

## 5. Designing text-based asynchronous online discussion forums/boards: a review of literature



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### Resumen

El presente artículo presenta una revisión de literatura de elementos a considerar a la hora de diseñar foros de discusión en línea asíncronos, así como de las ventajas y desventajas que se han estudiado a la fecha. Se realiza una progresión temporal de investigaciones desde 1994 hasta la actualidad recopilando una serie de recomendaciones a considerar para educadores o instructores que deseen incluir foros de discusión en sus clases.

**Palabras clave:** *enseñanza de lenguas extranjeras, comunicación asíncrona, comunicación mediada por computadora, foros de discusión asíncronos, foros de discusión asíncronos basados en texto.*

### Abstract

This article presents a literature review of elements to consider when designing asynchronous online discussion forums, as well as the advantages and disadvantages that have been studied to date. A temporal progression of research from 1994 to date is carried out, compiling a series of recom-

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mendations to be considered for teachers or instructors who wish to include discussion forums in their classes.

**Keywords:** *foreign language teaching, asynchronous communication, computer-mediated communication, asynchronous discussion forums, text-based asynchronous discussion forums.*

## Résumé

Cet article présente une analyse documentaire des éléments à prendre en compte lors de la planification des forums de discussion en ligne asynchrones, ainsi que les avantages et les inconvénients qui ont été étudiés à ce jour. Une progression temporelle de la recherche de 1994 à aujourd'hui est faite, compilant une série de recommandations à prendre en compte pour les éducateurs ou instructeurs qui souhaitent utiliser des forums de discussion dans leurs classes.

**Mots-clés:** *Enseignement des Langues Étrangères, Communication Asynchrone, Communication Médiatisée par Ordinateur, Forums de Discussion Asynchrones, Forums de Discussion Asynchrones Basés sur le Texte.*

## Scope and rationale

The paper aims to present considerations of using synchronous online interaction in the form of text-based discussion forums dwelling on the advantages and disadvantages that using this form of computer mediated communication (CMC) may bring to the foreign language teaching (FLT) classroom. It intends to give instructors, or anyone interested in implementing discussion forums, a guide, or tools to better design and implement asynchronous online discussion forums.

Searches in Google Scholar with different combinations of the words discussion forum/fora, CMC, ACOM, AoD, discussion boards, asynchronous, and EFL/ESL/TESOL/TEFL were used. Three hundred and one articles were

explored for this review from 1994 to 2022, they were then analyzed in search of suggestions or recommendations on why or why not to implement discussion forums and how to do so until saturation. The articles selected were downloaded either from there or from different platforms such as Wiley, JSTOR, ELT Journal, Springer, EBSCO, Scielo, Sciencedirect among others.

## Introduction

With the widespread use of technology, online environments in the educational setting of FLT have become increasingly popular. In online or blended learning (BL) environments, interaction is a key element to consider, and the time and type of interaction that students have with their classmates and teachers during the online portion of instruction becomes important. To emulate online the communication that occurs in the face-to-face (F2F) language classroom, FLT needs the support of technology as it can mediate the communication between individuals in online settings, this is often referred to computer mediated communication (CMC).

Pellettieri (2010) explains that one type of interaction used through technology nowadays is Synchronous Computer Mediated Communication (SCMC), which involves communication that occurs instantaneously or in “real time” over a network and displayed to the interlocutors in a shared digital space. The author states that studies show that SCMC “facilitates the acquisition of oral competence” (p. 42). Payant and Bright (2017) explain that SCMC’s counterpart, ACMC, is understood as one that presents the opportunity for “learners to mediate their learning via technology, but they are not required to be online at the same time” (p. 793).

In 2013, Nicolás Pino mentions that although SCMC currently seems to enable development of speaking, its counterpart, Asynchronous Computer Mediated Communication (ACMC) “is relegated to written practices such as sending e-mails or using online bulletin boards. (p. 26)” Morris and Blake (2022), contend that in “Computer Assisted Language Learning (CALL) literature, ACMC encompasses exchanges via e-mail, discussion forums, pre-recorded video messages, and even voice boards” (p. 148).

Loncar, Barrett and Liu (2014) mention that in both environments, blended and online, learners are asked to interact with both classmates and materials (p. 94); this is the scenario where SCMC and APMC can assist FLT. They also state, citing Chen and Wang (2009), that “teachers, from primary school to university, are increasingly aware of the affordances of online forums to promote interaction and complex thinking that is not always effective in traditional face-to-face learning situations.” (p. 94)

This literature review will focus on APMC, specifically on asynchronous online discussion (AoD) forums advantages, disadvantages, and considerations to contemplate when designing discussion forum tasks in a FLT class.

### **Asynchronous Computer Mediated Communication (APMC)**

Morris and Blake (2022) claim that with the widespread use of technology nowadays, teaching without some form of technology would be a very limited and artificial learning environment. They posit that “we are all social beings who explore and mediate the world through our interactions with one another” and that this inherent characteristic “carries over into the digital realm as well.” (p. 148)

They highlight that “CMC is firmly grounded on this social bedrock in which interactive exchanges occur, which is reflected in two theoretical perspectives that remain predominant in the field of SLA: the Interaction Hypothesis and the Sociocultural Theory” (p. 149). Thus, Computer Mediated Communication (CMC) enables this interaction, which is necessary for learning to occur, in an online or blended environment. The term CMC both in APMC and SCMC is short in scope due to the digital tools available today. However, these terms will be used to refer to synchronous online interaction (SCMC) and to asynchronous online interaction (APMC) given the limited terms available.

