#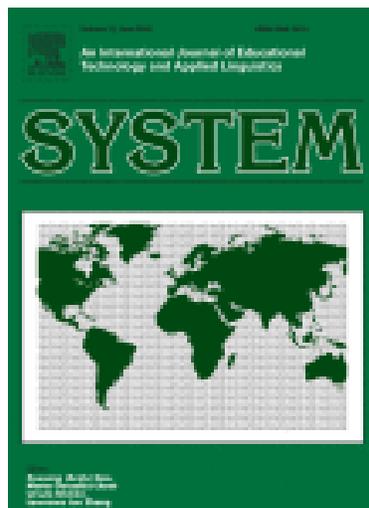 Alignment in Second Language Speakers' Perceptions of Interaction and its Relationship to Perceived Communicative Success

Oguzhan Tekin, Pavel Trofimovich, Tzu-Hua Chen, & Kim McDonough

Abstract

Conversation is a co-constructed social activity, and interlocutors, including second language (L2) speakers, frequently align in their linguistic and nonlinguistic behaviors to create shared understanding. Given that L2 speakers make assumptions about their interlocutors, this exploratory study examines whether their perceptions about linguistic, socio-affective, and behavioral dimensions of interaction align. It also explores whether such alignment is related to their agreement about the success of the conversation. Eighty-four pairs of L2 English university students completed a 10-minute academic discussion task, subsequently rating each other's comprehensibility, fluency, anxiety, motivation, and collaboration. At the end of a 30-minute session, they also assessed the communicative success of their conversational experience. Speakers were generally aligned in their evaluations of each other and in their perception of communicative success, with alignment operationalized as the difference between the partners' scores. Although alignment in all dimensions of interaction was associated with perceived communicative success, collaboration had the strongest relationship (.40 or 16% shared variance). The findings provide preliminary evidence that L2 speakers' alignment in perceived dimensions of interaction, particularly collaboration, is associated with their perceived communicative success.

Keywords: interactive alignment; second language; comprehensibility; fluency; anxiety; motivation; collaboration; metacognition; interaction

Highlights

- L2 speakers' interactive alignment in perceived linguistic, socio-affective, and behavioral dimensions of interaction was associated with their perceived communicative success

- Alignment in perceived collaboration had the strongest link to perceived communicative success

- Perceived collaboration encompassed various dimensions of speakers' interactive experience.

Alignment in Second Language Speakers' Perceptions of Interaction and its Relationship to Perceived Communicative Success

A key component of second language (L2) teaching and learning, interaction provides speakers with opportunities to experience input, produce output, and receive feedback on their production within a shared, co-constructed social activity where interlocutors use linguistic and nonlinguistic means to achieve understanding (Gass & Mackey, 2020; Lantolf et al., 2020). Language researchers and teachers have measured the success of L2 speakers' interactive experience in various ways, focusing on whether speakers attain mutual understanding (Kim, 2019), achieve the desired task goal (Loschky & Bley-Vroman, 1993), demonstrate interactional competence (Galaczi & Taylor, 2018; Storch, 2008), or produce language structures accurately and fluently (Michel, 2017). However, a less common measure of interaction success has been interlocutors' own perceptions of their experience, such as how well they collaborated or how comprehensibly they spoke. From this vantage point, a genuinely successful interaction would involve shared and calibrated (i.e., aligned) perceptions from both speakers. The goals of this exploratory study were to examine whether L2 speakers align in several perceived dimensions of interaction (e.g., motivation, collaboration, fluency) and to determine whether such alignment is related to agreement in their perceived communicative success.

1. Background Literature

Language use is inherently social, with interaction seen as a form of joint action whereby interlocutors achieve a common goal, such as arranging to meet for lunch or understanding the meaning of a word (Clark, 1996; Pickering & Garrod, 2021). Considering that communication is fundamentally interactive, interlocutors frequently align in their linguistic and nonlinguistic behavior to create shared understanding. Construed broadly, interactive alignment refers to the

socio-cognitive phenomenon whereby speakers appropriate or otherwise converge on each other's linguistic and nonlinguistic behaviors in interaction (Garrod & Pickering, 2009). In terms of language, interlocutors tend to reuse each other's syntactic structures, lexical expressions, and pronunciation patterns, with repetition believed to promote understanding (Gambi & Pickering, 2013). With respect to nonlinguistic behaviors, interlocutors also align in their use of gestures, body postures, mannerisms, and facial expressions, which contributes to interpersonal cohesion and rapport (Duffy & Chartrand, 2015). Although various forms of alignment have different origins, with linguistic coordination likely driven by long-term adaptation (Pickering & Gambi, 2018) and behavioral repetition arising through spontaneous mimicry (Arnold & Winkielman, 2020), alignment is generally considered a sign of a successful interactive experience.

Interactive alignment offers several particular benefits for interlocutors, including L2 speakers. First, linguistic alignment promotes language learning by providing speakers with opportunities to appropriate developmentally advanced language forms from their interlocutor (e.g., McDonough & Mackey, 2008; Rowland et al., 2012). Second, linguistic alignment is linked to attitudinal variables, such as perceived closeness between people and their attractiveness. Speakers align by imitating each other's pronunciation if they express positive views about each other (Babel, 2010, 2012), and speakers who imitate their interlocutors also show greater comprehension and more favorable attitudes toward them (Adank et al., 2010, 2013). Third, linguistic alignment is often interlocutor-centered, such that speakers reuse language forms based on the linguistic background, communicative need, and prior knowledge of their interaction partners (Bortfeld & Brennan, 1997; Branigan et al., 2011; Loy et al., 2020). Finally, linguistic and nonlinguistic alignment leads not only to increased affect, such as empathy, liking, and rapport, but also to enhanced prosocial behaviors, such as generosity and

helpfulness (Müller et al., 2012), improved performance in linguistic and nonlinguistic learning tasks (van Baaren et al., 2009; Zhou, 2012), and increased ability to exercise self-control (Dalton et al., 2010).

