



Digital Interaction and Communication in Distance Education: Perspectives of Czech and Chinese University Students

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Abstract

This study examines how university students in the Czech Republic and China perceive communication, interaction and participation in distance education. It draws on aggregate questionnaire reports from Czech students ($n = 105$) and five Chinese survey collections ($n = 265, 158, 216, 188$ and 64), supplemented by open-ended survey responses and selected case-study accounts. Three aspects are considered: peer interaction, teacher–student interaction and classroom participation, alongside the perceived value and discomfort of webcam-mediated visibility. In the Czech sample, 81.0% evaluated peer interaction as less beneficial online than face-to-face, compared with 20.3–30.2% across the five Chinese collections. The corresponding figures were 59.0% versus 18.8–29.8% for teacher interaction and 42.9% versus 17.2–21.5% for participation. While 76.2% of Czech respondents valued seeing their teacher on camera, 47.6% reported feeling under pressure when required to activate their own webcam. Open-ended accounts described reduced personal contact, difficulties in asking questions and technological interruptions in both settings; one Czech case-study account also indicated that written chat could lower barriers to participation. The findings suggest that digital interaction may be experienced differently across communication channels and learning contexts. Because the available reports contain aggregate responses and some inconsistent response totals, the study is descriptive and does not attribute observed differences to culture alone.

Keywords: distance education; digital interaction; online communication; social presence; student engagement; cross-cultural comparison

1. Introduction

The expansion of distance education has changed not only where university learning occurs but also how students establish contact with teachers and peers. In face-to-face classrooms, spoken exchanges, gestures, shared attention and informal conversations provide opportunities for participation that may be less immediate in technology-mediated environments. Video conferencing, messaging and learning platforms can reproduce some of these opportunities while also creating new forms of access and new barriers. The relevant question is therefore not simply whether online teaching is better or worse than classroom teaching, but how particular dimensions of communication are experienced by students.

The rapid shift to remote instruction during the COVID-19 period intensified this question. Universities used videoconferencing, learning management systems and asynchronous resources to preserve access to classes, often under constraints that differed markedly from those of planned online programmes [8]. Students' experiences therefore provide evidence about the communicative conditions of particular remote teaching arrangements rather than a simple referendum on whether digital education is better or worse than face-to-face teaching. Understanding the specific dimensions of interaction is more useful for instructional design than an undifferentiated judgement of the whole modality.

These experiences may vary across institutional and national settings. Cross-context comparisons are valuable because online interaction depends on teaching practices, technological conditions, students' expectations and prior educational experience. Yet differences between national samples cannot automatically be interpreted as cultural effects. The present study compares descriptive questionnaire results collected among university students in the Czech Republic and China and uses open-ended accounts to contextualize the patterns. Its specific contribution is to distinguish peer interaction, teacher interaction, classroom participation and webcam-mediated visibility rather than treating satisfaction with distance education as a single outcome.

The problem is especially relevant to language-related university courses, where dialogue, negotiation of meaning, spontaneous questions and collaborative activities are central to the learning experience. When such courses move online, the presence of a communication platform does not guarantee that



students feel able to contribute. Audio delays may interrupt conversational turn-taking; chat may offer a less intimidating alternative to speaking; and the absence of informal contact may change how students develop relationships with classmates. Examining these experiences from students' perspectives can inform the design of future online and blended instruction.

The study addresses three research questions: (RQ1) How do Czech and Chinese university students evaluate interaction with teachers and peers in distance education compared with face-to-face teaching? (RQ2) How do they perceive visual social presence, particularly webcam use? (RQ3) Which experiences appear to facilitate or hinder participation in technology-mediated learning?

2. Theoretical Background

Moore [12] distinguishes learner–content, learner–instructor and learner–learner interaction in distance education. The present study focuses on the latter two forms because they directly concern communication with teachers and fellow students. Learner–instructor interaction includes guidance, clarification and feedback, while learner–learner interaction encompasses discussion, collaboration and informal exchange. These functions need not disappear online, but their timing, visibility and ease of access can change.