There is a growing amount of research on the effect of both synchronous and asynchronous online interaction over the learning of foreign languages. The following section will focus on the advantages of APMC. This can provide valuable insight for FL teachers considering including AoD in their classes.

## Benefits of using ACMC

McIntosh et al. (2003) mentioned in their study that research consistently identifies 2 major benefits of ACMC: 1) deeper thought process and 2) facilitation of collaborative learning (64). Similarly, Hew and Cheung (2003) indicate that ACMC allows students to participate in the discussion at a pace that they are comfortable with, which gives learners ample time to respond to other students comments. They add that this delayed interaction might help develop thinking skills, and problem solving. In addition, they state that discussion forums demand from learners the presentation of their thoughts in the form of language and that these thoughts can be worked on and improved through questioning, clarifying, or elaborating.

The same authors also mention that ACMC fosters a level of reflection that often does not occur in F2F classes. They suggest that just the simple fact of expressing their thoughts can assist in organizing their ideas more clearly. Finally, they state that ACMC allows for higher order thinking skills such as analysis, synthesis, and evaluation to be developed (p. 3-4).

Kung-Ming and Khoon-Seng (2009) report that the advantages of asynchronous interaction are:

- a. Flexibility, because “it allows the access to learning material at anyplace and anytime” and learners can “participate when and if they want to”, (p. 55)
- b. Time to reflect, because there is no need to give immediate response. It gives the opportunity for learners to think, research, reflect, formulate, and back up their ideas and thoughts in a more coherent and concise manner, adding that learners can access archived discussions to follow the flow of discussion, and wait and input their ideas when they are comfortable with the discussion,
- c. Anonymity or pseudonymity, where learners feel more confident and contribute more as there is less pressure, arguing that this is especially true for learners who tend to be shy or laid-back in classes,

- d. No time-zone constraints, explaining that it is available at the time convenient to learners around the world since synching with their time zones is not an issue,
- e. Situated learning, because it provides opportunities to integrate ideas being discussed in the course with experiences on the job or home front, and is it
- f. Cost effective, because they consider that “text-based systems like e-mail require little bandwidth and low-end computers to operate and thus provide equitable access for learners.” (p. 123)

Wilches (2014), explain that ACMC “enables students to take their time to elaborate ideas and edit as many times as necessary before posting” (p. 53). All these points are an important element to consider when designing asynchronous online interactions as they represent a possibility to slow down real communication, and thus allow learners more time to develop their ideas. ACMC through discussion forums will be discussed in the following section.

### **Asynchronous Online Discussions (AoD)**

ACMC in the form of discussion forums, often referred to as Asynchronous Online Discussions (AoD), has gained acceptance in the last decade. Scott and Ryan (2009) mention that “The use of computer-mediated communication (CMC) medium is evident in the curriculum of many courses throughout the physical world in universities such as in Australia, New Zealand, South Korea, the UK, and the USA” (p. 105). They explain that learning through AoD forums is a meaningful strategy for learners to progress in their language skills. James et al. (2022) argue that “Higher education (HE) has seen a progressive increase in literature investigating pedagogical use of Asynchronous Online Discussion Boards (AODB) and facilitated online discussion boards” (p. 1).

Kadagidze (2014) makes the case that a specific use for discussion forums, to negotiate and construct knowledge, is an example of using the technology as a cognitive tool... Cognitive tools and environments stimulate

cognitive learning strategies and critical thinking. Additionally, she elaborates that learners read their classmates answers and interpretations and compare them with their own ideas saying that this is a process of reflection, construction and reconstruction of domains of knowledge, adding that this leads to a deeper and more lasting learning.

Nami, Marandi and Sotoudehnama(2018) contend that “despite the abundance of research in this regard across other disciplines”, research on the “potential of discussion lists for promoting asynchronous interactions and the nature of such exchanges in the context of CALL teacher preparation remain scant” (p. 2). One of the ways in which asynchronous interaction can occur online is through text-based asynchronous online discussion (AoD) forums. The most relevant findings that these forums report on language teaching are discussed below.

## **Text-based asynchronous online discussions**

### **Background**

Text-based Asynchronous Online interaction (ACMC) saw their beginning in discussion forums in more formal academic settings. Metz (1994), dates it back to 1969 with the creation of e-mail programs and states that “researchers have used it as a tool to examine its effectiveness within organizational, interpersonal, and mass communication contexts” (p. 32). He explains that “under organizational theory, CMC is used under two criteria: Task-related use and social-use”. (p. 48)

There are studies that show affordances or constraints of using text discussion forums starting from the work of Metz (1994), who wrote a literature review of CMC up to that moment, to more recent work by Cheng et al. (2022), discussing how CMC through AoD forums helps learners develop problem-solving skills and how this affects overall course grade. The impact of text-based forums on language learning and education in general has been studied for almost thirty years now and research has generated varied contributions to this field but is not as widespread in the field of FLT.

The earliest research study available was Metz (1994), where he advocated for CMC to be recognized not as a broader set of communication but as its own context. He explained that “CMC’s *models* are delineated by the structural definition of the programs which support electronic communication” (p. 44) and that these electronic models replaced theoretical ones. This article did not explore impact yet but was trying to better understand the meaning of CMC. Models for CMC are discussed in the following section.