One underexplored form of alignment is convergence in speakers' subjective perceptions of each other, such as how well they collaborate or how motivated or anxious they feel. According to the processing fluency perspective (Reber & Greifeneder, 2017; Schwarz, 2018), people's perceptions of task performance might often provide a more useful metric of their experience than quantifiable, physical properties of a given task, such as the number of low-frequency words in a text. For example, when readers were given scientific texts containing technical vocabulary, they evaluated their experience negatively even when definitions of all technical vocabulary were available to aid their text comprehension; furthermore, these perceptions predicted the readers' self-assessments of knowledge and their task engagement, such as interest in the subject matter and desire to seek more information about it (Shulman et al., 2020; Shulman & Sweitzer, 2018). Similarly, in an e-learning study, when students evaluated an instructional video narrated by an instructor who was perceived hard to understand, the students gave lower instructor ratings, expressed negative attitudes toward coursework, and judged video content as more difficult, even though their actual understanding of the video was not compromised (Sanchez & Khan, 2016). If people's subjective judgments help explain various human reactions and behaviors, as suggested by the processing fluency perspective, then alignment in speakers' perceptions might be a useful measure of interactive experience.

During interaction, speakers make various perceptual judgments about each other (MacIntyre & Ayers-Glassey, 2020), and these judgments, which fall under various dimensions, could have consequences. Speakers evaluate each other's linguistic competence, for example, in

terms of fluency and comprehensibility (Nagle et al., 2022; Trofimovich et al., 2020). Whereas listener-rated comprehensibility (i.e., how easily listeners understand a speaker) is primarily based on various linguistic dimensions in L2 speech, including phonology, lexis, grammar, and discourse (e.g., Saito et al., 2016), listener-based measures of fluency, which typically capture various aspects of utterance flow, can be largely explained through temporal characteristics of speech, including pausing and articulation speed (Bosker et al., 2013; Kahng, 2018). If speakers struggle to understand their interlocutors or if they find their interlocutors' speech particularly dysfluent, they might feel less enthusiastic to continue communicating (McCroskey & Richmond, 1991).

Speakers also evaluate each other's socio-affective states, judging each other's communicative anxiety (e.g., Gregersen et al., 2014) and motivational disposition (e.g., MacIntyre & Serroul, 2015). Broadly defined, anxiety refers to a person's negative emotional reaction experienced during communication (Gardner & MacIntyre, 1993), where increased anxiety might impair language processing (MacIntyre & Gardner, 1994), disrupt the flow of interaction (Dewaele, 2010; MacIntyre & Legatto, 2011), and promote negative attitudes and motivational dispositions (Gardner & MacIntyre, 1993). Whereas various conceptualizations of motivation exist (Mahmoodi & Yousefi, 2021), the approach and avoidance framework appears most relevant to communication (Dweck, 1986; Elliot, 1999; Nicholls, 1984). According to this framework, a person's behavior is driven by favorable or desired possibilities but deterred by unfavorable or undesired possibilities. For example, if interlocutors experience high anxiety or feel negative about an aspect of a communicative event, such as the interlocutor or topic, they might be reluctant to continue speaking or may view their interaction as unsuccessful, engaging in avoidance behaviors (e.g., abandoning task goals due to increased cognitive difficulty).

However, when anxiety is low and motivational disposition is positive, interlocutors might embrace their communicative goals, which would reinforce their goal-oriented, positive actions, such as increased participation or helpfulness, resulting in a positive outlook on interaction.

Finally, speakers also likely perceive each other's level of collaboration, which can be broadly defined as a person's degree of interest, engagement, and participation in an activity (Philp & Duchesne, 2016). Even though interlocutors might show their collaboration through various means, which include cognitive engagement (e.g., sustained attention or effort), behavioral engagement (e.g., quantity of task-relevant talk), and social engagement (e.g., reciprocity shown by speakers, as in turn-taking), different degrees of interlocutors' collaboration can influence how they assess their interactive experience. For example, interactions where the perceived contribution of one speaker is lower than that of the other may be less satisfying and ultimately less effective because of the uneven distribution of collaborative burden between them (Storch, 2008). However, interlocutors might evaluate their interactive experience favorably if they perceive each other similarly in terms of responsiveness, perceptiveness, and attentiveness (Duran & Spitzberg, 1995) as they demonstrate interactive competence by engaging in efficient topic and turn management, interactive listening, breakdown repair, and supportive nonverbal behaviors (Galaczi & Taylor, 2018). Similar attention to content-relevant talk or comparable time invested in communication (Philp & Duchesne, 2016) may also elicit more favorable perceptions of communicative experience from interlocutors.

Because interactive tasks vary along multiple dimensions, such as goal orientation, structure, assigned or assumed speaker roles, and degree of support provided through task instructions or feedback, different tasks might promote different degrees of alignment. For

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example, alignment in linguistic structures appears to be greater in information-gap activities than in naturalistic conversations (Reitter & Moore, 2014). For L2 speakers, in particular, linguistic alignment is enhanced in synchronous computer-mediated environments (e.g., text chats), compared to face-to-face interaction (Kim et al., 2019, 2020; Michel & Cappellini, 2019), and in conversations with a native-speaking tutor than with another L2 speaker (Michel & O'Rourke, 2019). Furthermore, interactive alignment may be limited in tasks which focus on a more mechanical exchange of lexical and referential information (e.g., placement of landmarks on a map), compared to tasks requiring speakers to use language more descriptively, such as comparing distinct yet complementary information on the same topic or exchanging personal opinions (Dao et al., 2018; Trofimovich & Kennedy, 2014).

