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Referring to other participants in asynchronous online discussions: Citation patterns in a higher education context

The effectiveness of asynchronous online discussions as a learning tool in higher education critically depends on the participants' ability to create a cohesive social space. Referring to one another's messages is a key way to display a sense of affiliation and solidarity, and contribute to the consolidation of the learning community. However, research has shown that students often fail to adequately exploit this dimension of the online forum, as it requires considerable involvement in the activity and is very time-consuming.In the current study, we examined references to previous posts in a set of online discussions held during a one-term undergraduate course. The overall frequency of citations was low, with slightly over half of the 885 analyzed posts containing at least one reference. While this seems to indicate that a large number of participants conceived the activity as hardly interactive, for those who did quote their classmates, the preferred practice was using their first names, although the more formal name+surname pattern increased in the second half of the course, possibly indicating an awareness of the academic character of the activity. If the frequency and kind of mutual references can be taken as a measure of how successful asynchronous online discussions can prove as a collaborative learning tool, our results invite deep reflection regarding task design to ensure that students and instructors understand their goals in the same way.

Key words: computer-mediated communication, online discussion, personal reference

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Asynchronous online discussions (AODs) are an important learning tool in present-day higher education. They provide opportunities for students to engage in collaborative learning activities that lead to "higher order (…) deep and meaningful learning" (Garrison, 2003, p. 48). According to Swan (2002, p. 26), "asynchronous discussion affords participants the opportunity to reflect on their classmates' contributions while creating their own, and on their own writing before posting them."

The effectiveness of AODs as a learning tool critically depends on participants' ability to display social presence (Short et al., 1976), affective bonds, and a sense of affiliation and solidarity, which "supports students in the otherwise risky act of posting their tentative ideas and also in offering critiques of others' hypotheses" (Rourke et al., 1999). Creating a sound social space would be a prerequisite for the effective functioning of an online learning community (Vinagre, 2008), not the least to compensate for the psychological distance among participants imposed by the medium (Swan, 2002). Social presence has thus been found to have a significant relationship with the degree of student satisfaction in discussion forums (Akyol & Garrison, 2014). In general, affirmative behavior seems to be essential to online learning communities (Harwood, 2017), the more so the more the community becomes consolidated (Swan, 2002).

In AODs, one major way of creating social presence is through participants showing evidence that they are attending to one another. Rourke et al. (1999) cite quoting and referring explicitly to the content of others' messages as two types of interactive responses in computer-mediated communication (CMC). A common feeling reported by participants in AODs is a sense of uncertainty and insecurity about how they are being perceived by other participants, a feeling that may be heightened by not receiving a response to their messages. There is also evidence that the mere anticipation of not receiving a response to their message may be a source of anxiety for students (Peters & Hewitt, 2010, p. 954). For Swan (2002, p. 41) manifestations of "acknowledgement, agreement, and approval are the glue that holds asynchronous discussion together". Interestingly, she found that the importance of this type of interactive immediacy indicators increases over time as the community of participants becomes consolidated, "indicating a growing awareness among course participants of the importance of the use of these indicators" (p. 41). From the point of view of social exchange theory (Emerson, 1976), we would expect reciprocal social relations to develop over time as approving comments or simply positive expressions of alignment flow between participants as valued forms of mutual reinforcement.

However, research into AODs has also shown that many students fail to "listen to" (Wise et al., 2012) others' messages. To cope with the information overload frequently associated with AODs, students resort to using different work-avoidance strategies (Peter & Hewitt, 2010; Wise et al., 2012) that allow them to save time, including skimming and reading messages selectively (Wise et al., 2012). For instance, existing research shows that students tend to avoid

reading messages which are too long, but also to focus on those messages that first appear on the screen, frequently older ones, letting "the interface dictate their listening behaviors" (Wise et al., 2012, p. 470). There is some concern that these practices may limit the efficacy of AODs as a learning tool by promoting reading that "favours expeditiousness over contemplative reflection" (Peters & Hewitt, 2010, p. 954), subverting the instructors' aim of "fostering a community of scholarly exchange" (p. 958). Wise et al. (2014) reported a direct correlation between the degree of engagement with others' posts and the quality of one's own contribution in a forum. In general, the quality of collaboration in AODs is a matter of concern. Murphy (2004) showed how patterns of references to other posts may be a sign of problems in this area. An excessive focus on the expression of compliments and appreciation of others' may be a sign of poor collaboration. Murphy claimed that disagreeing with and challenging other perspectives is crucial to the production of new knowledge, one stage that is not always attained in AODs. In sum, references to other classmates are the most objective evidence we can depend on to determine the extent to which participants in online discussions are exposed to each other's views. Their quantitative analysis may ultimately provide an interesting backdrop for a closer look at the development of differentiated roles within the community of learning.