### **Models for AoD in CMC**

Anderson et al. (1997), contributed to the literature on CMC with the development of a five-phase interaction analysis model for examining social construction of knowledge in computer conferencing. The five phases were:

PHASE I: Sharing/comparing of information, PHASE II: The discovery and exploration of dissonance or inconsistency among ideas, concepts, or statements (This is the operation at the group level of what Festinger calls cognitive dissonance, defined as an inconsistency between a new observation and the learner’s existing framework of knowledge and thinking skills.) PHASE III: Negotiation of meaning/co-construction of knowledge. PHASE IV: Testing and modification of proposed synthesis or co-construction. PHASE V: Agreement statement(s)/applications of newly constructed meaning. (Anderson et al., 1997)

They theorized “interaction in a CMC context” as the vehicle for the co-construction of knowledge (p. 428).

Perhaps one of the most relevant studies in the field of CMC is the one by Garrison et al. (2000), where they describe their Community of Inquiry model or “CoI” (88) explaining that for CMC to be effective there needs to be: 1) teaching presence, 2) social presence, and 3) cognitive presence (p. 88). This model has also generated research studies in an attempt to test it, the most relevant will be discussed below. The following section discusses the advantages of using text-based AoD forums and considerations that might be relevant for teachers considering implementing AoD in their classrooms.

## Advantages of using text-based AoDs

Freeman and Capper (1999) discussed that “simulation enhanced student learning and helped prepare students for effective technology usage in the workplace” Adding that the “anonymity appeared to allow students to challenge their own stereotypic views of gender and race as well as their views about the content of securities markets regulation” (p. 111) they also commented that the sole simulation “appears to show greatest potential when the subject matter has an inherent conflict or ambiguity” (p. 112). Additionally, they mentioned that “anonymous asynchronous web-based role simulation without the web ... is simply not possible” (p. 95) Anonymity is discussed later as it is not recommended in classrooms.

Beaudin (1999) highlighted the importance of learners staying on topic when using AoD and indicated four techniques in order of importance as rated by online instructors for maintaining AoD on topic:

- 1) Carefully design questions that specifically elicit on-topic discussion, further highlighting that online instructors should be encouraged to develop questions that are clear, concise, and directly relate to the purpose of posing the question.
- 2) Provide guidelines to help online learners prepare on-topic responses and pointed out that these guidelines serve as information organizers which in turn foster learning and retention.
- 3) Reword the original question when responses are going in the wrong direction explaining that this technique cannot be planned with anticipation but should be overcome by improving technique number one, and finally.
- 4) Provide discussion summary on a regular basis which develop lower level cognitive processes and prepare the learners for higher level cognitive processes. Interestingly, in this study, what online instructors recommended and what they actually used to keep learners on topic was significantly different, this could mean that instructors need to develop capabilities that would allow them to actually do what they recommend.

Swan (2001) relates his research to the CoI and found that there are three general factors that heavily influenced satisfaction and perceived learning by learners: a) clarity of design, b) interaction with instructors, and c) active discussion among course participants (p. 306). The first factor clarity of design echoes the views of Beaudin above and serve to support his findings.

Aviv et al. (2003) researched how structured ALN (Asynchronous Learning Networks) -a 3-month long online seminar with structured commitment, goals, schedules, a reward mechanism, and model for working with content-, and non-structured ALN, -a 3-month long online seminar without commitments, goals, schedule, reward mechanisms or structured steps- assisted in constructing knowledge.

The authors contributed to the field by reporting that in structured ALN (Asynchronous Learning Networks), the knowledge construction process reached a very high phase of critical thinking and developed cohesive cliques explaining that the role of the instructor was limited or had little power. On the contrary, in non-structured ALN, where instructors led or controlled more being the center of activity “the knowledge construction process reached a low phase of cognitive activity; few cliques were constructed; most of the students took on the passive role of teacher-followers” (p. 1). Although this study used what the CoI model refers to as “Teaching Presence”, they found that social presence was more useful for reaching higher cognitive activity.

Meyer (2003) compared face-to-face (F2F) discussions against AoD forums and reported that although there were advantages to both, participants “most frequently noted that using threaded discussions increased the amount of time they spent on class objectives and that they appreciated the extra time for reflection on course issues” (p. 55). On the other hand, they also noted that the F2F “format also had value as a result of its immediacy and energy” (p. 55). This research indicates the importance of using ACMC together with SCMC or F2F interaction as they complement each other.

Relevant from the above article is that some students found one mode a better “fit” with their preferred learning mode. This might mean that the effectiveness of F2F, synchronous or AoD forums could depend largely on the participants learning mode rather than on the affordances or constraints of each mode, and if we consider how technology has slowly integrated in

society as a whole, this might represent a future change in learning modes as well and a more integrative view of using synchronous and asynchronous modes of interaction rather than just one (p. 55). Preferred modes of interaction should be surveyed at the beginning of classes as this would help the designer develop better AoD or decide when or whether to use them.

A study by Vonderwell (2003), noticed that learners posting anonymously felt more freedom to ask and another study, in the same year by Woods and Ebersole (2003), stated that online instructors “try to foster a sense of community among learners by incorporating personal, non-subject-matter-specific discussion boards, often referred to as discussion folders, rooms, or forums, arguing that social bonds created have cognitive and socio-affective benefits in learning activities” (p. 100).

Their results also “support the idea that the use of certain non-subject-matter-specific discussion folders as gathering places in online courses can positively contribute to an online learner’s sense of connectedness with others” (pp, 200-213). For the case of working professionals, they suggest that they “are not as interested in taking the time to discuss issues not related directly to the course” and that for “these students, online activity is purposeful and task oriented” (p. 110).

Mazzolini and Maddison (2003, p. 252), suggest that students “possibly react more positively to questions posed by fellow students.” On the other hand, “instructors who play only a minimal part in online discussion forums are unlikely to be very popular with students, even if the discussions on their forums appear to be thriving” (p. 252), and accordingly do not recommend instructors to disappear completely from the discussions. These are important design considerations for those intending to use AoD in their classes, not posting too much but making learners know that the teacher is there.