2. The Present Study

Prior work on interactive alignment has targeted various forms of linguistic and nonlinguistic alignment, with alignment generally seen as beneficial for speakers. However, it is unclear whether L2 speakers align in their subjective perceptions and if such alignment is related to their perceived communicative success. Given that L2 speakers routinely make assumptions about their interlocutors, assessing each other's language, affect, motivation, and behavior, a focus on speaker alignment in perceived dimensions of interaction is warranted. When perceptions converge, speakers align in their peer assessments, likely positively but potentially also negatively. In contrast, when perceptions diverge, the perceived gap may lead to a less-than-optimal experience, such that one speaker might be seen as disproportionately making linguistic, socio-affective, or behavioral contributions. Due to lack of prior systematic work on alignment in interlocutor perceptions, this exploratory study thus examined several linguistic, socio-affective, and behavioral dimensions of interaction. Our first objective was to determine whether L2

speakers align in their perceptions of each other's comprehensibility, fluency, anxiety, motivation, and collaboration. Our second objective was to explore whether such alignment was associated with agreement in their perceived communicative success. In keeping with the study's focus on alignment, the target measure of perceived communicative success was also operationalized as alignment or convergence in L2 speakers' perception of their overall communicative success. The study was guided by the following research questions:

1. What is the relationship between L2 speakers' perceptions of each other's comprehensibility, fluency, anxiety, motivation, and collaboration in interaction?
2. Is alignment in L2 speakers' perceptions of each other's comprehensibility, fluency, anxiety, motivation, and collaboration associated with their agreement in perceived overall communicative success?

3. Method

3.1. Paired Interactions

Eighty-four paired interactions were drawn from the Corpus of English as a Lingua Franca Interaction (McDonough & Trofimovich, 2019), where 224 pairs of L2 English students enrolled in Canadian English-medium universities (with a minimum TOEFL iBT score of 75 or equivalent as required by their respective universities) from different language backgrounds carried out three 10-minute communicative tasks: talking about challenges faced when moving to Montreal, sharing close-call experiences about a narrow escape from trouble or danger, and discussing academic research reports. The current study focuses on the academic discussion task in which students read different short research reports, exchanged information, and discussed their opinions. There were four topics (medical ethics, nature vs. nurture, pros and cons of advertising, and motivation for language learning), and each pair selected which topic they

wished to discuss. Because alignment is enhanced in goal-oriented tasks requiring an extensive

information exchange (Reitter & Moore, 2014; Trofimovich & Kennedy, 2014), we explored the

occurrence of alignment in interlocutor perceptions in the academic discussion task where

students were required to exchange information about research studies, as opposed to the tasks

that involved optional exchange of personal experiences.

The 84 paired interactions were carefully selected to ensure a balanced gender

composition across the pairs (31 female–male, 29 female–female, 23 male–male, 1 male–other).

The selected pairs also carried out the academic discussion task in different orders (first = 25

pairs, second = 29 pairs, and last = 30 pairs). The pairs also chose a range of discussion topics

for the academic task, which included medical ethics (11), nature versus nurture (11), advertising

(29), and motivation (33), ensuring that across all speaker dyads the interaction was not specific

to a particular theme targeted in the research reports. The pairs were composed of 168 L2

English speakers with a mean age of 23.37 years (*SD* = 3.68, *range* = 18–37) who were pursuing

various undergraduate (89) and graduate (79) degrees. The speakers had studied English for a

mean of 13.05 years (*SD* = 5.7, *range* = 1–30) and resided in Montreal for about 2.19 years (*SD*

= 3.05, *range* = 2 weeks–20 years). They came from 36 different language backgrounds, the

largest being Mandarin (25), Arabic (20), French (19), and Hindi (17). The speakers were

assigned to pairs by a research assistant who ensured that English was their only common

language and they were not previously acquainted.

3.2. Target Ratings

Immediately after the academic discussion task, the speakers rated themselves and their

partner in terms of linguistic, socio-affective, and behavioral dimensions of interaction. The

linguistic dimension included comprehensibility (ease of understanding) and fluency (speech

flow characterized by few pauses and hesitations and an optimal speaking rate). The socio-affective dimension included perceptions of speaker anxiety (degree of stress, worry, or nervousness) and motivation (extent of engagement, enthusiasm, or determination). The behavioral dimension was defined as perceived collaboration (working with someone to produce or create something).

All ratings were elicited by continuous scales (see Appendix A for a sample rating sheet), which were 100-millimeter lines printed on paper with no markings aside from anchor points (the left equivalent to the rating of 0 and the right equivalent to the rating of 100): *difficult to understand–easy to understand* (for comprehensibility), *speech was not at all fluid–speech was very fluid* (for fluency), *high level of anxiety–low level of anxiety* (for anxiety), *not at all motivated–very motivated* (for motivation), and *did not work well with me–worked well with me* (for collaboration). Because this report targets interlocutor alignment, only the partner ratings are used, and the self-assessments are not discussed further. The definitions for each rated construct (available in Appendix B) were given to the speakers orally, and they could ask clarification questions prior to carrying out the tasks. The same definitions were also printed alongside the scales so the speakers could consult them as they rated each other.

