a negative attitude/relationship.	
(3) Spontaneous engagement	SE	The learner takes the initiative to engage.	
(4) Prompted engagement	PrE	The learner answers questions directed to them.	
(5) Reaction to other learners' interventions	ROI	The learner adds additional information to others' contributions.	
(B) Content of the interaction			
(1) Discussion about content	DC-L	The learner contributes to the discussion about the content to be addressed, teaching goals and purpose, and assessment details.	
(2) Answers to questions	AQ-L	Answers to the questions posed by the teacher or other learners.	
(3) Formulation of questions	FQ	The learner asks questions spontaneously.	
(4) Error monitoring	EM	The learner frequently self-corrects.	
(5) Social interventions	SI-L	Discussion about non-academic topics.	
Others (use of emoticons, non-verbal interaction through visual cues, e.g. raised thumb, raised hand, etc.)			
Source: Developed by the authors.			

adverse to communicative collaboration]), whether the interaction is active (with communicative exchanges) or passive (simply listening) and how the communicative exchanges are organized; regarding the content of the interactions, for teachers' aspects such as how the content is presented and discussed or how questions are answered, the type of feedback provided or whether there are any social interventions that can be observed.

Regarding learners, some of the items concerning the nature of their interactions coincide with those for teachers (positive, neutral, negative; active, passive). Additionally, learners' reactions to their peers' interventions can also be monitored. As for the content of the interactions, aspects such as whether the learners ask and answer questions or whether they (self-)correct their mistakes are explored. In addition, the template leaves room for the observation of elements such as the use of emoticons or non-verbal language, among others, which also influence technology-mediated interaction.

Despite having been originally designed for research purposes, this template serves as a useful tool to assess the practices of trainee teachers and, more generally, to reflect on teaching strategies to encourage interaction. This is because it can be adapted and applied to the analysis of teaching practices in the context of interaction to identify successful strategies, as well as to detect potential areas for improvement, either as part of teacher observations or for self-reflection.

7.3.3 Analysis and results

The aim of this case study is to extract pedagogical recommendations for the online language classroom based on observed teaching practices. To this end, using the template (Table 7.6), the communicative exchanges between the instructor and the learners were coded. The most representative examples were selected based on the following criteria: (1) representativeness (examples that clearly demonstrate the item being discussed); (2) variety (a balanced selection of examples across all levels of competence: A1–C1); and (3) clarity (examples that allow us to observe interaction with enough context). Therefore, considering the objectives of this exploratory study, it was decided to extract recommendations for practice based on the observations made. This approach was preferred over determining the frequency of interactional behaviors and their appropriateness, which would require a broader study. The code included after the examples indicates the corresponding tutorial: the learners' level is specified (A1–A2, B2, C1), as well as whether the communicative exchanges are from the first or second tutorial observed (T1, T2) for each of the levels. Fictitious names are used for the learners to maintain their anonymity.

Regarding the nature of the interactions, it is useful to note that, in all the tutorials, the interactions were either neutral or positive, both in

terms of the instructor and the learners. However, there are two cases, in the same tutorial, where the exchanges between the instructor and the learners could be considered negative. On one occasion, the instructor reprimanded the learners upon finishing an activity in small groups (*'Veo que estabais pasando de esto y hablando de lo que . . . de lo que os apetecía, pero bueno'*) [*'I see you just ignored [the activity] and talked about whatever you wanted, but okay'*] [B2, T1]. On another occasion, and as per our interpretation, a learner seemed resigned on hearing the instructor's response to their question (*'¿Cuándo voy a recibir el libro de gramática?'*) [*'When will I receive the grammar book?'*], exclaiming a brief *'Bueno'* (indicating a tone of resignation) [B2, T1].