The Community of Inquiry framework conceptualizes meaningful online educational experiences through the interplay of cognitive, social and teaching presence [6]. Social presence is particularly relevant when students assess whether seeing a teacher or classmates contributes to the feeling of participating in a shared educational environment. However, visual access is not identical to social presence: a visible webcam image may help some students feel connected while requiring others to expose themselves in ways they find uncomfortable. Research synthesizing online-learning studies has linked social presence with satisfaction and perceived learning [13], although these associations do not establish that mandatory video use produces better outcomes.

Social presence has been linked to students' evaluations of online learning for several decades. Gunawardena and Zittle [7] identified social presence as an important predictor of satisfaction in a computer-mediated conferencing setting. More recently, Richardson and colleagues [13] found positive associations between social presence and both satisfaction and perceived learning in a meta-analysis. These findings justify attention to the interpersonal quality of online learning, but they do not imply that a camera must be switched on to create social presence. A student may feel connected through dialogue, timely feedback and collaborative activity as well as through video.

Culture has also been examined as a factor shaping online engagement and communication. Uzuner's research review [14] emphasizes both the relevance of cultural considerations and the methodological difficulties of comparing learners across contexts. Accordingly, the present paper treats national setting as a descriptive contextual variable, not as an explanation in itself. Differences may also reflect course formats, institutional practices, cohort composition, timing of data collection and unequal exposure to online teaching.

The pandemic context complicates evaluation. Hodges et al. [8] distinguish emergency remote teaching, introduced rapidly to maintain educational continuity, from online learning designed with appropriate time, support and pedagogy. Bond et al. [3] document the diversity of emergency remote teaching experiences across higher education, reinforcing the need to interpret student evaluations in their institutional context. For the present study, distance education is understood as the remote instruction experienced by the respondents; the analysis does not assume that these experiences represent the full potential of purpose-built online education.

Research on online engagement further suggests that participation is multidimensional. Hrastinski [9] argues that online participation encompasses sustained involvement and relations with others, rather than simply producing messages. Kahu and Nelson [10] describe engagement as emerging through interactions between learners and their educational environment. Martin and Bolliger [11] show that students value purposeful learner–instructor and learner–learner strategies, especially consistent instructor communication. These perspectives help distinguish communicative access from mere technological availability.

Visual presence introduces additional complexity. Borup et al. [4] find that video communication can enhance the perceived presence of instructors, while Castelli and Sarvary [5] show that camera-off behaviour can reflect privacy, appearance and connectivity concerns rather than a lack of interest. Bailenson [2] describes potential cognitive and nonverbal burdens associated with videoconferencing. Together, these studies suggest that seeing and being seen should be examined separately, especially when interpreting students' feelings about mandatory webcam use.



The study uses Moore's interaction categories [12] and the Community of Inquiry framework [6] as sensitising concepts rather than as scales administered to respondents. The latter distinguishes teaching, social and cognitive presence, and subsequent measurement research emphasises the need for validated indicators [1]. Our questionnaire items address narrower perceptions of contact, visual availability and participation; they should not be presented as validated measures of the full Community of Inquiry constructs.

3. Methodology

This paper reports a descriptive comparative analysis within a broader mixed-methods research project on perceptions of distance education. Questionnaire data were collected among university students at Palacký University Olomouc (Czech Republic) and Dalian University of Foreign Languages (China). The available materials consist of aggregate survey reports, including one Czech report covering responses collected between November 2021 and November 2023 (105 completed questionnaires) and five Chinese collections with 265, 158, 216, 188 and 64 completed questionnaires, respectively. The Chinese reports cover successive collection periods between 2021 and 2023. Data collection across years was intended to reach students at comparable stages of study; the reports should be treated as separate survey collections, without assuming that respondents are unique across collections.