At the end of the 30-minute session, the speakers provided several exit ratings that captured their overall interactive experience related to feedback, visual cues, and comfort. Of key importance here is each speaker's exit rating of their overall perceived communicative success during the session, evaluated through a similar 100-millimeter scale (*my conversation partner and I were not successful at communicating–my conversation partner and I were very successful at communicating*), with the left endpoint equivalent to the rating of 0 and the right endpoint

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equivalent to the rating of 100. In all cases, the speakers indicated their rating by putting a cross on each line corresponding to their evaluation (see Appendix C for a sample rating sheet).

Although various Likert-type scales are common in applied linguistics research (Dewaele, 2018), continuous measurements, similar to those deployed here, have been used previously to capture comprehensibility, fluency, anxiety, motivation, and collaboration through assessment by different rater groups, including L2 speakers (e.g., Gardner et al., 2004; Gregersen et al., 2014; Nagle et al., 2022; Préfontaine, 2013;). There are also few differences in ratings obtained through different scale types of various lengths and resolutions, regardless of whether these scales target linguistic (Isaacs & Thomson, 2013; Munro, 2018) or socio-affective and behavioral (Gardner et al., 2004; MacIntyre & Gardner, 1991) dimensions, so the scale choice was unlikely to have impacted rating validity in this study. Finally, because single ratings of each construct were provided by individual speakers, it was impossible to compute indexes of interrater (multiple raters) or intra-rater (multiple measures by the same rater) reliability. However, our prior work with similar continuous scales revealed high scale reliability (.95–.99) assessed through two-way, consistency, average-measure intraclass correlations (McDonough et al., 2021; Tsunemoto et al., 2021).

3.3. Data Analysis

The speakers' ratings of each other's comprehensibility, fluency, anxiety, motivation, and collaboration were first converted to numerical values by measuring the distance in millimeters between the left scalar endpoint and the speaker's mark on each scale (out of 100). To derive alignment scores for each rated dimension, a difference score was computed by subtracting one interlocutor's partner score from the other interlocutor's partner score. The alignment scores thus reflect the degree to which both members of the pair had similar perceptions of each other's

comprehensibility, fluency, anxiety, motivation, and collaboration. Larger scores in absolute terms correspond to a divergence in a rated dimension (less alignment) while smaller scores indicate convergence (more alignment). For example, an alignment score of 0 indicates that both speakers evaluated each other identically, whereas a score of 10 indicates that one speaker rated the partner 10 points higher, regardless of which partner provided the higher score. The exit rating of each speaker's perceived communicative success was similarly converted to numerical values, defined as the distance in millimeters between the left endpoint and the speaker's mark on the scale (out of 100 points), and an alignment score in perceived communicative success (expressed as an absolute value) was also computed per pair, where a smaller score indicated stronger between-speaker agreement in their rating of perceived communicative success.

All rated variables, including the speakers' ratings of each other and the derived alignment scores, were first checked for normality. Results of Kolmogorov-Smirnov tests indicated that all distributions departed from normality, $D(84) > .09$, $p < .05$. The individual speaker ratings demonstrated a negative skew, indicating that the ratings tended to drift toward the positive scale end (i.e., toward higher scores). In contrast, all alignment scores were positively skewed, such that between-speaker agreement tended to cluster toward the negative scale end (i.e., toward more alignment). Because the assumption of data normality was violated, all subsequent descriptive analyses included median (*Mdn*) and interquartile range (*IQR*) values as measures of central tendency and variability while statistical analyses were conducted using nonparametric tests, such as Spearman rank-order correlations (two-tailed) and Wilcoxon signed-rank tests. Correlation strength was assessed using field-specific benchmarks of .25, .40, and .60 designating small, medium, and large associations, respectively (Plonsky & Oswald, 2014).

4. Results

The first research question asked about potential relationships among various interlocutor-perceived dimensions of interaction. Table 1 summarizes the ratings given by Speakers A and B (i.e., 84 speakers randomly designated as A and B in each pair) to their respective interaction partner. The median rating values were relatively high (80.00–91.50 on a 100-point scale), with comparable interquartile ranges, suggesting that these international university students generally had favorable opinions about each other's comprehensibility, fluency, anxiety, motivation, and collaboration immediately after the academic discussion task. According to two-sample Wilcoxon signed-rank tests (summarized in Table 1), there were no between-interlocutor differences in the median values for any of the rated variables across the 84 paired interactions ($p > .141$). Turning to their perceived communicative success ratings, provided at the end of the session, the median values were similarly high (92.00), implying that the overall perceived interactive experience was positive. As shown through correlation analyses (also available in Table 1), the ratings that the paired interlocutors gave each other revealed only weak associations ($rho < |.16|$), with all coefficients falling below the .25 benchmark for a small effect. In sum, all ratings were high, and the speakers did not differ in the median ratings they provided to each other. Nevertheless, the weak correlations between the ratings from Speakers A and B implied that there was variation in how the two interacting partners evaluated each other.

Table 1. *Descriptive Statistics and Comparisons of Speaker Ratings*

	Speaker A		Speaker B		Wilcoxon test[a]		Spearman *rho*	
Speaker rating	*Mdn*	*IQR*	*Mdn*	*IQR*	*Z*	*p*	*rho*	*p*
Anxiety	85.00	24.00	85.00	27.00	−0.03	.973	−.01	.928
Collaboration	90.00	14.00	91.50	22.00	−0.77	.441	−.13	.258
Comprehensibility	87.00	30.00	82.00	20.00	−0.87	.387	−.16	.141
Fluency	83.00	28.00	80.00	26.00	−1.26	.207	−.09	.394
Motivation	85.00	20.00	86.00	22.00	−0.31	.760	−.07	.545
Communicative success	92.00	13.00	92.00	12.00	−0.42	.675	−.07	.531

Note. [a]Related-samples Wilcoxon tests comparing the ratings provided by Speaker A and Speaker B.