Hwang and Wang (2004) studied learning time patterns in asynchronous learning environments and their findings are reported in three parts: “The first finding is that the more diligent learners were, the higher the quality and quantity of their interaction” (p. 290) intensive reading was an important factor in this first finding. The second finding of the authors “is that learners whose learning time intensity was mainly located in the early period of the course and whose interaction content included many complaints were suspected to be possible dropouts” (p. 299); this is useful information

for instructors using asynchronous learning environments so establishing a space for complaints can help identify them sooner and find strategies to help them. The third finding was that “learners whose learning time intensity was mainly located in the later period had achievements that were significantly different from those of the regular periodical reading learners whose learning time intensity was distributed in all periods of the course” (p. 292). Finding strategies to help learners contribute consistently throughout the course and detecting early those with many complaints could prove a successful strategy in improving learning.

Furthermore, the authors concluded that the more reading participants did, or the more diligent they were, the more active their interactions were during discussions. They recommend instructors to guide participants through well scheduled programs, to encourage self-discipline on regular online reading, to establish rules where participants cannot advance until they have submitted their assignments, to use systems that display reading times compared to others to motivate them to read more and at the same time use that information to take pedagogical decisions.

Wu and Hiltz (2004) state that discussions improved students’ perceived learning in the “mixed mode,” meaning classes that meet face-to-face and also require additional asynchronous online discussions. They indicated that variations among instructors or courses are associated with differences in perceptions of student motivation, enjoyment, and learning from online discussion and that previous experiences with online courses did not have a relationship with perceived learning from AoD.

Altun (2005) conducted a study where learners found the integration of CMC tools for learning English as beneficial. He particularly states that “students generally tended to develop positive attitudes toward using asynchronous communication tools in their language teaching program” (p. 1) as well as towards communicating with classmates with whom they usually did not. The students question however, why to interact online when the instructor is physically available which contrasts with the views of Wu & Hiltz (2004), in the preceding paragraph.

Thompson (2006) compiled a set of best practices for instructors using AoD drawing on several authors. The author quotes Black (2005) stating the need for participation from learners and advising instructors to be very

specific in their expectations providing an example where students leave their participation for the last minute before due date, thus reducing the quality of interaction. The same author recommends specific guidelines, checklists, rubrics for acceptable responses, modelling, well-designed open-ended questions and topics, requirement of specific connections to the readings, private addressing to students who are off-topic or inappropriate, summary of the discussions, and clear grade points or percentage assigned to their contributions.

Thompson (2006) quotes Ambrose (2001) suggesting that students must be made feel welcome and safe. Stating also that instructors must provide clear instructions of where and how to post, not reply to every comment, ensure the direction of the discussion, intervene only to help students explore topics more deeply, summarize effectively, and assess learners from their contributions. In addition, Thompson (2006) discusses the works of Klemm (1998), Brown (2002), Bolloju and Davidson (2003), Hammond (2005) among others providing valuable advice for designing AoD tasks.

Machado (2011) compared discussion forums where learners interacted versus private blogs where they could post their ideas or elaborations on any given topic without interaction. She found that learners preferred discussion forums, that there was no significant difference between the posts of females versus males and that the marks and opportunity for social interaction very likely contributed to learner active participation. The author analyzed learner reflection in three manners:

- a) reflection-on-action or retrospective,
- b) reflection-in-action or contemporary, and
- c) reflection-for action or anticipatory finding that males posted more in contemporary reflections. She mentioned that those participants who posted more in their private blogs, posted less in discussion forums and vice-versa. This could indicate that it was just a matter of preference.

Hew and Cheung (2012) conducted a comprehensive examination of literature on asynchronous online discussions in K-12 and higher education contexts from the year 1992 to the end of January 2012 excluding non-em-

pirical descriptions of online discussions, opinion papers, and non-educational forums such as political discussions, and patient support groups finding more than 110 articles. They then categorized them until reaching saturation and presented their findings. The most relevant findings are discussed below.

The authors found the following as factors limiting student contributions in AoD forums:

- a) learners not seeing the need for online discussion,
- b) behaviour/practice of instructor or participants (tone of postings – threatening, pontification on the part of others, lack of peer response, lack of instructor response, single-pass strategy),
- c) Personality traits (e.g., low degrees of curiosity, extraversion, agreeableness, openness),
- d) Difficulty in keeping up with the discussion,
- e) Not knowing what to contribute,
- f) Lack of critical thinking skills,
- g) Being content in merely answering queries (low-level knowledge construction),
- h) Technical aspects (e.g., usability issues),
- i) Lack of time, and
- j) Risk of being misunderstood. After discussing the above factors, the authors presented strategies to help mitigate them.

Hew and Cheung (2012) also discuss five pedagogical problems or, strategy dilemmas, that they consider “educators might encounter: (a) use of grades or marks, (b) use of number of posting guideline and posting deadlines, (c) use of message labels or sentence openers (online scaffolds), (d) extending the duration of the online discussion, and (e) instructor-facilitation.” (p. 49) Each of these dilemmas were explored individually and are explained below.

For the first dilemma, they found that simply giving marks to increase contribution may not be the best strategy. Instead, they suggested the use of rubrics designed considering the objective of the discussion and peer assessment with flexibility from the instruction to change marks according

to observation and peer assessment. Nonetheless, they mentioned that further research was needed to understand the effectiveness of these suggestions.