One interesting dimension of this crucial function of cross-referencing to each other's ideas in AODs concerns the effect of participants' gender. Following early claims about the existence of gendered discourse practices (Holmes, 1995; Lakoff, 1975; Tannen, 1994), Herring (1996) reported distinct characteristic styles in forum discussions in both females and males, with males using a more assertive style that focuses on propositional content, while females put a greater emphasis on expressing alignment and creating rapport. These observations have also been confirmed for AODs in particular by Guiller & Durndell (2006), who found that female students were more likely to attenuate criticism and use "supportive patterns ('I agree with you')" (p. 378).

Other personal dimensions may affect participation styles in AODs. Online discussions have proved to be an effective integrative tool for students with difficulties in face-to-face lessons (Dahl, 2016), including international students (Bassett, 2011), who would have more time to plan their messages, helping them overcome their linguistic limitations. However, the limiting effect of cultural identity looms large even in online discussions. For instance, Zhao and McDougall (2008) observed a significant increase in the frequency of the contributions of Chinese students in online discussions, but also that some cultural practices regarding the expression of personal opinions, for example, still applied and limited "their online learning in Western universities" (p. 74).

More research into the interpersonal aspects of AODs is necessary to determine whether, and if so, how, online interaction can actually contribute to strengthening social bonds between participants and enhance their awareness of shared learning goals. Among the topics that need to be addressed are the actual degree of

interactivity in AODs, or the extent to which students refer to and integrate each other's contributions, the effect of time, that is, the way these references evolve over the timespan of a course, but also the different ways and extent to which specific groups of students and their ideas are referred to in AODs, a measure of their contribution and eventual significance in the success of the activity.

In the current study, we describe observed patterns in references to other participants and their contributions in a corpus of forum discussions produced in a university course. The aim is to determine how frequently students referred to one another's posts, the factors that may impact on the likelihood of a post being cited, and what kind of stance is expressed towards the cited posts. We analyzed integral aspects of those references like their degree of personalization and the intensity of the expressed (dis)alignment, and explored how these issues are affected by aspects of the students' identities, like gender and cultural/linguistic background. Changes over time on these dimensions might provide indirect evidence on whether participants learn to see themselves as members of a genuine community of learning, where engaging critically with others' views is a necessary first step towards attaining short-term goals as a group, or whether they see the online forum as just another format to showcase their personal contribution for the sake of external reward in the form of positive evaluation by the instructor.

Materials and Method

Data for our analysis came from the SUNCODAC corpus of asynchronous online discussions in higher education (Cal-Varela & Fernández-Polo, 2020). SUNCODAC contains the Moodle-based discussions held in the context of an undergraduate translation course at the University of Santiago de Compostela (Spain) over a four-year period, from 2014 to 2017. In the discussions, participants provided feedback, in the form of criticism and suggestions for improvement, on a translation draft of a set text previously shared by a classmate. The aim for students was to work together towards an optimal translation of the text and learn, as they are required to explain and justify their own viewpoints, at the same time that they read those posted by others. They were explicitly informed that they can send comments on the posted draft or respond to other participants' posts. They had approximately two days to send their contributions once the draft had been posted. They also knew that their participation would be assessed by the instructors. In the resulting exchanges, participants frequently referred to previous classmates' posts to construct their own arguments, seeking support for their ideas by pointing out similarities with previous posts or highlighting observed differences. These references were the subject of the current study.

The dataset for this study consisted of all the feedback posts in the sixteen discussions that took place in one of the editions of the course (February to June 2016). The corpus comprised a total of 885 messages produced by 121 different participants, 89 female and 32 male students, including local Spanish and exchange

students from different nationalities, using English as a lingua franca. Participants were distributed by gender and language background as shown in Table 1.

Local Spanish-speaking females, who accounted for 57.6% of the enrolment in the course, contributed a comparatively larger share of the messages. On the other hand, exchange students—a rather miscellaneous group consisting of native speakers of English, Chinese, and a smaller representation of other languages including French, Italian, or Polish—made up 20.5% of the course enrolment but contributed only 13.6% of the messages.

As the first step in the analysis, all references to other participants' contributions were manually tracked and collected in a database together with information on: (a) the degree of alignment with the cited post: agreement ("I agree with my partners"), acknowledgement ("as 16AGQ said, everybody knows who Alice is"), disagreement ("I don't agree with 16EBH because") and mixed (a combination of acknowledgement/agreement and disagreement, e.g., "I like some of my classmates suggestions about this […], but"); (b) the possible use of intensifiers to underscore agreement and disagreement ("I totally disagree"); (c) the relative position of both citing and cited messages in the thread; (d) whether or not the reference was to a specific participant or group of participants (definite/indefinite); and (e) the choice of naming expression used to identify the cited participants (name+surname or first name; the use of a familiar nickname was not attested in this data). For the analysis of the temporal evolution of the participants' references to other posts, the four-month course was divided into four roughly equivalent periods (P1-P4), corresponding to four different forums per period. Altogether, in the 16 discussions that took place during the term a total of 810 references were recorded, distributed as shown in Table 2.