The alignment scores, which are the differences between the partners' scores expressed as absolute values, are provided in Table 2. The interlocutors were fairly aligned in their ratings of each other's comprehensibility, fluency, anxiety, motivation, and collaboration after the discussion task and in their judgments of perceived communicative success at the end of the session. In terms of the specific rated dimensions, the interlocutors showed more alignment (numerically lower scores in absolute terms) for perceived communicative success, followed by motivation, collaboration, and anxiety, with the least agreement reported for fluency and comprehensibility. The alignment scores were also skewed, as indicated by positive skewness values exceeding 1.00, meaning that many pairs across the sample of 84 interactions tended to agree in their ratings of each other. In fact, visual inspection of the data revealed that there were few cases where individual interlocutors rated each other with values below 50 (on a 100-point

scale): 16 (10%) for anxiety, 14 (8%) for comprehensibility, seven (4%) for fluency, five (3%)

for motivation and perceived communicative success, and four (2%) for collaboration. More

importantly, there were no cases where both interlocutors assessed each other with scores below

50 for any rated dimension, suggesting that the alignment reported in Table 2 largely reflects

convergence in favorable ratings. According to one-sample Wilcoxon signed-rank tests, the

median alignment scores were significantly different from the chance value of 33.33 for a

hypothetical between-speaker difference on a 100-point scale. Thus, the speakers tended to

converge in their mutual ratings, which reflected alignment in favorable rather than unfavorable

evaluations, and the alignment scores appeared different from what would be predicted if the

speakers had provided random evaluations of each other.

Table 2. *Descriptive Statistics for Alignment Scores (Absolute Values)*

Alignment score	Descriptive statistics				Wilcoxon test[a]	
	Mdn	*IQR*	*Range*	*Skewness*	*Z*	*p*
Anxiety	13.50	23.00	1–95	1.72	–5.01	.001
Collaboration	13.00	17.00	0–74	1.78	–6.75	.001
Comprehensibility	20.00	24.00	0–82	1.22	–4.70	.001
Fluency	15.50	22.00	0–65	1.01	–6.31	.001
Motivation	11.00	19.00	0–63	1.39	–6.85	.001
Communicative success	9.00	12.50	0–90	2.75	–6.14	.001

Note. [a]One-sample Wilcoxon tests comparing the observed median values with a hypothetical

value of 33.33.

To explore relationships among the alignment scores, Spearman correlation coefficients were obtained (see Table 3). The comprehensibility and fluency alignment scores (.28) along with the fluency and motivation alignment scores (.33) both showed weak associations, with 8–11% shared variance. Collaboration alignment was weakly correlated with all other alignment scores except fluency, with some associations (.25–.37) approaching the cutoff for a medium-strength relationship and shared variance ranging from 6% (for comprehensibility) to 14% (for motivation). Thus, the alignment scores capturing perceived dimensions of interaction were not entirely distinct. In particular, the collaboration score appeared to be linked to scores for other rated dimensions (e.g., anxiety, motivation), in that speakers likely perceived their collaboration positively when they aligned in other perceived dimensions of interaction.

Table 3. *Spearman Correlation Coefficients (Significance Values) for Alignment Scores (N = 84) Expressed in Absolute Terms*

Alignment score	1	2	3	4	5
1 Anxiety	—				
2 Collaboration	.35 (.001)	—			
3 Comprehensibility	.04 (.722)	.25 (.022)	—		
4 Fluency	.10 (.360)	.21 (.054)	.28 (.011)	—	
5 Motivation	.13 (.236)	.37 (.001)	.21 (.050)	.33 (.002)	—
6 Communicative success	.14 (.206)	.40 (.001)	.27 (.012)	.22 (.047)	.33 (.002)

The second research question asked whether alignment in L2 speakers' perceptions of each other's comprehensibility, fluency, anxiety, motivation, or collaboration is associated with their agreement about perceived communicative success. To address this question, Spearman