Cases of active participation by the instructor were documented, especially when she reacted to the learners' contributions. This was particularly evident when she used emoticons in the chat, commented on learner interventions, or asked them to elaborate on their contribution. In most cases, the instructor intervened to organize turn-taking, with two main functions. On the one hand, this involved giving the floor to a learner who wished to speak or had explicitly indicated their intention to do so, generally through the chat (*'dime, Laura'*) [*'tell me, Laura'*]. On the other hand, it involved guiding the completion of activities or exercises, especially to indicate whose turn it was to solve them or answer specific questions, which could be closed (CE 1) or open-ended (CE 2). Below, a series of communicative exchanges (CEs) is provided to illustrate the kind of interaction that took place across all levels:

CE 1 *Entonces, vamos a empezar con Alex. Alex, lees uno y dices cuál de estas es la solución. Venga, Alex, uno.*/[So, let's start with Alex. Alex, read one and say which of these is the answer. **Come on Alex, one**]

[...]

Bueno, Anna, *dos*/[**Right, Anna, two**]

[...]

Bueno, vamos a intentar el siguiente. A ver si podemos acertar el siguiente. *Tres, manejo de las nuevas tecnologías*, a ver, Sandra. [B2, T1]/[**Okay, let's try the next one. Let's see if we can get the next one right. Three, managing new technologies. Let's see, Sandra.**] (B2, T1)

CE 2 Mark, cuéntanos *qué sabes tú de la situación lingüística en Perú y qué ocurre en Paraguay*. Cuéntanos, Mark. [C1, T2]/[**Mark, tell us what you know about the linguistic situation in Peru and Paraguay. Tell us, Mark.**] (C1, T2)

Managing communicative exchanges as shown in CE 1, where the instructor called on the learners in order to start solving an exercise, is common in tutorials. However, it is useful to note that the frequency of

such interactions decreased as learners' level increased. They were more frequent in the A1–A2 tutorials, while in the C1 classes a lower number of interventions by the instructor to organize turn-taking was recorded. That said, however, there was a significant increase in spontaneous learner contributions, especially in the chat. Regarding the content of these contributions, in general learners spoke up to confirm their understanding of a given point ('*entendido*'/'understood' [C1, T1]), express approval ('*genial*'/'great' [C1, T1]) or to ask questions without waiting for the instructor to explicitly invite questions or comments. At times, learners asked questions in the chat that the instructor then repeated aloud.

Concerning the content of the instructor's interactions, social interventions can be observed across all levels. Most of them took place at the beginning of the session while carrying out a sound check. Therefore, they were often related to potential technical issues. In the A1–A2 tutorials, there were many occasions on which the instructor referred to the relevant instructions and expectations at the beginning of an activity, especially regarding how to proceed and the mechanics involved (CE 3). This is perhaps because she assumed that certain learners were not yet familiar with the tools necessary to complete the task (for instance, breakout rooms). Furthermore, at this level, the instructor provided a considerable amount of feedback. On the one hand, this feedback was instructional when, for example, she would validate the learners' contributions ('ok', '*muy bien*'/'very good'), repeat something (CE 4) or complement a learner's response with an explanation (CE 5). On the other hand, there were also instances of corrective feedback when the instructor identified mistakes and provided additional information, which was often focused on pronunciation (CE 6) or grammar (CE 7).

- CE 3 so now we are going to practice in breakout rooms, you are going to practice this dialogue in breakout rooms. *Un momento*. I am going to put you in breakout rooms. Ok I think is that. Ups one second. And... *Ya está*.
So we are not even numbers so that means that in room 1 Susan, Lindsay and John you are together, ok? In the other rooms there are two people only, but in room 1 there are three people, yeah (A1–A2, T1)
- CE 4 *Muy bien*, abre a las nueve, *ok*./[Very good, it opens at nine, ok.] (A1–A2, T1)
- CE 5 *Muy bien*. And one thing, a very important thing in this sentence: remember that after *poder*, be able to or can, goes an infinitive. *Pude ir*, ok? Infinitive, *muy bien*.
- CE 6 *Muy bien*, ¿qué película has visto, yeah?/[Very good, what film did you see, yeah?]

Oscar, I still hear a little bit of an H, but I shouldn't hear. *Has*, can you repeat that?

