

Nilesh Kumar Mahato**Research Scholar****University Department of English****Ranchi University, Ranchi****Abstract**

Computer-mediated communication (CMC) has broadened the scope of second language (L2) interaction beyond the face-to-face classroom setting, with an established pattern of positive results for L2 learning outcomes. However, within these averages, there is significant variation, and technology does not on its own lead to language learning. This paper provides a critical narrative review of the limitations that complicate the use of CMC in second-language education and of the pedagogical principles that can address these limitations. It explores unequal access, cognitive or linguistic overload, and anxiety and unequal participation. Then, it offers a pedagogical framework based on the design of outcomes-based tasks, the three-phase interaction sequence and the hybrid model that includes both synchronous and asynchronous CMC, teacher mediation and human interaction. The paper concludes with a description of research priorities such as methodological rigour and critical approach to AI-mediated communication. It states that learning takes place when the affordances of the technology are integrated with rich interactional tasks, scaffolded learning opportunities, inclusive access, ongoing feedback, and clear learning objectives.

Keywords: Computer Assisted Language Learning, Computer Mediated Communication, Digital Inequality, Task Design, Hybrid Learning, English Language Teaching

Introduction

Computer-mediated communication (CMC) can be broadly defined as interpersonal communication via a networked digital technology, both synchronous and asynchronous, that is, in real time (instant messaging, text chat, videoconferencing) or delayed (email, forums, recorded voice messages). In the field of computer-assisted language learning (CALL), CMC has shifted the role of the teacher from a transmitter of the language content to a task designer, interaction facilitator, feedback provider, digital-literacy mentor, and ethical moderator.

Huifen Lin conducted a meta-analysis of 59 primary studies, which indicated an overall positive medium effect of CMC, while Nicole Ziegler conducted another meta-analysis which revealed that both CMC and face-to-face interaction contributed to L2 development but neither was decisively superior. These results, however, must be interpreted with caution. Leander S. Hughes states that the same platform can foster or impede learning in different courses and a review of 38 studies on text-based synchronous CMC reveals that a medium can either facilitate or detract from learning based on context, implementation, task conditions and pedagogical purpose.

Technological determinism, which suggests that a tool creates learning because of its characteristics, is therefore an unreliable guide to practice as advocated here. Learning is more of an emerging phenomenon that can be understood in terms of how affordances are aligned with tasks, participants, feedback, attention, social relationships, and institutional

conditions. The paper is presented as a critical narrative review based on the analysis of means of negotiation of meaning, noticing, scaffolding, and social presence, and combines systematic reviews, meta-analysis and empirical studies to identify consistent findings without the calculation of new effect sizes. It focuses on two questions: (1) What are some of the factors which make CMC difficult in second language learning? and (2) What are some of the design principles that can guide educators in the effective and equitable use of CMC?

Challenges and Limitations

Digital Inequality

The most basic restriction is the inequality in access. Digital inequality is not just the issue of who has a device or connection, but also the quality of the hardware, how much autonomy users have over their devices, their skills, social engagement, and what can be done with them. Learners who have to share a phone, poor data reception, inaccessible interface or noisy areas cannot compete with learners who have their own laptop and reliable broadband. Learners with visual, hearing, and motor impairments, as well as those with cognitive or language impairments, may also be excluded by accessibility barriers.

Alternatives with low bandwidth, downloadable materials, captions and transcripts, keyboard accessibility, extended deadlines and equivalent asynchronous routes are all part of inclusive design. Technical support needs to be provided by institutions and hidden costs cannot be passed on to the learner.

Cognitive and Linguistic Load

CMC can make multiple demands, which includes language comprehension, language production, software control, keeping track of multiple message streams, reading the visual information and task completion. Synchronous environments are time-pressured and

multimodal platforms split the focus between speech, chat, slides, camera and notifications. Cognitive overload can diminish focus on linguistic form and have a negative impact on lower-proficiency learners.