correlations were computed between alignment in perceived communicative success and the five alignment scores. As shown in Table 3 (bottom row), alignment in perceived communicative success was positively associated with all alignment scores. The more the interlocutors aligned in their perception of each other's comprehensibility, fluency, anxiety, motivation, and collaboration, the more they converged in how they perceived their communicative success. However, only the associations for comprehensibility (.27) and motivation (.33) surpassed the threshold for a small effect while the association for collaboration (.40) reached the cutoff for a medium-size effect. In terms of shared variance explained, the anxiety scores explained the least variance in the outcome variable (2%), followed by the comprehensibility and fluency scores (5–7%), whereas the motivation (11%) and collaboration (16%) alignment scores showed the largest overlap with the outcome variable. Visual inspection of these relationships, which are illustrated in Figure 1, confirmed that the alignment scores for collaboration and communicative success had the strongest association. The rest of the relationships displayed weaker associations, with the association between the alignment scores for anxiety and communicative success revealing a potential inverse U-shaped function.
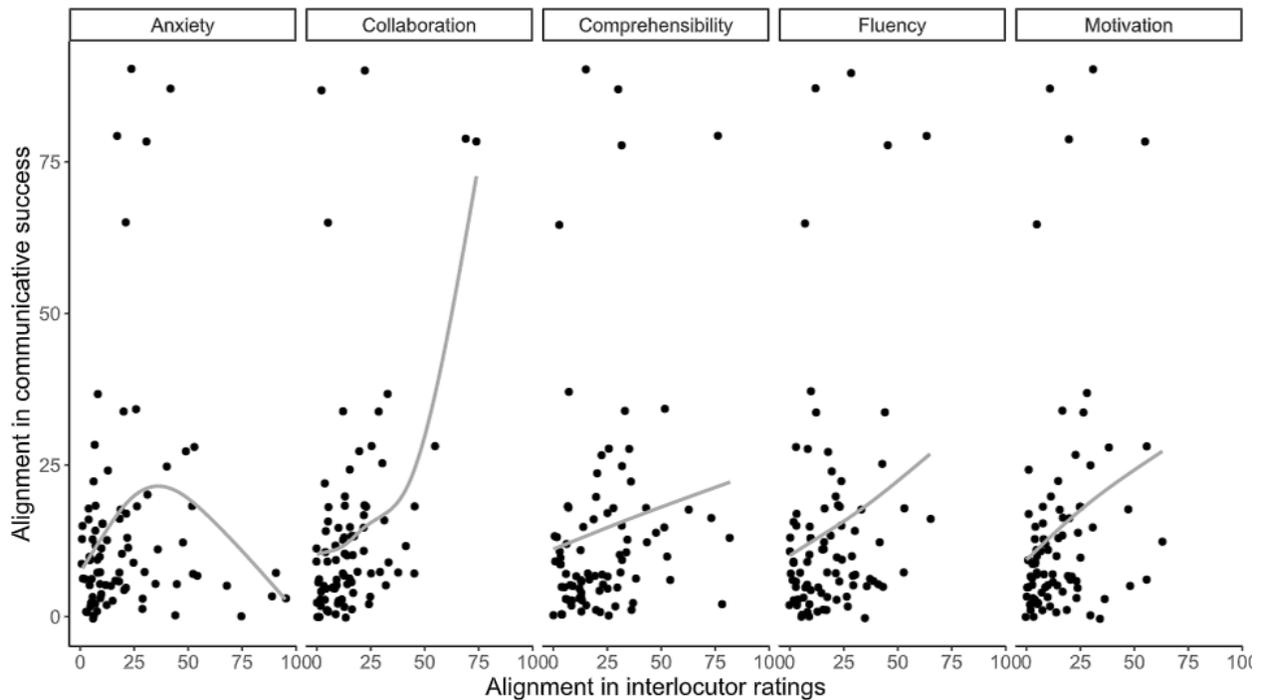
Figure 1. Scatterplots of the relationships between interlocutors' alignment in perceived dimensions of interaction (x-axis) and their alignment in perceived communicative success (y-axis), with LOESS lines depicting the best fit to the data.

5. Discussion

This exploratory study examined L2 speakers' alignment in perceptions of comprehensibility, fluency, anxiety, motivation, and collaboration, investigating whether their alignment in these dimensions is associated with agreement in perceived communicative success. After completing the academic discussion task, the speakers were generally aligned in the five perceived dimensions, although the alignment scores varied (in absolute terms) across individual pairs, where some partners evaluated each other identically (i.e., with an alignment score of 0) while others diverged in their assessments by as much as 95 points on a 100-point scale (see Table 2). The speakers were also generally aligned in their perception of communicative success at the end of the interactive session, and all alignment scores reflected between-speaker

convergence in a positive sense, such that the interlocutors generally held favorable views of each other and their communicative experience. Alignment in perceived communicative success was positively associated with all alignment scores, although collaboration was the only dimension that reached the cutoff for a medium-size effect (Plonsky & Oswald, 2014). In all cases, stronger alignment (i.e., a smaller gap in between-speaker assessments) was associated with greater convergence between interlocutors in their perception of overall communicative success. This appears to be the first demonstration that alignment in perceived dimensions of interaction might be linked to L2 speakers' assessment of their perceived communicative success.

Comprehensibility, fluency, anxiety, and motivation were among the perceived dimensions that revealed considerable alignment in L2 speakers' judgments of each other in an academic discussion task (see Table 2). For comprehensibility, this finding replicates previously reported coordination in interlocutor ratings of mutual comprehensibility, whereby L2 speakers initially diverge in their assessments but within 2–3 minutes of their interactive experience settle on a common assessment (Nagle et al., 2022; Trofimovich et al., 2020). For fluency, this finding extends prior work on interlocutor alignment in various measures of utterance fluency, such as speech rate or pause frequency and length (Street, 1984; Ten Bosch et al., 2004; Wilson & Wilson, 2005), suggesting that speakers can align not only in the actual speed or repair properties of their speech but also in their perceptions of each other's fluency.

As a context-sensitive state variable, anxiety has recently been linked to various speaker experiences in interaction, where anxiety fluctuates depending on which topic speakers choose to discuss, how well they know task-relevant vocabulary, or how listeners react to speakers through verbal or nonverbal cues (Boudreau et al., 2018; Gregersen et al., 2014; Lindberg et al., 2021).

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Similarly, according to a dynamic view of motivation (MacIntyre & Serroul, 2015; Sulis et al., 2020), a speaker's motivational disposition oscillates between approach and avoidance tendencies, which refer to actions toward or away from desirable goals (Elliot, 1999), as a function of contextual variables, including speakers' ease or difficulty with task-specific terminology, topic familiarity, or their sense of time pressure. The present findings extend this work by showing that speakers might become sensitive to each other's anxiety and motivation states, leading some interacting partners to aligned and coordinated perceptions of each other. With respect to anxiety more specifically, one intriguing finding, which must be revisited in future work, is that anxiety might have a curvilinear relationship with other perceived measures (see Figure 1), where between-speaker differences in anxiety either do not influence speaker judgments or have no negative impact on them when perceived differences in interlocutor anxiety reach and surpass a certain threshold.