The corpus analysis was complemented by data obtained through a focus group interview with a group of students who participated in a later edition of the course. The group consisted of six local students, four females and two males, who were chosen because of their especially active role and commitment in the online discussions. The aim of the focus group was to obtain insights into the students' perception of the discussions and their feelings and concerns, in particular regarding their relationships with their classmates in the forums. The topics proposed for discussion included: strategies used to prepare their

Table 1. Number of Posts, by Authors' Gender and Language Background

	Spanish speakers	Non-native speakers of Spanish			Total
	L1 Spanish	L1 English	L1 Chinese	L1 Other	
Female	572 (64.6%)	13 (1.5%)	23 (2.6%)	46 (5.2%)	654 (73.9%)
Male	193 (21.8%)	3 (0.3%)	20 (2.3%)	15 (1.7%)	231 (26.1%)
Total	765 (86.4%)	16 (1.8%)	43 (4.9%)	61 (6.9%)	885

Table 2. Distribution of References, by Gender and Student Group (Local vs. Exchange)

	Local	Exchange	Total
Female	552 (68.1%)	37 (4.6%)	589 (72.7%)
Male	204 (25.2%)	17 (2.1%)	221 (27.3%)
	756 (93.3%)	54 (6.7%)	810

contributions, attention paid to other students' posts and ideas, possible concerns and expectations regarding the reception of their messages by other participants, perceived power relationships within the group, and perceived effect of the instructors on the development of the activity. The information thus obtained was expected to shed light and help provide an interpretation of the results of the corpus analysis. When quoted in this study, participants in the focus group are identified by means of a four-letter code, the last letter of which indicates gender, female or male: FG1F, FG2M…FG6M.

Results

Low Citation Frequencies

Overall, the level of interactivity in the analyzed discussions was relatively low. The number of participants who referred to other colleagues' posts was rather small. Almost half of the posts contained no references to previous contributions by other students. Given that each participant, as a general rule, only sent one message per forum, this means that nearly one in two students made no references to other participants' contributions in their posts. The data indicates that the group of exchange students seemed to be particularly reluctant to integrate others' ideas in their own comments. The average ratio of messages containing references to the total number of messages was 0.55, whereas it was only 0.35 for the group of exchange students. They also tended to enter the debate later, never posting earlier than the 20th message and often waiting until 30 or even 40 messages had accumulated.

What these figures seem to indicate is that many students limit their contributions to comparing their own translations with the original draft posted for discussion, spotting differences, pointing out errors, and making suggestions for improvement, but paying little notice to previous contributions by other classmates. As a result, instead of the multiparty conversation that the activity was intended to promote among the students, the general impression obtained from the discussions is one of a sequence of monologues. Messages tended to contain individual reflections on the initial draft and a rapidly elaborated list of comments and suggestions for improvement addressed to the author of the draft. In many cases, post authors overlooked the contributions by previous participants

and failed to compare their proposals with those of other classmates. A telltale sign of this low interactivity was that, although the Moodle tool used in these discussions has a "reply" functionality whose use is not explicitly discouraged by the instructors, students rarely replied to previous participants other than the author of the draft, thus missing opportunities to confront one another's ideas.

Some participants in the focus group pointed out that they preferred not to read too many of their classmates' contributions in order to save reading time and also to avoid repeating comments made by others. Posting early may actually be a strategy that accomplishes both aims effortlessly. As more students make it a point to be quick with their suggestions, more elaborate messages containing a greater number of references to previous comments (bolded cells in Table 3) tended to be gradually pushed down to a slightly later stage.

As shown in Table 3, early messages (the first ten in each forum) were less likely to contain references, as there is still little to quote at the time of posting. With few exceptions, late contributors (after the 40th message) also tended to skip citing previous posts, possibly because in quite a few cases they were last-minute comments cobbled together without much time to scan through the overload of previous posts.

Change over Time

Tracking changes over time in the frequency and quality of references to other classmates' postings was an important aspect of our analysis, as previous research (Akyol & Garrison, 2014; Swan, 2002) showed that references to others are interactive indicators which tend to evolve as a sense of community develops among participants. For this purpose, we paid particular attention to changes in the number of messages containing references and in the average number of references per message.

As shown in Table 4, the frequency of messages containing references to other participants' contributions declined rather consistently over the course of the term. By P4, about a fourth of the students have ceased at some stage to include references to others in their posts. When the number of references is

Table 3. Number of References, by Message Number and Period ($\chi^2 = 72.3$, $df = 15$, $p < .001$).

