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Improvisation in Motion: Exploring How Expertise Affects Perception of Joint Actions

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Abstract

This study explores the ability to distinguish between two individuals improvising dance movements together or alone, examining the roles of expertise, contextual factors, and available social information. Experts and novices watched brief sequences of contemporary dance improvisations and judged whether the movements were performed solo or in a duet. Results revealed that participants, regardless of expertise, could reliably detect joint improvisation, with faster reaction times and higher accuracy in the dyadic conditions. Tempo influenced perception: slower tempos enhanced accuracy by providing clearer coordination cues, while faster tempos sped up reaction times. Additionally, gaze direction significantly improved detection accuracy. Contemporary dancers only outperformed others in certain contexts, suggesting that expertise had a limited effect overall. The ability of novices to detect joint action indicates reliance on universal cognitive mechanisms. These findings deepen our understanding of joint action perception, bridging research in social cognition with the performing arts.

Keywords: Joint Improvisation; Joint Action; Dance; Perception; Expertise.

Introduction

Joint action—the coordinated effort of individuals working together to achieve a shared goal—is a fundamental aspect of human social behavior. It involves complex cognitive and perceptual processes that enable individuals to synchronize their actions in real time (Knoblich, 2011; Knoblich & Sebanz, 2006; Wilson & Knoblich, 2005; Wiltermuth & Heath, 2009). While joint action is often studied in the context of structured, non-spontaneous tasks, it also incorporates a spontaneous component, which challenges traditional models focused on planned coordination. Improvised joint actions, in particular, reflect a dynamic interplay of creativity and mutual responsiveness (Brinck, 2016). This type of improvisation is central to many artistic practices, especially in contemporary dance, where performers engage in both execution and creation simultaneously (Li, 2024). Similarly, musical improvisation involves real-time decision-making coupled with refined technical skills (Engel & Keller, 2011), a concept that can also be applied to dance improvisation.

These principles are also present in various everyday activities, such as walking side by side, in which individuals must coordinate their movements. Research on joint improvisation has generally focused on basic movement exercises rather than more complex, domain-specific dance movements. For instance, Noy et al. (2011) explored synchronization in the mirror game, showing how both novice and expert improvisers co-create complex patterns without a designated leader. Hart et al. (2014) examined the balance between individuality and coordination in joint improvisation, revealing how performers maintain personal expression while achieving collective synchronization. Additionally, Engel and Keller (2011) demonstrated that the recognition of improvised performances is influenced by the observer's experiential background and capacity for perspective-taking. Dance, in particular, offers a unique opportunity to study these dynamics, as it requires performers to execute rehearsed choreographic sequences while allowing space for improvisation and creative exploration.

Dance serves as an effective model for studying human collaboration because it strikes a balance between ecological validity and experimental control. Joint action in dance provides valuable insights into broader mechanisms of human interaction and coordination. However, much of the existing research on joint improvisation has focused primarily on the performers themselves. The present study shifts the focus to the perception of joint improvisation, exploring whether observers can accurately identify when two individuals are engaged in a shared task and decipher the mechanisms that inform this perception. This shift is significant because perceiving joint action may be a more fundamental aspect of social interaction than actively participating in it. In this regard, Social Baseline Theory (SBT) posits that processing social and physical information is an integrated process, helping individuals form a coherent understanding of their environment and the social agents within it (Beckes & Sbarra, 2022; Coan et al., 2014; Coan & Sbarra, 2015).

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Observers often rely on synchronized movement as a key indicator of joint action. Research has shown that observing synchronized actions enhances perceptions of social unity or *entitativity*—the sense of a collective group (Barnieri et al., 1994). For example, Lakens and Stel (2011) demonstrated that synchronized movement rhythms increase perceptions of rapport and social connectedness between individuals. Another essential component of joint action is shared intentionality, the mutual understanding of a common goal, which is central to cooperation and synchronization (Tomasello et al., 2005). Studies have shown that shared intentionality fosters cooperation and enhances synchronization in joint actions (Reddish et al., 2013). In dance, perceiving synchronized movement rhythms not only enhances rapport and social connectedness between performers, but also contributes to aesthetic appreciation. Vicary et al. (2017) confirmed that perceived togetherness between performers increases enjoyment for the audience. Furthermore, studies examining the cognitive capacities involved in observing dance suggest that individuals can accurately identify themselves and familiar people in point-light displays of movement, such as dancing or jumping (Loula et al., 2005). Other studies have shown that individuals can discern performer identity and intended expression with minimal visual cues (Sevdalis & Keller, 2011). Neural evidence supports these findings, as observing self-performed actions or familiar movements activates corresponding neural circuits (Calvo-Merino et al., 2005).