Among the five perceived dimensions of interaction, only alignment in L2 speakers' collaboration showed a medium-size association with between-speaker alignment in perceived communicative success, with 16% of shared variance. The speakers who were more aligned in their perceptions of each other's collaborative contributions were more likely to agree in their positive assessment of their communicative experience, which is consistent with the idea that communication is a joint, co-constructed, goal-oriented action (Clark, 1996; Pickering & Garrod, 2021). Considering that the academic discussion task was only one of three tasks completed by the speakers in different orders, it is noteworthy that an alignment measure from a single task predicted how the speakers assessed their entire 30-minute communicative experience. Of course, as suggested by an anonymous reviewer, it is plausible that the speakers conflated their judgments of collaboration with their ratings of communicative success, such that the two

measures essentially targeted the same underlying dimension (i.e., success defined through collaboration). This interpretation is nevertheless not incompatible with the interim conclusion suggested by the present findings, namely, that an optimal interactive experience is likely grounded in speakers having a sense that they are matched in their commitment to the dialog. As far as perceived success is concerned, then, speakers who are similarly dedicated to the task (which was most often the case in the present dataset) tend to agree in their favorable assessment of their communicative experience, compared to those whose respective contributions seem imbalanced.

If perceived collaboration is relevant to L2 speakers' assessments of their perceived communicative success, it would be important to understand which specific linguistic and nonlinguistic behaviors underpin speaker perceptions of working together toward a common goal. Conceptualized broadly within the task engagement perspective (Philp & Duchesne, 2016), collaboration ratings might reflect various dimensions of speaker engagement. These dimensions include cognitive and behavioral components characterized by speakers' sustained attention or effort and the quantity of their task-relevant talk, as well as social and emotional components illustrated through reciprocity and mutuality in speakers' turn-taking and in displays of their emotion (e.g., laughter, frustration). In the academic discussion task, for instance, the speakers may have perceived their partners as collaborative if these partners demonstrated attention to task instructions, showed commitment toward task completion, produced task-relevant content, and managed the discussion without dominating the conversation or abstaining from it (Lambert et al., 2017; Nakamura et al., 2021; Qiu & Lo, 2017). Even though it is impossible to isolate the specific behaviors contributing to speaker assessments of collaboration, the obtained link between perception alignment and perceived communicative success is revealing. Speakers'

impressionistic judgments of each other's task involvement—provided that these judgments are in close agreement between the speakers—have a bearing on whether they agree about the perceived success of their interactive experience (see Figure 1).

The various components of task engagement were likely not the only dimensions relevant to speaker perceptions of collaboration. As shown in Table 3, which summarizes correlations between different alignment scores, the speakers who were more aligned in their collaboration were also those showing more convergence in comprehensibility (.25), fluency (.21), anxiety (.35), and motivation (.37), with 4–14% of the variance in common between each set of scores. Thus, broadly defined, partner ratings of collaboration might have also reflected the speech that was easy to understand and that was characterized by few pauses and hesitations and an optimal speaking rate, which confirms a previously reported collaboration–comprehensibility link (Nagle et al., 2022) and extends this relationship to include perceived fluency, anxiety, and motivation.

Similarly, speakers' ratings of collaboration might have captured various linguistic and nonlinguistic cues that could be interpreted as showing different levels of partner anxiety. When L2 speakers feel anxious, they tend to speak in utterances that lack sufficient detail, avoid claiming or volunteering a turn, and provide frequent backchannels as a way of evading an extended turn (Ely, 1986; Steinberg & Horwitz, 1986). Anxious speakers also appear to avoid eye contact, engage in fidgeting, and display fixed facial expressions and unnatural or rigid body postures (Gregersen, 2005). These linguistic and nonlinguistic markers of communication anxiety may have been salient to the speakers to the extent that these markers impacted their collaboration ratings. Although the interactional signature of motivation is less well understood (MacIntyre & Serroul, 2015; Sulis et al., 2020), it is likely that various linguistic and nonlinguistic markers of motivational dispositions, such as effort to retrieve appropriate

vocabulary or enthusiasm shown through facial expressions (see McDonough et al., 2022), may have also influenced the speakers' assessments of both motivation and collaboration. Seen from this vantage point, the alignment in speakers' collaboration ratings, which showed the only substantive association with between-speaker alignment in perceived communicative success, thus emerges as a potentially useful measure encompassing various linguistic, socio-affective, and behavioral dimensions of speakers' interactive experience.

These findings lend themselves to some tentative pedagogical implications which need to be confirmed in future work. Considering potential links between L2 speakers' judgment of communicative success and their perception of each other's task collaboration, it might be useful for researchers to reach out to language practitioners, raising their awareness of the various ways in which speakers might demonstrate collaboration in conversation, such as through sustained attention to the task, quantity of task-relevant talk, interactive listening behaviors, or displays of positive emotion (Galaczi & Taylor, 2018; Philp & Duchesne, 2016). In turn, language instructors might wish to consider providing students with metacognitive instruction focusing on collaborative interaction, pointing out the importance of using various strategies, such as appeals for help, clarification requests, and comprehension checks (Sato, 2020). Specific examples of targeted collaborative behaviors might include encouraging L2 speakers to engage in frequent turn-taking, exhibiting helpful interlocutor-centric behaviors, such as supplying a word that an interlocutor is struggling with, showing interest in an interlocutor's opinion, and maintaining a focus on the discussion topic rather than straying away from it. L2 speakers might also benefit from insights into the importance of visual and nonverbal behaviors in successful communication, which includes the role of body language and facial expressions in signaling communication breakdowns (McDonough et al., 2021; Tsunemoto et al., 2021). Besides the

context of spoken interaction, similar benefits of collaboration have also been observed in research on L2 writing, where learners produce more accurate and complex texts, exchange ideas, and jointly solve language-related problems, provided that language instructors carefully consider learner proficiency, task type, and communication medium (e.g., Storch, 2011; Villareal & Gil-Sarratea, 2020).