For the second dilemma, they found that indicating the number of times to post made the learners stop posting once they reached the required number that the quality of the posts suffered as well. Regarding deadlines, they found that participants tended to post almost at the deadline with limited interaction, this meant that deadlines were both a participation motivator and a discussion inhibitor because they did promote participation, for their grade but they stifled dialog.

The above authors explored the idea of multiple deadlines per discussion as a viable strategy but mentioned that more research on this topic was needed to understand their effects. They recommended alternative forms of incentives such as a “rewards program that combines quantitative and qualitative measures to motivate student contribution” (p. 50), where students would obtain points and access to extra class material only available through those points. When this system was applied, students continued participating even after the reward system was withdrawn. As a last suggestion, they suggest being explicit with expectations as to what each one of their posts should contain instead of only guidelines or a number of posts.

As for the third dilemma, they reported that message labels or categories where learners had to allocate their messages disrupted students’ ideas and stunted the flow of discussions, particularly labels with negative connotations such as critique. They mentioned finding other labels that did not have negative connotations although commenting that participants usually labelled their posts erroneously. They suggested using the socratic questioning counter arguing that it was a mere conjecture, and that further research was needed in this regard.

For the fourth dilemma, they did not find a correlation between longer time allocated for AoD and number, quality, or higher-level knowledge constructions from the postings. They found that participants took an average of two hours to prepare and post their ideas and argued it was similar to F2F time. They speculate that it is more a matter of prioritization where work or family issues were considered as more urgent. The authors recom-

mended creating a sense of urgency either through marks or using the discussions as complements to other parts of the course.

The last dilemma, use of instructor facilitation, shows that instructor led discussions may entail too much time and energy from them and because students see them as the experts, they inhibit student participation and voice. In discussions where the instructor replied to almost everyone, critical thinking was exhibited as low, and students favored replying to the instructor rather than to their peers, thus undermining interaction.

Hew and Cheung (2012) recommended peer facilitation, performed either by their own classmates (the same age) or by older peers, students from other semesters or teaching assistants usually referred to as cross-age facilitation. The latter was considered by students to be similar to instructor led, and they preferred, participated more, for longer times, and with better quality in same age facilitation. They report that instructor led facilitation was preferred for organizational matters, for keeping the discussion on topic, for mediating conflicts, and for explaining concepts that were more complex and required expert knowledge.

Harmon et al. (2014) found “positive net effects on learning outcomes of using Facebook as a discussion tool” (p. 1) commenting that learners had to be taught how to use it for it to work. Hawkins et al. (2013) examined the relationship between students’ perceptions of teacher–student interaction and academic performance in an asynchronous, self-paced environment, they subdivided the quality of interaction in three constructs, feedback, procedural, and social interaction; they discovered that “the quality and frequency of interaction resulted in an increased likelihood of course completion but had minimal influence on grade awarded” (p. 64). Designing tasks in a way that everyone is ensured interaction can increase course completion rate as per these findings.

A study by Fehrman and Watson (2020) conducted a systematic review of AoD in online higher education analyzing data from 2015 to 2019 obtaining 35 articles which compiled best practices and relevant findings for educators to be better informed when deciding to use AoD in their classes. The documents analyzed were fifty four percent quantitative and thirty seven percent mixed methodologies. They start by explaining that AoD forums

must provide community, instruction, and participation for students to be beneficial.

The preceding authors also posit that student-student interaction assists in increasing comprehension of course content and new perspectives while instructor-student interaction leads to more educational and meaningful results. They elaborate that AoD provide opportunities for student interaction but that the opportunity alone is not enough, and that students working alone in asynchronous conditions obtained better results than those working collaboratively. They criticize that “there seems to be little agreement about what the goal of student-student interaction should be, and how to best accomplish those goals in an AoD environment” (p. 4).

Furthermore, they make the case that more active instructors led to more student postings in small classes but had no effect on larger classes. Similar to Hew and Cheung (2012), Fehrman and Watson (2020) reported that timely responses to student questions and frequent feedback were important to get students to participate and improve their motivation, but this was extremely time-consuming for instructors. They also found that structured AoD design was more beneficial than unstructured and that “having a clear design and purpose, with clear expectations of the roles of instructors and students increased learning outcomes in AoDs”. (p. 5)

Fehrman and Watson (2020) stated that expectations regarding performance length and depth of posts by students was important and could be guided by using Bloom’s revised taxonomy through a variety of questions and using authentic problems. They counter argue the above findings indicating that the idea that structured AoD work better was not conclusive in one of the studies adding that “with small groups, the structured AoDs seemed to work better, while larger groups seemed to do better with unstructured AoDs”. (p. 6) The authors cautioned instructors not to create AoD that were perceived as too long compared to their educational value because student would just complete the assignment and did not focus on learning.

Furthermore, the same authors found grading as a continuing theme (as explored by Hew and Cheung, 2012) and reported that voluntary posts were not conducive to learning and that students were primarily motivated to post in AoDs by the grades they received and because of this they prior-

itized grades over learning not doing work that students considered was not necessary to meet forum requirements.

They concluded that assessment objectives must be clearly communicated to the participants and literature suggests the most common tool to do this is rubrics. Their implementation dramatically reduced complaints on AoD assessment, reduced instructor grading time and focused student attention to the content, frequency and quality expected by their posts (Norton y McKinney, 2011) (6). Rubrics were useful for communicating the purpose, expectations, instructions on how to use them and on how to collaborate in AoD, aspects which “all lead to improved student engagement and outcomes” (p. 6).