The analysis selected questions directly related to communication: perceived benefit of interaction in a class/team, interaction with the teacher and participation in class, each evaluated relative to face-to-face teaching; the perceived value of seeing the teacher on webcam; and feelings about activating one's own webcam. The latter question allowed multiple answers. The paper also draws illustrative material from open-ended responses concerning the shortcomings of distance learning and selected case-study survey accounts. These accounts were read for recurring communication-related experiences (contact, feedback, participation, camera use and technical barriers); they are not presented as a separately validated thematic analysis of the entire qualitative corpus.

Three complementary constructs guide the analysis. Peer interaction refers to opportunities for exchanging ideas and working with classmates; teacher interaction concerns asking questions, receiving clarification and maintaining contact with the instructor; participation refers to students' perceived opportunities to contribute during class. These constructs overlap but should not be conflated. In particular, a learner may experience fewer informal peer exchanges while still finding it possible to participate in a teacher-led lesson. The webcam items add a visual dimension, distinguishing the benefit of seeing the instructor from feelings associated with turning on one's own camera.

For transparency, each Chinese collection is reported separately or as a range; samples are not pooled. The available Chinese matrix exports occasionally show response-category counts that sum to slightly more than the stated respondent total, despite an instruction to choose one answer per row. Consequently, the exported percentages are reproduced as reported, without recalculation, and no inferential tests are performed. The Czech question on whether seeing others was beneficial also differs in response format from the Chinese version, so it is not used as a primary cross-country indicator. Because respondent-level records and complete cohort-level covariates are unavailable, the findings cannot control for differences in age, course design, gender composition or academic year. All comparisons are descriptive.

4. Results

4.1. Perceived Peer Interaction, Teacher Interaction and Participation

The most pronounced difference concerned peer interaction. In the Czech report, 81.0% of respondents regarded the possibility of interaction in a class or team as less beneficial in distance education than in face-to-face teaching. In the five Chinese reports, the corresponding percentages ranged from 20.3% to 30.2%. Teacher interaction followed the same pattern: 59.0% of Czech respondents, compared with 18.8–29.8% across the Chinese collections, selected "less beneficial". For classroom participation, the respective figures were 42.9% and 17.2–21.5%. These are evaluations of perceived benefit, not direct observations of interaction frequency or learning outcomes.



Table 1. Respondents rating selected aspects of online teaching as less beneficial than face-to-face teaching (%)

Survey	N	Peer interaction	Teacher interaction	Participation
Czech Republic	105	81.0	59.0	42.9
China, collection 1	265	30.2	29.8	20.0
China, collection 2	158	28.5	25.9	21.5
China, collection 3	216	26.9	25.5	19.9
China, collection 4	188	22.9	22.9	17.6
China, collection 5	64	20.3	18.8	17.2

The relative consistency across the five Chinese collections makes the contrast noteworthy, but it does not identify its cause. It is also important that some Chinese respondents rated interaction as comparably beneficial online and face-to-face; the Chinese results therefore should not be read as universally positive evaluations of online communication.

4.2. Visual Social Presence and Webcam Use

The perceived value of seeing the teacher on camera revealed a different pattern. In the Czech report, 76.2% selected the response indicating that seeing the teacher made teaching feel more personal. The corresponding figures in the five Chinese collections were 49.8%, 54.4%, 54.2%, 47.9% and 54.7%. This item is a single-response question in the available questionnaires and therefore provides a clearer comparison than the broader question about seeing teachers and classmates, whose response format differs between the Czech and Chinese exports.

A further distinction emerged between wanting to see others and feeling comfortable being seen. In the Czech sample, 47.6% selected the option indicating pressure when their own webcam had to be activated, compared with 17.0%, 17.7%, 16.7%, 20.2% and 9.4% in the Chinese collections. The proportions reporting nervousness or anxiety were 32.4% in the Czech report and ranged from 30.1% to 45.2% in the Chinese reports. Because multiple answers were permitted, these categories may overlap and should not be summed.