Coordination within dance performances, particularly in improvisational settings, reveals the complexities of joint action perception. McEllin et al. (2020) found that different types of synchrony (e.g., velocity-based vs. interval-based) influenced the aesthetic experience of performances, with velocity-based synchrony being more positively received. Hartmann et al. (2023) examined how different coupling modes and movement directions shape the perception of togetherness, revealing that simultaneous, faster gestures and sequential coupling contribute to the perception of coordinated, interactive performances. Moffat and Cross (2024) further demonstrated that individual differences in embodied expertise and social competencies affect both the accuracy and enjoyment of synchronized movement. While coordination is often easily perceived in dance styles that require physical contact, other styles rely on subtler cues—such as head movements, eye contact, and facial expressions—to establish interpersonal coordination. For example, studies have shown that eye-gaze plays a crucial role in turn-taking during dance improvisations (Evola et al., 2015). In musical performance, partners who share information through eye-gaze develop feelings of engagement and creative collaboration (Bishop et al., 2019; Evola & Skubisz, 2019). Moreover, access to information about gaze direction (i.e., where people look during an interaction) enables observers to infer shared intentionality (Böckler et al., 2011; Huang et al., 2015; Stephenson et al., 2021).

In addition to recognizing joint actions through physical cues or synchronized movements, the present study also explores the role of expertise in this recognition process. Recent research underscores the importance of visual and motor expertise in facilitating joint action, highlighting how individuals with specialized training perceive and predict their partners' movements. For instance, Orgs et al. (2008) found that professional dancers and non-dancers exhibited different brain activity when categorizing movements, with dance expertise influencing alpha/beta-ERD during the observation of familiar versus unfamiliar movements. Similarly, Bläsing (2015) suggested that dance expertise reduces the number of perceived segment boundaries in observed dance phrases, indicating that visual familiarity and music affect movement segmentation differently based on expertise. Dance expertise is also linked to enhanced emotional intelligence. Petrides et al. (2006) found that ballet dancers scored higher in trait emotional intelligence, suggesting that expertise in the arts facilitates emotional processing. Christensen et al. (2016) showed that expert dancers discriminated more strongly between happy and sad dance clips compared to non-dancers, as evidenced by subjective ratings and galvanic skin responses. In improvised settings, Washburn et al. (2014) found that trained dancers exhibited superior visual-motor coordination, enhancing their ability to synchronize with others during dance-like movements.

Based on these findings, the present study hypothesizes that expert dancers will be more accurate than non-dancers in distinguishing between spontaneous joint and solo actions. Furthermore, we aim to explore the information participants use in their decision-making process. To assess this ability, we developed a stimulus set of contemporary dyadic dance performances and asked both expert and novice participants to determine whether they were observing joint or solo performances. We also examined whether experts' decision-making varied based on their general dance expertise, or if these effects were mediated by more specific expertise with particular dance styles (e.g., contemporary dancers vs. ballet dancers). We expect that expert participants will outperform non-experts, and specifically, that contemporary dancers will show higher detection rates than classical dancers.

Methods

Participants

60 females participated in the experiment. Sample size was based on previous studies employing this paradigm (Speranza et al., 2024). Participants' age ranged from 18 to 29 years. 20 participants (*mean* age=21.50 yrs; *SD* age=2.23 yrs) did not have formal dance training other than what most people would have had in their personal leisure time. Novice participants were undergraduate students of Psychology and were invited to participate in exchange for course credits. The other 40 participants were dancers who had at least 5 years of formal dance training. 20 of them (*mean* age=22.60 yrs; *SD* age=2.06 yrs) were professional training or working

professionally with Ballet as their main dance style. About their competency, 6 of them self-reported as professional, 12 of them self-reported as advanced, and 2 of them as intermediate. About their training in improvising practices, 8 of them reported that they regularly train their improvisation. The other 20 participants (*mean* age=23.08 yrs; *SD* age=2.83 yrs) were professional training or working professionally with Contemporary as their main dance style. Regarding their self-reported level of expertise, 7 identified as professional, 9 as advanced, and 4 as intermediate dancers. In terms of improvisation experience, 14 participants indicated that they regularly engage in improvisational training. Many participants, both classicals and contemporary dancers, were enrolled in university-level arts programs, affiliated with dance companies, or employed as dance instructors. Assessments of dance expertise were based on criteria established by Cross et al. (2011) and Rose et al. (2020).