CE 7 S: *Mi sobrino ha escrito un cuenta*/[S: My nephew wrote a bill]

T: *Muy bien...Cuento. Cuenta is bill, is cost. But cuento, un cuento is a book for children. Is a story for children.* So that's important. *Ha escrito un cuento*, yeah? (A1–A2, T2)

Regarding levels B2 and C1, it is interesting that a significant portion of the instructor's interventions involved answering questions asked by learners. This was particularly the case in the C1 tutorials, where learners asked multiple questions about the end-of-year project that counted towards their grade and was a focal point in the observed tutorials. The time dedicated to discussing the content of assignments also increased, since explanations were more extensive compared to lower levels. It is also useful to note that on numerous occasions the instructor linked the session's content to the assessment tasks (at the Open University, these are known as 'Tutor-marked assignments' [TMAs]):

CE 8 *Ahora un consejo, un consejo. Estamos haciendo este ejercicio aquí, esta actividad aquí porque es una tutoría, en el TMA, por favor, no pongáis dónde está Chile, ¿ya?*/[Let me give you a tip, a tip. **We're doing this exercise here, this activity here because we're in a tutorial. But in the TMA, please, don't say where Chile is, ok?**] (B2, T2)

CE 9 *Ese es el problema, es que a mí eso me da pena con estas tutorías, sobre todo los que habéis... anoche di esta tutoría y [de] los estudiantes de anoche ninguno había empezado el TMA y yo estaba contenta de la vida, porque cuando nadie ha empezado el TMA no hay preguntas tan específicas que bordean, que es que son casi casi que os estoy corrigiendo el TMA y eso me da mucho miedo, yo no sé si, eso no se debe hacer, ¿sabes? Entonces, ya está. Se acabó* [laughter] *Ya ya no digo más.* [C1, T2]/[That's the issue, that's what I worry about in these tutorials, especially those of you who have... last night I taught the same class and none of the students had started the TMA and I wasn't worried at all, because **when nobody's started the TMA there aren't any specific questions that make it seem like I'm correcting your TMAs.** And I get really scared because I don't know if that's what I should be doing, you know? But anyway. That's it [laughter], I won't say anything else.] (C1, T2)

As anticipated, content-related differences can be observed in learner interactions between the lower (A1–A2, B2) and higher (C1) levels. While in the lower levels learner participation was limited to answering questions or social interventions, advanced learners also asked spontaneous questions beyond simply responding. Furthermore, the few

times a learner reacted to their peers' contributions occurred at the C1 level via chat.

Therefore, based on the examples provided and in the context of interaction, the tutorials observed exhibit several **characteristics inherent to online environments**. As a result, the exchanges examined differ from those that take place in face-to-face classes.

Firstly, there is a noticeable **increase in the time dedicated** to explaining the mechanics of certain activities, especially in terms of using specific tools and solving technical issues (Meskill & Anthony, 2015: 130).

Secondly, **the communicative exchanges appear to be managed in a structured manner** (Acosta-Ortega & López Ferrero, 2022). The instructor explicitly selects the next participant calling them by name, such as when asking a specific learner to solve part of an exercise or even the entire task. This approach may serve to encourage everyone to participate and prevent any overlaps, which are easier to manage in person due to the presence of a greater number of stimuli.

Thirdly, **the chat was a popular means for positive interaction**, especially among learners: for instance, to express agreement, smile or confirm their understanding of a message. On numerous occasions, this practice equates to what is known in conversation analysis as **reactive tokens** (Cestero Mancera, 2000). That being said, it must also be noted that the instructor also uses the chat to provide feedback during learner contributions. It would be useful to consider whether learners, when speaking, monitor the chat and are capable of detecting the instructor's written reactions, or whether instead they go unnoticed, suggesting the need for oral reinforcement.

Ultimately, managing real-time interaction in the online classroom appears to involve **understanding the codes that govern digital communication** and knowing how to handle them in a teaching–learning context. It is also essential to be aware of the potential challenges that may arise with respect to the **contextual factors** (participants, instructional design and technology) that influence interaction, as well as to have access to resources and tools to address them successfully. Additionally, in the specific case of the tutorials observed, their purpose (such as practicing a grammar topic or completing assessment tasks) may affect how turn-taking is managed.