Fehrman and Watson (2020) also explored group size and cited Afify (2019) who “indicated that small (<10) and medium (10-20) groups increased critical thinking more than large (>20) groups with AoDs” but another study suggested that larger groups generated more participation per student. They state that group size is not a “widely studied aspect of AoDs” (p. 7) and that literature to date is not conclusive.

The same authors cited Cho et al. (2016) who “examined three different online classes with no AoDs, AoDs that were student-only, and AoDs that had instructor presence”. (p. 8) They reported that student perception of the instructor did not change in the three cases, time spent on topic by students was roughly the same so AoD forums do not necessarily add workload, AoD did not improve teacher effectiveness or learning outcomes but reported that class cohesion was higher in the courses with AoDs.

Moreover, Fehrman and Watson (2020) compared social media to Learning Management Systems (LMS) such as blackboard or moodle and reported that Social Media applications such as Facebook and WeChat generated more posts but of a lower degree of depth in terms of the taxonomy of Bloom whereas LMS were more beneficial for knowledge construction but had fewer posts. They presented another study where individual learning needs affected preference for any given tool. The authors add that “Despite the wide-spread nature of AoDs, there are still several challenges reported” for both students and instructors (p. 9). Something to consider in this section is the importance of using LMSs instead of social media to have richer discussions.

Chen, Lo and Hu (2020) explored message responsiveness in AoDs and found that “a message that either expressed disagreement, included a correct or incorrect idea, or asked a question”, (p. 8) and that users who replied earlier in the discussion were more likely to receive a reply to their contributions. Douglas et al., (2020) expanded this idea by reporting that confident and experienced students who made meaningful posts “may have influenced the less experienced to question whether they could contribute as meaningfully” and thus deter their contributions.

Carr (2020), explored alternatives to AoD forums with teacher candidates, finding that they showed preference toward the three alternative Asynchronous Online Discussion Board (AODB) platforms including Flipgrid, Video-response, and BookSnap over traditional AODB.” Additionally, “when evaluating for enhancing creativity, understanding, student voice, and usefulness participants preferred Flipgrid” (p. 304). Teacher Candidates chose “alternative platforms over traditional because they enabled them to demonstrate their understanding (32%), be more creative (37%), or were considered more fun (31%), easy (28%) or quick (15%) (p. 303) than traditional asynchronous online discussion forums. This seems to indicate that platforms that include a combination of text, audio and video are more likely to be beneficial for learners.

Farrow et al. (2021), investigated assigning the “expert role” to students in discussion forums and found that the “contributions made while the student was in the ‘expert’ role scored significantly higher” in cognitive presence and cognitive engagement, from the Community of Inquiry and the ICAP frameworks highlighting that this was sustained regardless of whether they were assigned the role early or later in the discussion or of the student order in which they were assigned the role (p. 1). The authors concluded that instructors should feel confident in assigning complex roles and rotating them between students.

James et al. (2022) explored perceptions of seventy-eight students focusing “on the positive and negative learning practices and outcomes during online discussions” (p. 8). After categorizing in themes, coding, and analyzing the data, they identified seven opportunities to design engaging, dynamic and fit-for-purpose discussion boards or forums which are described next:

1. Effective online discussion provides consecutive opportunities to reinforce and apply knowledge. Students are systematically taught critical thinking. Subsequently, students ask questions of each other providing timely feedback on their input with educators guiding discussions and responses. This back-and-forth conversation contrasts with being lectured to, enabling scaffolded learning. We also envisage potential for a reduced tendency to plagiarize as educators and students interact building connections whilst offering alternatives experiences. This is evident from our literature review and discussion resulting from the original work of Vygotsky (1978, p. 12).
2. Student posts are more analytical as they work through, draft and edit the discussion material before posting. Active learning which is inherent in discussion boards provides a platform (online space) upon which to practice unit and industry skills. Independence in thinking learnt during discussion, using discipline-specific terminology, which can be transferred and applied to work environments. Similarly, scaffolding of learning can impact upon and target the achievement of graduate outcomes (p. 12).
3. Online discussion supports and facilitates active student-centered learning and can enable teaching strategies for multiple learning styles. Effective learners can see how they may assist in a mentoring or teaching capacity. This fits the response to utilize student facilitation to enhance peer learning and student understanding (Seo, 2007) This skill can be transferred to work environments as online discussion targets the development of self-directed learning skills (p. 12).
4. Less confident students are exposed to the learning processes of effective learners, thus encouraging engagement and learning from each other. This is in keeping with the work of Hall (2015) as discussion boards provide a virtual site for student collaboration. Students are enabled to explore their own propositions, promoting practices consistent with skill development as life-long learners.
5. Opportunities arise for harnessing student and educator diversity. This provides more nuanced online conversation, leading to fresh ways of thinking about our teaching, assessment strategies and unit content (p. 12).

6. There are assessment decisions to be made in parallel with the implications discussed above. For example, the focus of learning, student numbers and size of per discussion group and number of facilitators will influence the type of assessment effectively implemented. Comprehensive marking rubrics have a significant role with the criteria clearly communicated to students (p. 12).
7. Through experience and outcomes of this study we also identify some challenges which can be seen as opportunities to be addressed. We recognize that all students are not self-directed. Some students may not undertake the prescribed learning activities before commencing discussions. This behavior might lead to reduced levels of participation and engagement. These students may subsequently fall behind the unit schedule and be at-risk of failure. In contrast, students that are well prepared may feel that they are carrying those that are unprepared. Some students may view discussion as simply more homework, leading to an extra workload rather than an effective learning tool. This perception may be linked to previous negative experiences. (James et al., p. 13)

Schultz and Sandidge (2022) contend that “key ways that instructors structured discussions and interacted with them provided the cognitive presence and social presence that students desired from discussion boards” (p. 24). The authors point out that when analyzing data two key themes emerged. “The first was that according to students’ perception, learning involves asking questions; this theme is strongly confirmed in research. Students need clear opportunities to ask questions, and they need to have their questions answered in a timely manner” (p. 24). The timely feedback was raised in previous studies (Hew and Cheung, 2003) with instructors complaining about requiring too much time and energy to answer to all.