All participants were recruited at the [redacted] Participants provided written informed consent prior to the beginning of the study; forms were approved by the ethics review board of the [redacted] Bioethics committee (approval number CBE 940/21). Participants received no monetary compensation for participating in the study. The present project is pre-registered on the Open Science Framework: [redacted]

Materials and Procedure

The stimulus set featured female dancers improvising contemporary dance movements. Dancers were informed about the goal and hypothesis of the study and gave their authorization to use their image both in the experiments and in the works to be published. Four dancers with similar levels of expertise and anthropometrics (mean of height = 154 cm) were recruited. Dancers trained within a contemporary dance company (12 members) and perform weekly together. They were instructed to use the vocabulary taught by the company to improvise a range of movements varying in complexity, speed, and amplitude. In the together condition, they were instructed to improvise together. However, they were explicitly prohibited from making physical contact or approaching each other. The intention was to prevent direct imitation or coordination while ensuring that both dancers remained aware that they were performing simultaneously to the same piece of music, facing one another. They were recorded in profile dancing alone and in dyads to the same music piece at its original (steady beat; 120 bpm), a slowed down (85 bpm), and a speeded-up tempo (155 bpm). All music pieces were 1 minute long and extracted from the same song: [redacted] (see original here). Dancers stood at a zero-point set by the researcher and moved within a fixed quadrant (2.74 m high x 2.52 m wide). In the together condition, they were 2.5 m apart from each other, and in the solo condition, they occupied the same space. Dancers were prevented from seeing each other dance when not performing. The videos were recorded on a 12-megapixel camera from a fixed tripod. The tripod was placed at the midpoint between dancers at 4 m away from them to record the whole scene. Dyads first performed the original version of the song, followed by the slowed-down and the sped-up versions (counterbalanced). To control for concurrent experience dancing together biasing solo performance, one dyad was first recorded dancing together and the other dancing solo. For couple number A, the videos of them dancing together were filmed first, and for couple number B, the videos of them dancing together were filmed first.

Stimuli were extracted in post-processing from the recorded masters and manipulated to show both dancers on the screen (see Figure 1) in 7 sec. clips (see sample here). Videos (812 pixels in height and 536 pixels in width) were presented in full color in the center of the screen. A 3 cm black separation between dancers was introduced in the together performance clips (1 for each tempo, 6 total). Dancing solo clips of the two participants were created by combining the two individual performances (1 for each tempo, 6 total). To double the total amount of stimuli, the original position of the dancers was flipped so that on one trial, a dancer appeared to the left and, in an identical trial, appeared to the right. Overall, the stimuli set comprised 24 videos of together improvising and 24 videos of solo improvising. Plus, there were 2 types of videos, where one of them had facial information available (i.e., gaze direction, facial expressions), while the other one wasn't available. Meaning that the faces of the dancers were blurred. Music was removed in post-processing. All videos were edited in the CapCut video editor software (version 2.6.0.; ByteDance).

To obtain a measure of the degree of coordination between dancers, a time series of the pixel change from frame to frame was obtained. This analysis can be found in previous work (Speranza et al., 2024).