7.4 Recommendations for Practice

This section outlines a series of recommendations based on the previous analysis, focusing on certain fundamental aspects of synchronous interaction in online environments, including **participants, instructional design and technology**. Recommendations for **asynchronous interaction** are also provided.

7.4.1 Synchronous interaction

7.4.1.1 *Participants in the interaction*

Teacher talk is one of the key elements for interaction. This is because, as a discursive act, it is both the medium of instruction and the object of study in the online language classroom (similar to what happens in face-to-face classes). Therefore, it is essential for the teacher, through careful use of didactic discourse, to know how to apply strategies that promote interaction. For instance, asking questions that pose a cognitive challenge or involve exploratory learning is a practice that helps to improve the quality of classroom interactions. This is because it plays a role in learner motivation (Bailini, 2020; González Argüello, 2015). However, it is also necessary to know how to phrase these questions so that they can be seen as an opportunity to contribute to the negotiation of meaning. For example, if the questions are too complex or lack the necessary scaffolding, they are likely to lead to silence or brief and incoherent answers. Furthermore, one of the most striking aspects of the tutorials analyzed in the previous section is the relative lack of spontaneous oral participation among the learners (who mainly used the chat for this purpose). Therefore, **monitoring both the teacher's and the learners' speaking time** also serves to assess the quality of the interactions and to correct, if necessary, any imbalances between participant contributions. Another aspect to consider is how and why the teacher may modify (or simplify) their speech or discourse (i.e. teacher talk) (Dracos, 2018) in online language teaching contexts. It is also useful to consider whether there are any differences compared with face-to-face classes. In fact, as explained below, the chat tool amplifies what is traditionally known as teacher talk, offering multiple possibilities (see section 7.4.1.4). Hence, teachers must plan the types of interventions they wish to make in advance, as well as manage any spontaneous interaction in this medium.

Varying the **nature of the dynamics** proposed in the activities (large vs. small groups, pair-based vs. individual work) can also yield favorable results in terms of interaction. For these dynamics to work in online environments, it is important for learners to know how to navigate **breakout rooms**. They must also have access to clear instructions for the tasks and for how to ask for help if they get stuck. Specifying the duration of a pair or small group-based activity in a breakout room and displaying a timer to help learners manage their time are practices that facilitate the organization and completion of the task at hand. Similarly, it could also be productive to visit the different rooms to answer any questions the learners may have. However, it is still a good idea to inform them beforehand that they should only approach the teacher if they have questions, to avoid interrupting the ongoing interactional dynamic. Finally, using a sound to mark the end of an

activity is an effective way to prompt the learners to return to the main virtual classroom. Sound cues can also be used to alert them that they are about to switch groups, thus preventing them from thinking that a technical issue has occurred.

7.4.1.2 Instructional design

Regarding instructional design, the development of online classroom and assessment materials must consider and capitalize on the benefits offered by the synchronous modality in the context of interaction (see Table 7.2). These benefits include the ease of connecting directly with real-world situations and using primary sources, the ability to access experts or the opportunity to demonstrate skills in real time. An essential aspect related to activity design and interaction is accessibility (see Chapter 1 of this book). Proposing multiple activities that require a considerable amount of oral interaction in a context where not everyone has a microphone or a stable network connection can be counterproductive. To address this issue, **activities that combine oral and written interaction** (i.e. via the chat) can be designed. In fact, it could even be useful to **carry out certain activities without cameras** to help learners get used to communicating and interacting without the support of non-verbal cues and visual stimuli.

It is equally important to carefully assess the pedagogical benefits of using **programs and applications** designed to promote interaction in the classroom (such as collaborative platforms for sharing content, systems for answering questionnaires and surveys, etc.) before implementing them. For example, many of these tools require participants to register, which has ethical implications that must be considered, as it may not be lawful to ask learners to provide these companies with their data in order to take part in class tasks. Furthermore, navigating these tools sometimes involves spending time explaining how they work and preparing for potential technical issues outside the teacher's control. Meanwhile, when it comes to solving operational difficulties with the actual teaching platform, the institution's IT team is usually able to provide support. In many cases, it is possible to find alternatives to promote interaction without having to resort to such tools. For instance, to conduct a survey, a multiple-choice question can be projected on the digital whiteboard for the learners to then use the chat to send their answers.