Message number	P1		P2		P3		P4	
0-10	35	13,7	18	10,7	17	8,1	27	15,3
11-20	67	**26,2**	29	**17,2**	38	**18,2**	21	11,9
21-30	51	**19,9**	35	**20,7**	38	**18,2**	57	**32,4**
31-40	57	**22,3**	33	**19,5**	61	**29,2**	47	**26,7**
41-50	36	14,1	21	12,4	29	13,9	20	11,4
Later than 50	10	3,9	33	**19,5**	26	12,4	4	2,3
Total	256	100	169	100	209	100	176	100

Table 4. Average Number of References Per Message (Excluding Messages Without References), by Period

	P1	P2	P3	P4
Number of messages containing references	140	123	113	107
Total number of references	256	169	209	176
Average number of references per message	1.83	1.37	1.85	1.64

considered, the frequency dropped sharply at P2 to recover partially at P3 and continue its gradual decline until the end of the term. Such fluctuation may be an effect of the lecturers' repeated calls for participants to confront one another's ideas more intensely. A closer look at references to distinguish between those made to a specific individual by name (definite) and those made to the group as a whole or to an unspecified set of previous posts (indefinite) shows that it is the former type which was responsible for the fluctuating pattern (see Table 5).

Logistic regression was used to analyze the relationship between author's gender, author's background (local vs. exchange students), course period, and the use of definite versus indefinite references. Author's background showed a significant overall association with the outcome variable, with local students being 3.35 times more likely to include definite references in their posts ($df = 1$; $p < .001$; Exp(B) = 3.349; CI [1.782, 6.292]). Author's gender ($df = 1$; $p = .138$) and period ($df = 3$; $p = .249$) failed to reach statistical significance.

Interestingly, the unexpectedly higher number of specific references at P3 was produced by an increasingly smaller number of students who kept inserting references in their posts. That is, at P3, there were fewer students who referred to other participants' ideas, but their contributions contained more citations, particularly more to specific contributors to the forum.

What these patterns suggest is that, except for a group of advanced students who may have developed an enhanced understanding of the forum as a multiparty discussion for collaborative learning, for many, the activity seems to have lost interest after just a few weeks, once the novelty effect has faded. Fewer students referred to their peers' ideas, other than the moderator's initial proposal, and their references were also less personal and were frequently limited to a mere acknowledgement of the group's contribution, avoiding engagement with the ideas of individual colleagues (cf. Swan, 2002).

Table 5. Distribution of Definite Versus Indefinite References Over Time

	P1	P2	P3	P4
Indefinite	114 (44.5%)	92 (54.4%)	94 (45.0%)	87 (49.4%)
Definite	142 (55.5%)	77 (45.6%)	115 (55.0%)	89 (50.6%)
Total	256	169	209	176

Who Gets Cited

The first step in contributing to the forum is consulting existing contributions to avoid repeating a point but also to find interesting ideas that could be reused, for example, by introducing a new angle. The very design of the forum, where messages are displayed chronologically, leads new contributors to pay more attention to earlier messages, those that are displayed first. More than four in five citations concerned the first 15 messages in each forum (see Table 6). The first three messages accounted for over 40% of all references, with the first message being cited over twice as frequently as the third one. The sooner a contribution is made to the forum, the more chances it has of being read and cited by others and of making an impact. Focusing on the earliest messages has the advantage of being cost-effective for students. It saves them time, allowing them to fulfil the instructors' expectations of integrating previous posts in their contributions with minimum effort, a strategy used by forum participants to cope with information overload (Peters & Hewitt, 2010). However, it may also result in important ideas appearing in later messages going unnoticed, to the detriment of the tool as a virtual space for collaborative learning.

The tendency to focus attention on the earliest messages, those which are first displayed in the forum timeline, was corroborated by some of the participants in the focus group interview, who also pointed out the haphazard nature of the strategies used to choose what to read before they write their own messages: "I would read […] the first messages and then I would do this [scrolling down with the mouse], I would stop and read like two more messages [laughing], like that, at random. If they said this at the beginning and, more or less, also in the middle and towards the end they are still saying these things, it means that this is somewhat repeated, so don't repeat it again" (FG5F).

Although important, posting time was not the only factor bearing on the participants' decision about whose messages are read and, consequently, cited in later contributions. There also seemed to be preferences for specific participants. Simple friendship may have played a role: "I would use control F to find my friends [laughing] to get to know what they had commented […] but not all friends […] I knew that some friends write longer contributions or I particularly like their translations…" (FG1F). Previous impressions on their classmates' intellectual competence and the quality of their participation in the face-to-face

Table 6. Distribution of References by Number of Target Message

Target message number	Number of references	% of total
First 15	349	82.5%
16-30	63	14.9%
31-45	9	2.1%
Later than 45	2	0.5%

classes may also have had an impact: "people with whom you share the class, you listen to their interventions and say that is an interesting point […] you remember their names and then go on and see what they have written (in their posts) to see whether I am out or we are on the same track" (FG1F); "the people who you listen to in class, you think, let me see what this one has written" (FG6M).