The prosody, gaze, gesture and immediate repair cues are also absent or modified in text communication. Rapid chats are characterized by the presence of parallel conversations, elided expressions, spelling errors and interrupted turn taking. These are real-world digital-literacy tasks but students require clear strategies on quoting, signalling shifts in topics, asking for clarification, and taking turns.

Participation and Anxiety

The idea of participation being equal through online communication is false. Researchers find that anxiety, low motivation, inadequate e-literacy, technical difficulties, power dynamics, and passive “lurking” are obstacles. There may be dominant participants in a group, and some learners may be doing little of their own work and benefiting from that of others in the group. The fear of permanent damage or negative assessment can be accentuated by public posting, and video can exacerbate self-consciousness.

Small groups, role rotation, accountable individual contributions, and private and public feedback should be used by teachers. In Lin’s meta-analysis, the size of the group was a factor in the effectiveness of the grouping, because in the studies analyzed, small group instruction produced greater effects than no grouping or a grouping size of more than three.

Pedagogical Framework

The process of implementation begins with the result, not the tool. The educator should first articulate the purpose of the communicative action, the linguistic purpose, the purpose of the interactional/digital-literacy, and then select the communication mode that supports these

purposes, which is synchronous communication for the purpose of fluency and spontaneous repair and asynchronous communication for the purpose of planning and reflection. Tasks should include genuine information exchange and scaffoldings like sentence starters to minimize cognitive overload and unequal participation.

There are three phases to a strong CMC sequence. The teacher pre-teaches key language, sets roles and provides a meaningful problem prior to the interaction. During it, students negotiate and create a product together. It is followed by viewing the transcript again and analysing and revising the output, which is pedagogically essential as output and noticing will only give rise to durable learning if the learners pay attention to the feedback and then re-use the target form.

Overall, the hybrid option is preferred. Face-to-face interaction offers embodied cues, CMC can be synchronous and asynchronous and provide distance and time extensions to practice, and AI can provide further rehearsal. But the lack of emotionality and nuanced contextual interaction of chatbots means that they cannot replace human teachers and can be used to supplement them.

The same is true for methodological diversity in research, as is illustrated in the evidence provided above. Meta-analyses conducted in CALL – SLA have revealed a great deal of variation in rigor, transparency and usefulness. Future studies must be longer in duration, incorporate delayed post-tests, utilize valid measures of interactional and intercultural competence, and provide detailed reports of tasks, platform, feedback, learner history and fidelity of implementation. Comparative studies should not be merely ‘technology versus no technology’ but should be comparative studies of pedagogical configuration.

These priorities take on greater significance in the context of the current emerging AI-mediated interaction. Chatbots can produce inaccurate language, perpetuate bias, pretend to know what they are talking about, and reduce human reciprocity, which is essential for effective communication. Studies should be conducted to distinguish between temporary performance and permanent acquisition and to find out how learners evaluate, interrogate and modify the feedback provided by the machine. The exchange of information between the human and the AI cannot be uncritically equated with the exchange between humans of different cultures, but rather with a new form of mediated communication.

Conclusion

The limitations discussed in this paper are not meant to negate the worthiness of CMC but conditions under which CMC can be achieved. A platform does not guarantee participation and acquisition; each of these factors point to unequal access, cognitive and linguistic load, and anxiety.

The main takeaway is that there is a need to design for pedagogy before using technology. In order to achieve effective CMC, the tasks need to be purposeful, the cognitive demands need to be manageable, the interaction needs to be made explicit, students need to be able to participate, teachers need to provide scaffolding, and there needs to be reflective follow-up.

It is important therefore to not think of CMC as a panacea or a threat to the traditional pedagogy. If designed well and supported equitably, it can break down barriers and link language learners together, and it can help them build language proficiency, autonomy, digital literacy, ability to work collaboratively, and intercultural responsibility.

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