Table 2. Selected webcam-related responses (%)

Survey	Welcome seeing teacher	Pressure when own camera on	Anxious/nervous
Czech Republic	76.2	47.6	32.4
China, collection 1	49.8	17.0	41.9
China, collection 2	54.4	17.7	30.4
China, collection 3	54.2	16.7	30.1
China, collection 4	47.9	20.2	45.2
China, collection 5	54.7	9.4	43.8

These findings suggest a potentially important distinction in visual social presence: students may appreciate being able to see their instructor without welcoming a reciprocal requirement to make themselves visible. The aggregate data do not permit verification that the same individuals expressed both preferences; this distinction is therefore inferred from group-level response patterns, not a demonstrated within-person relationship.

The two webcam indicators capture distinct directions of visual communication. The first asks whether the student values seeing the teacher; the second asks how the student feels when required to be visible. They should not be interpreted as opposite ends of a single attitude scale. Indeed, the Chinese collections also display substantial proportions of respondents selecting anxiety (30.1–45.2%), even when fewer select the stronger pressure response (9.4–20.2%). This indicates that positive attitudes toward teacher visibility can coexist with discomfort about personal visibility in more than one setting.

4.3. Qualitative Context: Communication Barriers and Opportunities

Open-ended responses in both national settings identified the absence of face-to-face contact as a drawback of distance education. Czech respondents described missing informal contact with classmates, reduced opportunities to approach instructors and weaker social ties. Selected Czech case-study accounts linked unfamiliarity with classmates to difficulties in group assignments and reluctance



to speak during online sessions. Chinese open-ended answers also mentioned reduced teacher–student interaction, weaker classroom atmosphere, delayed feedback, difficulties concentrating and interrupted communication during unstable internet connections.

Not all responses described digital mediation as a barrier. A Czech case-study account indicated that written chat made it easier for some students to ask questions without speaking in front of the whole group. This example does not establish how common the experience was. Such accounts help explain why a single judgement of online interaction may conceal distinct experiences: reduced spontaneous contact for some students and lower social exposure for others.

These contrasting accounts suggest that digital interaction can simultaneously remove and create communicative opportunities. The loss of spontaneous corridor conversations, eye contact and informal reassurance can weaken students' sense of belonging. Yet text-based channels can also permit a hesitant learner to formulate a question, participate without interrupting the class and avoid some pressures of public speaking. The relevant pedagogical question is not whether communication occurs online, but whether the chosen tools make interaction accessible, timely and meaningful for different learners.

5. Discussion

The results indicate a marked descriptive contrast between the Czech survey and the Chinese collections in evaluations of peer interaction, teacher interaction and classroom participation. Within Moore's typology [12], the perceived weakening of learner–learner and learner–instructor interaction is especially pronounced in the Czech sample. At the same time, the Chinese respondents' more frequent selection of “comparably beneficial” suggests that technology-mediated communication can be experienced as an acceptable substitute for certain face-to-face functions, even where open-ended answers still identify difficulties.

The findings need to be read against the distinction between deliberately designed online education and emergency remote teaching. Hodges and colleagues [8] caution that courses transferred rapidly into remote formats should not be taken as definitive evidence of what intentionally designed online learning can achieve. The survey respondents evaluated their actual experiences rather than a standardised pedagogical intervention. Thus, the higher proportion of Czech respondents rating interaction negatively does not demonstrate that online education is intrinsically less interactive in one country. It indicates that the students in this institutional and historical setting experienced a larger perceived loss relative to their familiar face-to-face classes.

A cross-cultural interpretation remains possible but must be qualified. Uzuner [14] shows that cultural issues can shape online learning while also highlighting the difficulty of isolating culture from other influences. Differences in classroom communication conventions, the role of teacher authority, prior exposure to digital learning and students' expectations of group work could plausibly affect ratings. None of these variables was experimentally controlled or comprehensively measured here. The most defensible claim is therefore a contrast between the surveyed educational contexts, not an essential difference between Czech and Chinese students.