Post size also seemed to play a part in their reading preferences and, eventually, on whose ideas were mentioned in later messages. Participants may disdain posts which are either too short or too long. Short messages were taken as a sign that the message contains very little interest and is not worth reading: "If they are short you read them, but you prejudge them somehow" (FG2M); "If they were too short, I would think "I'm sure it must be rubbish" (FG3F). Paradoxically, long messages may also be under suspicion: "this one wrote like 50 things that she copied from here and there [laughing]" (FG4F), but, in general, lengthy messages tend to draw other participants' attention: "when you see a text like this you think, wow, this one knows what she is talking about, she knows what she's doing […] I always pay more attention to the 25-30 more extended messages" (FG6M). The use of structuring elements like font types or bulleted paragraphs, especially in these lengthy messages, was particularly appreciated, and their absence was likely to put off potential readers: "some comments are well marked, in bold or with bullets and similar, so that the ideas are clearly visible, whereas in others it is a bit confusing and you don't know what ideas are important" (FG6M); "they had some really interesting ideas but, as they wouldn't present them in a very visual way, they would remain at the background" (FG2M).

Naming Expression

Calling each other by their names is important for students to enhance social presence in computer-mediated discussions. Being called by one's name fosters the impression of interacting with real people and contributes to strengthening interpersonal bonds in the online environment. Addressing participants by their name is a type of cohesive response, one of the three strategies of social presence originally contemplated by Rourke et al. (1999). Sung and Mayer (2012) also listed "address learner by name. I feel a sense of presence when students or the instructor call me by my name" (p. 1742) as an indicator of social presence, while Poole (2000) claimed that the relative intensity of use of other students' names may be taken as a measure of the sense of community that participants manage to infuse in the discussion, adding that "it is likely that students repeatedly included others' names because of the unified atmosphere it created among and between class members." (p. 172).

In the analyzed materials, a clear preference was observed for relatively relaxed, informal forms of naming over more formal expressions. When they referred to a previous participant's message and ideas, students clearly privileged the use of first names over the more formal name+surname combination to identify

that participant. Arguably, first names are preferred because they help students reinforce rapport and construct intimacy, giving the forum a more relaxed, friendly tone. Interestingly, while many probably know each other or may even have been friends and met up regularly in and outside the classroom, they never employed the kind of informal, hypocoristic names that they would probably use to address each other in social networks and in face-to-face encounters. What this shows is that they probably conceived the forum as a rather formal, academic event, where informal language is inappropriate. The fact that they were aware that instructors also had access to the forum may also have played a role.

Comparing the evolution of the naming expressions in references across periods (see Table 7), formal naming expressions (name+surname) showed a sharp increase in the second half of the course (P3 and P4). As the activity became consolidated, it seems as if participants deemed the use of first names, a positive politeness strategy, superfluous. This would coincide with the findings by Swan (2002), who reported a general decline in the use of cohesive indicators over time, suggesting that "discussion participants felt less need to employ cohesive indicators as they felt a greater organic cohesion amongst themselves." (p. 41). The decline in the use of informal names may be interpreted as another sign of the overall lesser effort to reinforce interpersonal cohesion among participants. It may also be a sign of a growing awareness of the academic nature of the forums: with the passing of time, they come to realize that these discussions are a different kind of event than their social media talk, one where familiar names are inappropriate.

Logistic regression was carried out on these data, with naming expression as the dependent variable and period, author's gender, and reference target's gender as factors. Holding the other predictor variables constant, P3 showed a significant association with the use of the name+surname pattern (with P1 as reference category, $p < .001$; Exp(B) = 3.148; 95% CI [1.842, 5,379]). The data also showed some marked differences in the use of these naming forms across genders, with male authors showing a comparatively greater tendency to use informal naming expressions. However, these differences did not reach statistical significance (with "male" taken as the reference category, $p = .064$; Exp(B) = .647; 95% CI [.408, 1.025]). On the other hand, whether the reference was made to a male or a female student did not seem to have an impact on the choice

Table 7. Distribution of Naming Expressions Over Time

	Period				
Naming expression	P1	P2	P3	P4	Total
First name	103	63	55	62	283
Name+surname	35	14	58	27	134
Total	138	77	113	89	417

Note. Six instances of generic references (e.g., "the previous two classmates") were not included in this count.

of naming expression (with "male" taken as the reference category, p = .334; Exp(B) = 1.248; 95% CI [.796, 1.957]). While females seemed to be slightly more likely to use the first name when the message they were citing was posted by a male classmate, this data does not reach statistical significance.