7.4.1.3 Technology

Managing certain technical aspects is essential for ensuring smooth interaction in online classes. A preliminary issue that must be addressed concerns the **use of the camera** in class. While it can prove beneficial for interaction (thanks to the information provided by non-verbal cues in communicative exchanges, for instance), it can also intimidate

participants, increase feelings of isolation and demotivate those who do not have one or do not feel comfortable using it. An intermediate solution could be to turn it on at the beginning to say hello and then switch it off, with the option of turning it back on when making a contribution and when working in small groups or breakout rooms. As a result, teachers might need to call learners by their name more frequently than in face-to-face classes, as mentioned in the previous section when analyzing the data.

Moreover, it is important to prevent, to the extent possible, technical issues such as sound failures from interrupting an exercise. To this end, in addition to recommending that all learners conduct a sound check a few minutes before joining the class (a feature offered by most platforms), a collective check can also be carried out at the beginning of each session, if the number of participants allows it. In fact, it could even be used as a **warm-up activity** where everyone says hello, reads a passage related to the lesson's topic or takes turns to answer a question posed by the teacher. Similarly, it is a good idea to ask learners to download the platform app on their cell phones. This serves as a backup plan in case of any connectivity issues that might otherwise prevent them from accessing the platform as usual.

7.4.1.4 Multimodal component and support tools

The multimodal nature (text, image and sound) of technology-mediated discourse must also be considered when it comes to managing interaction: oral productions are supplemented by, and often overlap with, written interventions in the **chat**. In fact, in the data analyzed in section 7.3, learners participated much more frequently and spontaneously via the chat compared to oral contributions. As a result, managing this interaction tool is essential for reinforcing communicative exchanges in the online classroom. Multiple ongoing discussions frequently take place simultaneously in the general class chat, sometimes even overlapping. However, **three types of interventions** (spontaneous or planned) are generally observed: (1) reactions to other participants' words (functioning as support turns); (2) questions or comments that provoke or require a response; and (3) answers to questions posed by other learners or the instructor. This aspect confirms observations made by Hampel and Hauck (2006), Yanguas (2010) and Hampel and Stickler (2012) regarding how the available tools influence communicative exchanges in online environments.

Therefore, it is necessary for the **teacher to monitor the chat** (or assign this task to a learner) and apply didactic strategies to ensure that interventions made through this channel contribute effectively to the class. For instance, repeating aloud any chat contributions that may be useful for all learners (such as a question to be answered or a relevant comment) guarantees that participants who have not read these

interventions can still benefit from them. The chat can also be used to quickly answer a quiz or a question, or to check that everyone is actively following the session.

However, participation through this channel may be affected by the learners' potential lack of digital communicative competence. They may consider it appropriate to use this tool as they would in other online communications, such as social media interactions (see, among others, Carpenter *et al.*, 2016; Pikhart & Botezat, 2021; Varo Domínguez & Cuadros Muñoz, 2013). Having a previously established chat protocol validated by both the teacher and the learners – which, from a technical point of view, may also involve teaching the students how to use, for instance, the keyboard to ensure correct spelling in the target language – promotes the **co-construction of virtual conversation**, can prevent excessive digressions and can also prevent negative interactions that may need addressing. For similar reasons, it may also be useful to design a breakout room protocol, explaining the teacher's role or functions while learners are interacting in breakout rooms and establishing what measures must be taken if any technical issues arise, such as alerting the teacher by raising one's hand or returning to the main (class)room.