The second theme was that there is great power in student choice; student engagement and perceived relevance of the material increased with choice. Students valued choice in readings and prompts, choice in how they interacted with the discussions, and choice in how they earned their grade in the discussion. Although, after each of those factors, the authors provide a series of suggestions on how to tackle them of particular interest is that to

counteract the risk of being misunderstood, they suggest using audio-based discussions.

All these studies have contributed to understanding the effects that text-based CMC have on the educational setting, and particularly focus on results that can be used by language teachers to design effective text-based AoDs. As with everything, text-based AoD are not the panacea of education and literature discusses disadvantages which will be presented in the following section.

### **Disadvantages of using text-based AoDs**

Anderson et al. (2001), took one part of the CoI, the “teaching presence”, and argued that there is a difference in the quality of teaching presence that can be perceived in a discussion forum between instructors who are trained in designing forums and those who are not, including moderators —usually other students who moderate discussion forums—. Those who are not trained may post more, but the quality of the teaching presence is better in those who are trained or prepared in both the CoI model and their field of study. They contend that using the phrase *teaching presence* instead of teacher presence is better precisely because sometimes there are learners (not teachers) who act as moderators in some AoD forums.

Pawan et al. (2003) used the five phase interaction analysis model by Anderson et al. (1997) and found that “the discussions centered on Phase 2 (Exploration; 66%), with little phase 3 (Integration; 11%) and no phase 4 (resolution) at all” (p. 127). In other words, “the participants were primarily sharing information and brainstorming their own ideas in relation to the issues, problems, and questions posed by instructors or the assigned student discussion facilitator” (p. 127).

The authors also mentioned that participants were not interacting with others replying to them but rather only developed the topic asked and though they stayed in topic, they developed it in a more monological manner; this is relevant for this review since, as the same authors state “discussions do not automatically become interactive and collaborative simply by virtue of being in an anytime/anywhere asynchronous medium” (p. 137).

This implies that participants need to be told or taught about the purpose and uses of forums before starting so that interaction can occur. Such lack of replies can be considered for the design of the AoDs the field of foreign language teaching and learning.

A study by Vonderwell (2003), explored the ACMC perspective and experiences of undergraduate learners. She explains that many learners felt awkward initiating interaction with people they did not know. In addition, some felt bad that their posts or questions were left unanswered by their classmates (p. 83) and that there was no interaction (one on one) with the instructor. Learners reported that interaction felt less personal and reported delayed feedback, they also reported that “communication in the web-based environment requires clarity and careful construction of the message”, (p. 86) and even like that there will be misunderstandings as “someone is going to post or read something incorrectly”.

Mazzolini and Maddison (2003, p. 252) found that “the more instructors posted to discussion forums, the shorter were the discussion threads on average.” Relevant to the purpose of fostering interaction, they also added that “Instructors who were active in initiating discussion threads did not appear to stimulate more discussion and may actually have limited the amount of discussion (with the more advanced students) and the length of discussion threads (with all students)”.

Freeman and Bamford (2004) conducted a study on anonymity and reported that “Some undesirable behavior was evident, including posting as others’ identities to harm or denigrate another student’s opinion”, and when given the option, ninety percent did not post anonymously. Because of this, they recommend clarifying expectations regarding what is undesirable behavior on AoDs (p. 53).

Lin (2014) sought for an empirical link between CMC and SLA finding that “literature on the effectiveness of CMC in SLA is unable to conclusively support its benefits.” The author reported that “studies show a positive and medium effect from CMC interventions” and that “communication taking place either asynchronously or synchronously does not seem to have a differential effect on SLA” adding that asynchronous communication represents a good alternative or substitute when the synchronous mode is not available (p. 120).

The author implied that it was “low proficiency learners in particular who performed better than the high proficiency learners in this environment, suggesting that the unique features affordable in online environments do have the potential to remedy some learners’ shortcomings, such as their low language proficiency” (p. 135). Lin further summarized that “learners’ proficiency level, interlocutor type, research context and task type were found to be variables that would significantly moderate the effectiveness of interaction in such an environment” (p. 120) but speculated that the small sample of some categories made these results tentative.

Burton et al. (2014, p. 1), claimed that asynchronous online “discussion boards often lack rich and dynamic dialogue, and instead serve as a field of obligatory discourse, hasty postings, and repetitive content”. For such reason, they proposed an “activity-based discussion exercise, known as the suspense model” to promote student engagement. It basically presented a task and learners had to carry it out without having all the information which would be disclosed as they progressed through the activity. Their results show that students engaged faster and more thoroughly using this model and that their perceptions towards this model were favorable compared with the traditional model of giving all the information from the start (p. 1).

For the case of students, learning in AoD appears to be rather difficult, literature reports that they are time consuming, and those with requirements for “too many lengthy posts can make students feel disconnected and overwhelmed.” Similarly, when they thought nobody read their contributions they felt “discouraged and unmotivated.” They contributed further mentioning that students need to be taught how to build knowledge in AoD to achieve instructor goals and that this can lead to anxiety about participating.