Alignment

An intrinsic aspect of all references to other participants' posts is the expression of a stance towards the quoted ideas. It involves a basic choice between expressing alignment and disalignment. They may be conceived as the two ends of a continuum, with participants having the possibility of expressing different degrees of agreement or disagreement with other posters' ideas. To describe alignment patterns in our data, we classified all references in our corpus into four distinct categories, ranging from total alignment to total disalignment: *agreement, acknowledgement, mixed,* and *disagreement* (see above for a short description and examples). Additionally, there is the possibility of the participant using various expressions to intensify the force (Martin & White, 2005) of the expressed (dis)alignment.

Acknowledgment was by far the most frequent form of alignment in the data. More than half of the references to other posts were intended to acknowledge other participants' contributions and ideas. Participants frequently acknowledged an earlier contribution by a classmate (or the group) as a mild excuse for repeating their ideas (e.g., "The structure of the first sentence is not correct in our language, as many colleagues said"). Manifestations of agreement, the expression of strong alignment with the cited post, were also quite numerous in the analyzed discussions (over a third of the references). Together, agreement and acknowledgement accounted for more than 90% of all references to other posts and far outnumbered manifestations of disagreement and mixed (i.e., a combination of agreement and disagreement). Only 4% of the references to other posts were open manifestations of disagreement with other partners' ideas.

Furthermore, nearly 12% of all expressions of agreement were intensified, while intensified disagreement never occurs in the data, indicating that, in those few occasions where participants showed disagreement with their partners' ideas, "they were careful to frame these disagreements in ways that would not impair the sense of online community" (Lapadat, 2007, p. 67).

Table 8. Overall Distribution of Alignment Types

	Frequency	% of total	Cumulative %
Acknowledgement	462	57.0%	57.0%
Agreement	282	34.8%	91.9%
Disagreement	32	4.0%	95.8%
Mixed	34	4.2%	100.0%

Overall, manifesting disagreement in references to other posts was a clearly disfavored choice in our data. Some of the participants in the focus group interview expressed their opinions on this topic, with comments that revealed their concern with this matter, like "I didn't want to despise anybody's work" (FG4F) or "when I have to comment someone else's ideas, I feel a sense of respect" (FG1F), an understatement that actually reveals their reluctance to criticize their partners' proposals.

When counts of the different alignment types were broken down by author's gender (see Table 9), small differences seemed to emerge across genders. The mixed and disagreement categories were collapsed and a regression analysis was carried out with alignment type as the dependent variable and author's gender, reference target's gender, and period as factors. Results showed a significant association with author's gender, with women being slightly more likely than men to make their agreement explicit and less likely to disagree openly with previous participants (with "male" taken as the reference category, p = .005; Exp(B) = .330; 95% CI [.153, .712]). Additionally, intensification of alignment (e.g., "I totally agree/disagree"), while not particularly common in general—only 35 instances found in our data—was also slightly more frequent among males (χ^2 = 4,956, df = 1; p =.026).

These data are consistent with the findings in previous studies (Guiller & Durndell, 2006; Herring, 2000) which described female participants in online discussions as generally more supportive and more prone to alignment towards their interlocutors as compared to males. However, on the whole, the differences we observed were relatively small since the overall trend towards consensus in the forums we analyzed resulted in few instances of overt disagreement. Also, we cannot exclude the possibility that accommodation to the more consensual style of the majority group (females) may have had a softening effect on what might have otherwise been a more adversarial style on the part of male participants.

Interestingly, similar differences were observed when the gender of the reference targets was considered. Female participants received proportionally more references expressing agreement (131/264, or 50% of the total number they got) and fewer mentions explicitly disagreeing (17/264, or 6%). On the other hand, male participants received less agreements (59/159, or 37%) and comparatively more disagreements (16/159, or 10%). However, regression results for this factor failed to reach statistical significance (with "male" taken as the reference category, p = .069; Exp(B) = .492; 95% CI [.229, 1.057]). These differences seem to escape the notice of the participants themselves, if we can

Table 9. Distribution of References by Alignment Type and Gender of Post's Author

	Agreement	Acknowledgement	Mixed	Disagreement	Total
Female	215 (36.5%)	335 (56.9%)	20 (3.4%)	19 (3.2%)	589 (100%)
Male	67 (30.3%)	127 (57.5%)	14 (6.3%)	13 (5.9%)	221 (100%)

take the opinion of the students taking part in the focus group as representative. These students were not aware of either style differences between genders or differences in the treatment received depending on one's gender.

Discussion and Conclusion

If the number of references to other participants' ideas is to be taken as a measure of the degree to which students "listen to" (Wise et al., 2012) their peers to consider alternative views that may eventually help them grow by improving their comprehension of the topic, the AODs analyzed in the current study show signs for concern about their efficacy as a cooperative learning tool. Over time, contrary to the expected increase in the intensity of the dialogue and confrontation of ideas that they were intended to propitiate, and the associated benefits in terms of collective learning, the discussions showed a growing "tendency on the part of the participants to remain at the level of individual rather than group or collaborative effort" (Murphy, 2004, p. 421). Similar findings regarding AODs have been reported, for instance, by Henri (1995, cited in Murphy, 2004, p. 428): "learners presented their view of the problem (…) without reference to the solution offered by their colleagues. The teleconferences read like a series of distinct presentations on the same subject." The low number of references to other participants in the forum is an indicator of low collaboration, or as Murphy would put it, participation in the forums stays at the level of interaction but fails to reach the desired level of collaboration that is conducive to learning.