Another key aspect for interaction is **turn-taking**, and the teacher should employ strategies to facilitate this process. These may include addressing participants by name when they wish to speak, or organizing activities in which everyone has the opportunity to take part: for instance, by answering one question each. Furthermore, these strategies can even be taught to learners so that they can incorporate them into their own interventions, thereby developing their interactional skills in the target language (see Batlle, 2021; Batlle & Deal, 2021; Batlle & Murillo Wilstermann, 2018; Batlle & Suárez, 2021). It is also helpful to show the learners the pragmatic–discursive expressions (see Acosta-Ortega & López Ferrero, 2022) used for opening, maintaining and concluding turns in the target language, so that they can practice them as part of the interaction. It is likely that oral overlaps will be less common than in real conversations in the target language, which also occurs in face-to-face settings and digital interaction in general when all participants have their microphones switched on (Scolari, 2008). Therefore, if this aspect of communication is to be taught, specific activities should be designed to practice it.

7.4.2 Asynchronous interaction

Section 7.3 covered the analysis of synchronous interaction. However, **asynchronous interaction** also has certain benefits for online language teaching (Table 7.3) from the participants' perspective. There are empirical studies that report that many learners enjoy such interactions, especially when they occur among participants from the

same course (Lee, 2021). Despite its benefits, however, asynchronous interaction faces similar challenges to its synchronous counterpart, such as the need for learners to become familiar with and test the necessary tools beforehand to maximize their effectiveness or to ensure accessibility. Additionally, due to its characteristics, asynchronous learning poses certain specific challenges, requiring the teacher to be familiar with strategies for preventing or rectifying issues. In this regard, one of the most common challenges is **limited participation** in asynchronous learning tasks (as in the case of MOOCs). Consequently, this situation may cause frustration for both the teacher and other more engaged learners who may expect the rest of the group to contribute more. To encourage participation and promote interaction, the teacher could consider linking these tasks to the course's summative assessment or final evaluation. Alternatively, the teacher could provide individual feedback to learners who participate in activities or offer another kind of incentive for completing the task. It is also advisable to use data, known as **learning analytics**, about the learners and their engagement in asynchronous interactions (see Arnold & Pistilli, 2012). This approach is useful for (1) identifying learners with low participation rates; (2) designing strategies to address this; or (3) refining the design of asynchronous learning tasks. For instance, one of these tasks could involve **peer feedback**, integrating social reading tools that allow learners to add annotations, further explanations, comments or suggestions asynchronously (see Suhre *et al.*, 2019, regarding *Perusall*).

Another fundamental aspect to consider in this context is the role of the teacher in such interactions. First, prior to implementing an asynchronous task, they must choose the most appropriate tool (forums, blogs, wikis, etc.) for the activities planned, learn how to use it and ideally test it out beforehand to anticipate any issues learners might face. Then, while the students carry out the task, the teacher must monitor their progress, decide when to intervene and even determine how to mediate any potential negative interactions. Finally, once the task is finished, the teacher must assess the learning outcomes, make sure to have a strategy for providing feedback and evaluate the task's success to make improvements for the next iteration, if necessary. It is also important for the learners to know where to turn if they encounter any technical issues during the completion of the task, to prevent them from interrupting or hindering their participation.

Additionally, it is worth mentioning that some of these tools are used not only for academic purposes but also for communicative ones (e.g. forums) in the context of face-to-face, hybrid and online courses. In these cases, it is a good idea to establish a protocol for social interaction. For example, in non-immersive contexts, guidelines regarding the use of the learners' L1 could be collectively determined.

7.5 Conclusion and Future Lines of Research

As seen throughout this chapter, interaction in online environments is subject to both internal and external factors as well as a range of intrinsic variables, just like in the case of hybrid and face-to-face teaching. Therefore, from the teacher's perspective, effective management of interaction in online environments requires becoming aware of **contextual factors**, **interaction processes** and **learning outcomes** to assess how this communicative dynamic unfolds in language teaching. As part of this process of becoming aware, it is important to consider the following factors: **teaching presence**, that is, how the content is presented; **cognitive presence**, or the degree of reflection with which meaning is constructed and shaped; and **social presence**, in other words, the participants' ability to project personal characteristics and contribute to fostering motivation within the group (García Cabrero *et al.*, 2008: 8–9). In this way, interactional and discursive dynamics that contribute to the efficient management of interactional processes can be assessed, reinforced, modified and implemented.