In the case of instructors, literature states that using AoD can be a very time-consuming activity and they care needs to be taken when using them as they must be directly to course objectives, particularly if a mark is assigned to them. Research points out that instructors need to learn how to construct knowledge in AoD and how to model this knowledge construction for students to learn, in addition, they need training in recognizing when to prompt learners and when to provide answers, how to develop interper-

sonal communication in AoD where students are active learners rather than passive recipients of knowledge. To finish the Fehrman and Watson (2020) observe that there are not many studies with alternatives to text-based AoD forums and that there is a need to develop “a more standard way to measure items like efficacy and learning in AoD environments.” This is especially important since there is not an agreed model to assess how effective AoD are. The next section will discuss some models that have attempted to address the issue.

### *The problem with analyzing AoD contributions*

The work by Hew and Cheung (2003) studied seven different models for evaluating AoD forums and found several drawbacks with them, they posit that the first one is the unreliable use of the unit of analysis (described by the authors as a discrete element of text that is observed, recorded, and thereafter considered data). They state that one way to analyze them is “to take the learners’ online message postings (this being the unit of analysis) and analyze each posting in turn, with reference to the threads of discussion topics”, but with the problem with that is that “online postings usually contain more than one idea or thought.”

Another way is thematic unit, for which the authors cite Budd et al. (1967) to define it as “a single thought unit or idea unit that conveys a single item of information extracted from a segment of content”, according to the authors this unit of analysis “resist reliable and consistent identification.” (p. 34) The last unit presented was “to combine the flexibility of the thematic unit with the identification attributes of a syntactical unit (e.g. a sentence, phrase or paragraph).” The authors conclude that “despite the fact that many units of analysis have been experimented with, none has been sufficiently reliable, valid and efficient to achieve pre-eminence” (p. 255).

The same authors contend that a second drawback is high degree of subjectivity involved in discriminating the data and putting them into the correct categories and thus becomes difficult to achieve high reliability. For the latter, they proposed using inter-coder reliability defined as “the extent to which different coders, each coding the same content, come to the same coding decisions (Anderson et al., 2001). They recommended always doing

a sample exercise before starting. Hew & Cheung (2003) present a third and last drawback as being the “inability of these models to evaluate the interactions, cognitive processes and roles of passive learners.

## Conclusion

The use of ACMC through text-based AoD appears to be a good option for Foreign Language (FL) teachers who want to expand their tools and activities in online environments although this could also be adapted for F2F classes through the use of slips of paper instead of the online environment. Nevertheless, if there is an intention to include AoD in the FL class, the following conclusions can be drawn from this review.

## Advantages

Literature on AoD posits that good AoDs provide consecutive opportunities to reinforce and apply knowledge, they also become more analytical given the extra time learners have to work on, draft and edit their messages before posting, they foster a student-centered approach, and expose students to the learning processes of others. AoDs need to provide space for students to ask questions and those must be answered, they also need to provide choice as this increases engagement and perceived relevance and they increase social bonds which have positive effects on learning. AoD are also recommended as they prepare students for using technology in the workplace.

In addition, authors state that forums should be connected to specific course goals, be structured, be designed considering giving clear instructions and expectations in terms of quantity, length and depth of posts. They also mention that designers should also consider making them multimodal (text, audio, video) since it increases acceptance by learners.

Instructors recommend designing questions carefully, providing guidelines to prepare replies, rewording instructions if participants are going off topic and providing regular summaries to keep students on topic, encouraging student-student but not to disappear completely from the forums. In

terms of marks, using class grades through rubrics is considered to be more effective as voluntary posts do not lead to learning. Designers should require posts to be distributed over a time period rather than just include a deadline since this usually results in many posting at the last minute, hindering the quality of interactions. Assigning “expert roles” to students as this increases the quality of their contributions.

Furthermore, instructors recommended using a points system where learners could access to specific extra class materials only once they have earned those points through completing posts or discussions. They recommended using positive labels or categories for students to contribute rather than negative labels, and suggest using LMS for AoD instead of social media as the latter generates contributions of a lower degree in terms of blooms Taxonomy.

From the perspective of learners, they perceive satisfaction through clear designs and interaction with instructors rather than only posting their contributions or completing a task. Using social media for forums increases participation and the probability of completing courses but have no effect on grade.

Combining educational objectives with personal topics appears to be a way forward since it also creates class cohesion which is considered to have positive effects on learning.

## **Disadvantages**

In terms of disadvantages, literature states that participants only answer tasks and do not really seek to interact with others, feel awkward starting conversations with people they do not know, feel bad if they do not receive a reply, feel interaction as less personal, report delayed feedback, and require instructions to be clear and carefully constructed. They also state that AoDs are time consuming, and when it involves too many lengthy posts, they feel overwhelmed. Finally, low proficiency learners seem to be the ones who benefit most from AoDs.

For the case of instructors, if they are unprepared for designing forum tasks using CoI there are more posts but of lesser quality, more posts by the

instructor creates shorter contributions and threads. Instructors report AoDs as being very time consuming, and that they need to be directly related to course objectives. They report needing to learn how to construct knowledge, when to intervene to either provide answers or to prompt, and to clarify what undesirable behavior is.

The studies report that AoDs are considered as lacking rich and dynamic dialogue and are presented as obligatory tasks to be answered usually with hasty replies and repetitive posts. There does not seem to be a difference between ACMC and SCMC on SLA so they can be used depending on the needs or constraints of a class.

To conclude, it is important to remember that AoD forums are a tool that is to be used only for the cases it fits the type of activity the instructor wants to conduct and not for everything in a class. A combination of synchronous and asynchronous discussion forums seems the best way to include AoDs into the FLT classroom.

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