The overwhelming tendency to overemphasize agreement and minimize disagreement in the references to other students' contributions points in the same direction. Participants used these references mainly to preserve social relationships and avoid conflict (Harwood, 2017), reflecting a more general tendency towards emphasizing positive politeness observed in student online discussions (Vinagre, 2008). However, these forums are expected to serve as platforms for intellectual debate, where ideas are critically discussed rather than uncritically accepted as transmitted truths, and where disagreement is important for the construction of knowledge (Lapadat, 2007). Engaging with differing perspectives enhances critical thinking and is crucial to the collective learning mission (Wise et al., 2012). As Murphy (2004, p. 423) wrote, "collaborative community or group members not only share perspectives, but also challenge and refine those perspectives (…) [and] areas of disagreement or conflict become explicit." In AODs, questioning and criticizing one another's ideas is key to the construction of meaning and to success in learning. "This process of questioning, evaluating and criticizing perspectives, beliefs and assumptions allows participants to restructure their thinking" (Murphy, 2004, p. 423). On the other hand, the reluctance to voice critical opinions about other participants possibly stems from a strong identification with the class as a whole and the perception of instructors as the outgroup (Stets & Burke, 2000). The presence of the instructors as the actual evaluators is likely to

strengthen commitment to the ingroup and lead students to put greater emphasis on similarities and positive evaluation of their classmates.

The analysis revealed other signs of a poor use of the tool, such as the observed tendency, in many participants, to adopt a work-avoidance orientation (Wise et al., 2012), consisting in reading just a minimal selection of the preceding messages. By just reading the first few messages in the forum to get an idea of what previous contributors have said, later participants save time, but important ideas appearing in later messages may go unnoticed for the group, with their potential contribution to learning being unrealized. Furthermore, focusing on the first few, older messages that first appear on the screen prevents contributors from joining the discussion "where it is currently in progress and may lead students to respond to issues that have already been resolved." (Wise et al., 2012, p. 470). The result is a discussion that seems to be going in circles, with participants constantly repeating the same few ideas presented in the opening messages, while interesting topics introduced in later ones are widely ignored and rarely taken up for discussion.

For many students, this is their first participation in an academic forum like this. Naturally, they borrow and test different possibilities in their repertoire of experiences with other forms of CMC, particularly social media, adapting them to the new circumstances. Some of the changes observed over time in the form and the content of the references to other posts over the four-month period indicated that, at least for this group of students, the discussion forum may be described as a "register under construction" (Ferrara et al., 1991). The increasing use of formal naming expressions to refer to other classmates indicates that there was a subtle change in the students' conception of the forums, which became less like the everyday exchanges in their favorite social networks and more like an academic activity supervised by lecturers, where referring to other classmates by their nicknames, for instance, is regarded as inappropriate.

Recent research reveals the existence of different participation profiles in AODs like those studied here (Kim & Ketenci, 2019) and even different goal-orientations that would explain significant differences in participation styles (Wise et al., 2012). The evolution of the participants' references to other classmates' ideas over the course period shows that, while some students' interest in the activity seemed to wane, others became more committed. While the former increasingly seemed to content themselves with contributing short responses that rarely mentioned others' opinions in a substantial manner, the latter tended to write increasingly longer and more elaborate messages, get more involved in the exchanges, and embrace the idea of the forum as a tool for collective discussion, showing a genuine interest in and benefitting from other participants' ideas. In terms of self-determination theory (Deci & Ryan, 2008), these students were perhaps driven by "autonomous motivation [which] comprises both intrinsic motivation and the types of extrinsic motivation in which people have identified with an activity's value and ideally will have integrated it into their sense of self" (p. 182). As compared to others whose behavior is directed by "controlled motivation" and respond to external

regulation in the form, for example, of reward or punishment, those individuals who develop an autonomous orientation perform more effectively in heuristic types of activities, experience more satisfaction and show greater long-term commitment. Over time, these students may gain prominence and develop a certain leader status in the community (Rabbany et al., 2014). Together, they may come to function as a network where they read and cite mostly each other and are probably also more frequently read and cited outside this privileged network as well, but this would need to be ascertained in future research

The citation practices in our data point at the existence of differences in the status and participation styles of different groups of students. Far from the expected contribution of AODs "to facilitate an inclusive learning environment" (Bassett, 2011, p. 69), the task seems to have stressed differences between groups that were already observed in the face-to-face classes. Exchange students showed a marked tendency to postpone their contributions, waiting for local students to share their ideas. This denotes a possible lack of confidence and the associated insecurity resulting from their status as non-native speakers of the target language. They also made far fewer references to other students' posts and seemed to be rather less frequently cited by other participants, probably indicating their weak ties with local students. All these differences are worth studying in more detail in the future.