From the language learner's perspective, it is necessary to collectively set expectations regarding interaction from the very beginning. This aspect is crucial for strengthening fundamental language acquisition competences (including grammatical, discursive, sociolinguistic, strategic and pragmatic skills), as well as for boosting pronunciation and fluency. Not only this: it also directly influences the learner's attitude, motivation and self-confidence.

Two **particularly necessary lines of research today** concern teacher training in online environments and the management of tools and platforms that can promote interaction, specifically in the context of language learning and teaching. In the first case, more research is needed on **how to train teachers in classroom management from an interactional perspective**. Analyzing and managing interaction in terms of how the environment operates and in terms of teacher talk are topics that are not commonly addressed in teacher training courses. However, given the impact that this dynamic has on teaching practices, motivation and group cohesion, there is a clear need for the creation of a specific inventory for foreign language teaching including interactional factors and processes. This inventory could serve as a starting point for training teachers who are more aware and who view this dynamic as a tool to enhance certain aspects of interaction in the classroom.

In the second case, from a technological point of view, it is necessary to **analyze virtual platforms that, due to their design or configuration**, could boost interaction in online language learning. We have already mentioned, for instance, how an efficient use of the chat function can reinforce interaction, as either a feedback or turn-taking mechanism, and how breakout rooms provide participants with alternative interaction opportunities in absence of the teacher. However, it is important to

assess whether other tools offered by some of the most popular teaching platforms can also promote interaction to support language learning.

In this regard, generative **Artificial Intelligence (AI)** is expected to play a significant role in the development of human–machine interaction devices and, consequently, in how we understand interaction as a concept. In fact, this has already been observed in voice recognition devices and chatbots (Ali, 2020). Now, to the three traditional **types of interaction** in educational settings mentioned at the beginning of this chapter (Moore, 1989: 1), it is necessary to add a **fourth**: AI-driven tool (e.g. chatbot) ↔ teacher + AI-driven tool (e.g. chatbot) ↔ learner, as demonstrated by the revolutionary emergence of *ChatGPT* in November 2022 (Muñoz-Basols *et al.*, 2023). This type of technology tool undoubtedly has significant potential in the context of language learning, as it provides immediate access to a vast repository of linguistic resources as well as corrective feedback. These new functionalities, which foster interaction at a technological level, should operate as facilitators of the teacher's work and enhancers of programmed, informal and autonomous second language learning. Naturally, they must also be properly integrated into the curriculum (see the IMI+ framework proposal in Muñoz-Basols *et al.*, 2023; Muñoz-Basols & Fuertes Gutiérrez, 2025).

7.6 Annotated Additional Reading

Muñoz-Basols, J., Fuertes Gutiérrez, M., Strawbridge, T. and Acosta Ortega, L. (2023) Interactional patterns in the online language classroom: A quantitative analysis across proficiency levels and lesson types. *Computer Assisted Language Learning*, 1–27. <https://doi.org/10.1080/09588221.2023.2286536>

This article highlights the critical role of interaction in online language learning, emphasizing how different interaction types influence student engagement and learning outcomes. It categorizes interaction into instructor-prompted participation (IPP), unprompted oral participation (UOP), and unprompted text participation (UTP), revealing that instructor-led interaction dominates. The findings suggest that promoting student-led interaction can enhance learning outcomes.

Strawbridge, T. (2021) Modern language: Interaction in conversational NS-NNS Video SCMC eTandem exchanges. *Language Learning & Technology* 25 (2), 94–110. <http://hdl.handle.net/10125/73435>

This article investigates interaction among native and non-native speakers in Mexico and the United States participating in videoconference-mediated *eTandem* conversational exchanges. The author analyzes the quantity of language episodes, the type of trigger, the initiator, the reactive or preventive status, instances of negotiation and the amount of negative feedback, paying attention to the linguistic approaches during the communicative exchanges and how interaction is framed in promoting understanding and production of the target language.

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