The webcam findings refine this picture. Seeing an instructor may support the sense of teaching and social presence described by Garrison and colleagues [6], yet requiring students to activate their own cameras introduces a different set of considerations: visibility, self-consciousness, perceived surveillance and control over self-presentation. The Czech group-level pattern—high appreciation of seeing the teacher alongside a high reported sense of pressure when personally visible—suggests that one-way visual access and reciprocal visibility should not be treated as equivalent design choices. The present data do not measure the effects of camera policies on learning and therefore do not justify a general recommendation for or against compulsory webcam use.

The distinction between being able to see the instructor and having to display one's own image is important. In the Czech survey, appreciation of teacher video coexists at the group level with a high proportion reporting pressure about activating their own cameras. The two items refer to different experiences and cannot be correlated without individual records, yet their juxtaposition challenges the assumption that greater video visibility is uniformly desirable. Castelli and Sarvary [5] identify concerns about appearance, surroundings and connectivity as reasons students leave cameras off; Bailenson [2] theorises that sustained videoconferencing can impose additional nonverbal demands. These publications offer plausible mechanisms, not explanations established by our respondents.

The value attributed to teacher video is also consistent with evidence that audiovisual communication can strengthen perceptions of instructor presence. Borup, West and Graham [4] report that



asynchronous video made instructors seem more familiar and present to students. However, seeing a teacher's face is only one possible source of social presence. A responsive message, clear feedback or a well-structured peer exchange may also make participants feel recognised. An inclusive design would therefore encourage meaningful contact without requiring all learners to expose their private surroundings or appearance.

The qualitative accounts further suggest that interaction should be understood in terms of accessibility and communicative form rather than simply volume. Opportunities for low-pressure written questions may facilitate participation for students reluctant to speak, whereas limited feedback, poor connectivity and the absence of informal peer contact may inhibit engagement. For teaching practice, this supports a flexible approach combining clear teacher availability, structured peer exchanges, timely feedback and optional channels for participation. Such implications are provisional and should be evaluated in course-specific research.

An important implication is that engagement should not be equated with continuous visible performance. Hrastinski [9] conceptualises online participation as more than the frequency of speaking or posting; Kahu and Nelson [10] similarly locate student engagement in an educational interface shaped by institutional and individual conditions. A student who prefers to write a question privately or in a chat may be engaged without appearing prominently on video. Conversely, a visible student may remain cognitively disengaged. This distinction matters when instructors design participation requirements or interpret a camera-off classroom as evidence of indifference.

Practical measures should therefore diversify the available communication channels. Short written prompts, moderated chat, structured peer tasks, low-stakes questions and timely teacher feedback can create opportunities for students who hesitate to speak in front of a large group. Martin and Bolliger [11] found that learners particularly valued instructor-related engagement strategies, supporting the pedagogical importance of predictable communication. These measures are proposals derived from the present patterns and prior research, not interventions tested in the current dataset.

Several limitations restrict interpretation. First, the available results are aggregate exports rather than individual-level datasets, preventing adjustment for confounding variables or examination of associations within respondents. Second, collection periods and group sizes differ; the Czech export covers multiple years without wave-specific breakdowns, while the Chinese results are reported in separate collections. Third, response totals in some Chinese matrix rows are internally inconsistent, so inferential comparisons would be premature. Fourth, some questionnaire items differ in response format across language versions, and translated wording may not be perfectly equivalent. Finally, these are institution-specific samples, not representative national samples. It would therefore be inappropriate to explain the observed differences as effects of Czech or Chinese culture without additional evidence. Future work should analyse the respondent-level records, check item equivalence, account for collection year and teaching conditions, and conduct systematic qualitative coding.

6. Conclusion

This comparative descriptive study found that Czech respondents more often perceived peer interaction, teacher interaction and participation as less beneficial in distance education than did respondents in five Chinese survey collections. Both settings nevertheless contained accounts of disrupted contact, reduced feedback and communication difficulties. Webcam responses also highlighted a distinction between valuing visual access to a teacher and being comfortable with one's own visibility. The findings suggest that meaningful digital participation depends on the design of communication opportunities, not merely on the availability of video technology. Their principal contribution is to separate interaction, social presence and participation into analytically distinct dimensions while identifying questions for more rigorous cross-context investigation.



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