6. Conclusion

To conclude, this exploratory study demonstrated links between interactive alignment in L2 speakers' perceived dimensions of interaction and their judgments of perceived communicative success. A global measure of collaboration contributed to explaining 16% of variance in the speakers' calibrated, favorable perceptions of their communicative success, provided that the speakers' assessments of each other's collaboration were aligned. Despite their promise in highlighting speaker-assessed collaboration as a useful construct capturing L2 speakers' interactive experience, the present exploratory findings must remain speculative until examined in future work. First, the target measures of alignment in this study included only subjective, perceived dimensions of interaction. Future work could compare subjective metrics of alignment with various linguistic and nonlinguistic measures, such as the degree of convergence in specific grammar structures or the extent of speakers emulating each other's emotion, to examine potential relationships between speakers' perception and their actual behavior.

Second, future research would also benefit from targeting lower-level L2 speakers, to understand if alignment in perceived and actual measures of interaction differs as a function of speaker proficiency. It is plausible that the alignment in speakers' perceptions of comprehensibility, fluency, anxiety, and motivation, which showed only weak correlations with

perceived communicative success for advanced-level L2 speakers, might be more relevant to the performance of speakers who might face greater challenges in producing L2 speech or sustaining interaction. Future studies could also explore speakers' alignment and its relationship to perceived communicative success as a function of speakers' gender and cultural backgrounds (e.g., matched vs. mismatched dyads), speaking tasks (e.g., academic discussion vs. personal conversation), speaking partners (e.g., L2 speakers vs. native speakers), interactional patterns (e.g., dominant vs. passive), conversational roles (e.g., information holder vs. receiver), and communicative contexts (e.g., video- or text-based communication vs. face-to-face contact).

Third, a nuanced description of perceived measures of interactive alignment (e.g., collaboration, anxiety) requires an understanding of whether speakers notice and use the linguistic and nonlinguistic cues that signal the targeted constructs for interlocutors. Various online methods, including eye-tracking and pupillometry, and retrospective stimulated recall procedures might be useful in this regard. Recall protocols and speaker interviews, in particular, might supplement perceived measures of interaction with interlocutors' actual opinions about each other. Finally, future research should also expand measures of communicative success to include both objective measures of performance (e.g., task accomplishment) and subjective evaluations of experience, such as speakers' ratings of their partners' likeability, friendliness, and helpfulness, or their enjoyment or frustration while communicating with their partners. Researchers might also focus on various consequences of speakers' interactive experience, targeting their willingness to engage in future communication with their partners or to include them in various academic tasks (e.g., study group, team presentation). Above all, researchers should intensify work focusing on speakers' use of various linguistic (e.g., choice of lexis, syntax, phonology) and nonlinguistic behaviors (e.g., body posture, eye contact, gesture) in

interactive task performances to describe and ultimately predict successful communicative

experiences.

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Appendix A

Sample Rating Sheet for Task-Specific Dimensions

Comprehensibility	Me	•————————————————X——————•
		difficult to understand easy to understand
	My partner	•——————————X————————————————•
		difficult to understand easy to understand

Anxiety	Me	•————————————————————X——•
		high level of anxiety low level of anxiety
	My partner	•————————————X————————————•
		high level of anxiety low level of anxiety

Collaboration	Me	•————————————————X——————•
		does not work well with partner works well with partner
	My partner	•——————————X————————————————•
		does not work well with partner works well with partner

Motivation	Me	•X————————————————————————————•
		not at all motivated very motivated
	My partner	•————————————————————————X•
		not at all motivated very motivated

Fluency	Me	•————————————————————X—•
		speech is not at all fluid speech is very fluid
	My partner	•————————————X————————————•
		speech is not at all fluid speech is very fluid

Appendix B

Definitions of Rated Constructs

Term	Explanation
Comprehensibility	This term refers to how much effort it takes to understand what someone is saying. If you can understand with ease, then a speaker is highly comprehensible. However, if you struggle and must listen very carefully, or in fact cannot understand what is being said at all, then a speaker has low comprehensibility.
Anxiety	This term refers to the level of stress, worry, or nervousness that someone is feeling while completing a task. If you are (or you believe that your partner is) experiencing very little worry or stress while completing the task, then the anxiety level is low. If you are (or you believe that your partner is) feeling very worried or nervous about the task, however, the anxiety level is high.
Collaboration	This term refers to the action of working with someone to produce or create something. If you are actively participating and working together as a team more than as an individual, then you are collaborating, or working well together. If you are not actively participating or working together as a team, then you are not collaborating or working well together.
Motivation	This term refers to how much someone is engaged in the task and how enthusiastic or determined they are to complete it. If you are (or you believe your partner is) very engaged and eager to complete the task successfully, then motivation is high. However, if you are (or if you believe that your partner is) not engaged or eager to complete the task successfully, then motivation is low.
Fluency	This term refers to someone's ability to speak with ease and fluidity and without many pauses and hesitations. If you are (or you believe your partner is) speaking smoothly without having to pause often and comfortable to listen to, then speech flow is natural and fluid. However, if you are (or if you believe that your partner is) not speaking smoothly, hesitating often, and uncomfortable to listen to, then speech flow is disjointed and not at all fluid.

Appendix C

Sample Rating Sheet for Exit Measures

Communication	
We were not successful at communicating	We were very successful at communicating