Finally, our data seem to suggest that gendered interactional preferences might have had some impact on the development of the activity. The less contentious communication style often found to be more characteristic of female participants in CMC (Guiller & Durndell, 2006; Herring, 2000; Prinsen et al., 2007) seems to have been the norm in the discussions analyzed in our study. The overwhelming majority of the references recorded in this set of data contained either explicit or implicit agreement (i.e., acknowledgement) with previous posts to the forum, which indicates that the participants' concern for the preservation of social relationships has prevailed over the goal-oriented nature of the interactions. The low frequency of actual confrontation of ideas limits the presence of valuable reasoning and explicit justification of individual positions, and results in a considerable amount of mere repetition of opinions, which may have a strongly demotivating effect on participation.

Practical Implications

The current study holds important lessons for instructors using AODs as a collaborative learning tool and invite deep reflection on the design of the task. The key aim of the forum discussions analyzed here was to bring to the surface the complex decision-making process which often remains hidden when class interaction focuses mostly on the final outcome of a task (in this case, the translation of a text). However, after a somewhat promising start, signs of weakening commitment to the task became visible. With the passing of time, students showed an increasing tendency to limit their contributions to

simple responses to the proposals in the original translation draft, subverting the instructors' intention to promote a multiparty discussion. A first recommendation to be derived from this experience, in line with findings from previous studies (Wise et al., 2012), is that instructors should devote sufficient time at the beginning of the activity to clarify its aims and make their expectations explicit, and perhaps discuss how the forum tool fits those aims and expectations. Students need to be reminded that the moderator's original draft is just a convenient starting point for a multiparty discussion on the topics that are being raised. The benefits of online discussions for learning should be regularly restated, for example, in the wrapping-up messages written by instructors at the end of each discussion.

Writing earlier in the forum has a clear impact on the likelihood of a message being read and cited by others. Focusing on the first few messages may be a convenient time-saving strategy for students in search of interesting ideas that they may repeat or respond to in their own posts. However, students should be made aware that later messages may contain interesting ideas that otherwise might go unnoticed. The very design of the forum interface, where messages are presented in chronological order, fosters this heightened attention to earlier messages to the detriment of later, perhaps more elaborate and content-rich messages. Some have suggested the need to improve the design of these tools (Wise et al., 2012, p. 116) to provide students with access to log data of their participation (time spent on the activity, number of messages scanned or read, comparison with class averages, etc.) so that they can monitor their own behavior and use the tool more efficiently.

Post length seems to play a role in participants' decisions whether or not to open and read the content of a particular message. Longer messages may be perceived as potentially more interesting. However, long messages that are poorly structured seem to be generally disdained. Students should therefore be instructed on how to use formal organizing features such as the use of bullet points, bold type, and so forth, to facilitate the readers' task. This would increase the students' interest in longer messages so that their valuable contributions would not go unnoticed. Cross-references to other messages, persuasively argued decisions, and generally content-rich and well-structured contributions may be promoted by identifying "model" posts, describing the characteristic formal and stylistic features that explain their success.

Lastly, measures should be taken to promote the integration of international exchange students in the discussions that would help them overcome their relative isolation already observed in the physical classes, where they have a tendency to form a group of their own, physically and psychologically distant from the local student community.

The data used in the current study were drawn from a class activity with a very specific design which is likely to have significantly hindered the interaction it was intended to promote. Some of our observations are in line with those of previous studies carried out in comparable contexts and are to some extent

generalizable to other higher education situations where the online forum is used as a complement to face-to-face interaction. Lack of knowledge about preexisting relations among participants also limited some aspects of our analysis. Paying attention to objective signs such as explicit mentions of other participants, which, as has been pointed out, may have a random component in the case of some individuals, may miss some important aspects of the performance of the group as a community of learning. However, as pointed out in the discussion, a subset of the participants seemed to have internalized the intended goals to a greater extent and may have generated smaller networks around them whose interactional behavior would probably prove revealing in a qualitative analysis.

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Conflict of Interest Disclosure

The authors do not have any conflicts of interest to report.

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Research Ethics Statement

The research was conducted in accordance with appropriate ethical standards. The discussions analyzed in the paper were drawn from the SUNCODAC corpus, which contains fully anonymized texts.

Authorship Details

Mario Cal-Varela: research concept and design, collection and/or assembly of data, data analysis and interpretation, writing the article, critical revision of the article, final approval of the article.

Francisco Javier Fernández-Polo: research concept and design, collection and/or assembly of data, data analysis and interpretation, writing the article, critical revision of the article, final approval of the article.

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