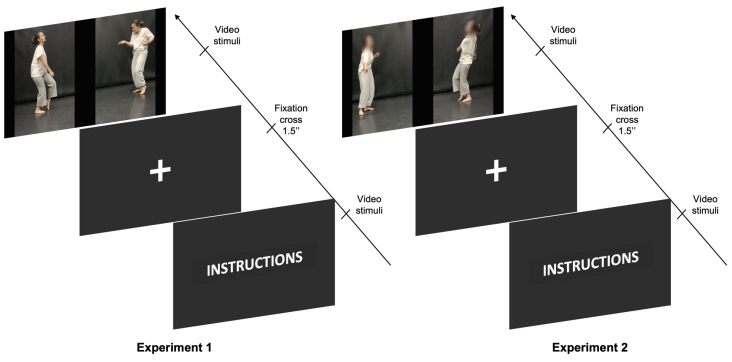
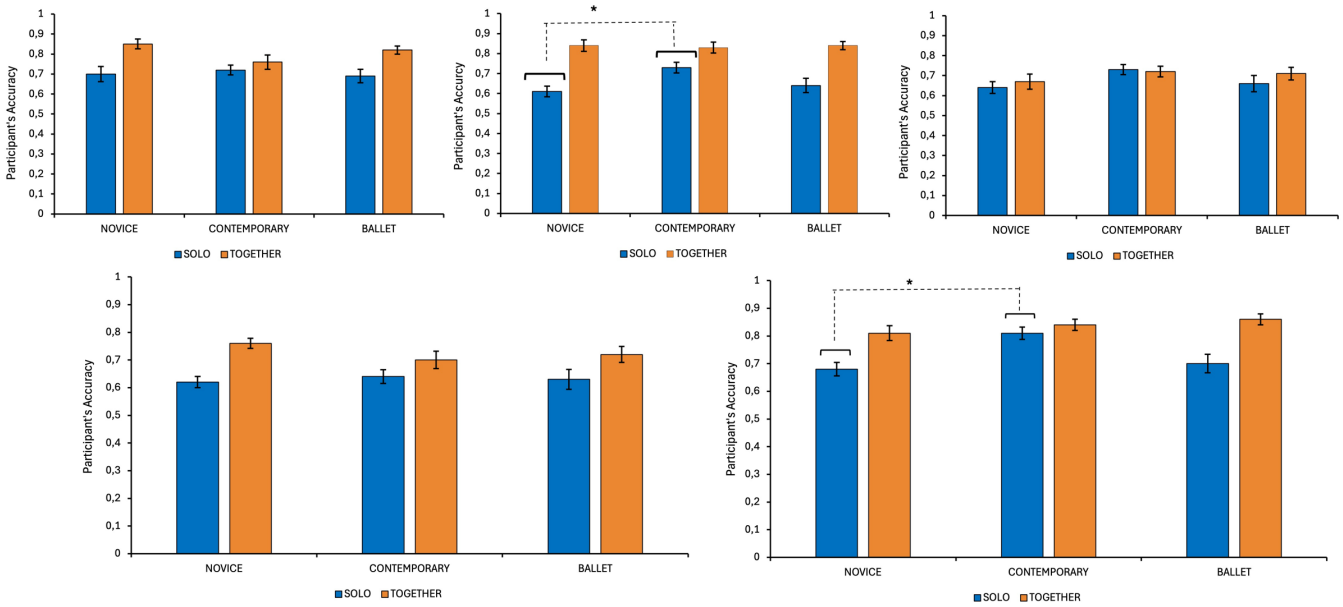


Figure 2: Trial layout of block blur and block no blur of the Experiments

The experimental task consisted of a force-choice paradigm and was presented on Psychopy on a 17'' Lenovo Laptop positioned 50 cm away from the participant. On each trial, participants saw a clip and were asked to respond by pressing the left arrow on the keyboard if they thought the two dancers were dancing separately and the right arrow if



they thought they were dancing together. Participants saw 2 repetitions of each video, and there were 2 blocks counterbalanced of face blurred videos and no face blurred videos. So, in total participants completed 96 experimental trials (see Figure 2). Trials ended after 7 seconds or when the participant made a decision.

Results

Accuracy analysis

Participants' accuracy (% of correct responses) was submitted to a repeated measures ANOVA with togetherness (solo vs. together), tempo (85, 120, 155), and gaze (face blurred and face no blurred) as within factors, and group (novice, ballet dancer, and contemporary dancer) as between factor. Results showed significant main effects for togetherness, $F(1,57)=28.12$, $p<.001$, $\eta_p^2=.33$, tempo, $F(2,114)=12.69$, $p<.001$, $\eta_p^2=.18$, and gaze, $F(1,57)=54.48$, $p<.001$, $\eta_p^2=.49$, as well as, significant two way interactions between togetherness, $F(2,114)=9.83$, $p<.001$, $\eta_p^2=.15$, tempo and group, $F(4,114)=3.75$, $p=0.007$, $\eta_p^2=.12$, and for the gaze and group, $F(2,57)=14.95$, $p<.001$, $\eta_p^2=.34$.

To follow up on the interaction between togetherness and tempo, participant's average accuracy for each type of tempo and condition were submitted to a repeated measures ANOVA with togetherness and tempo as within factors. Again a significant togetherness*tempo interaction was found, $F(2,114)=9.83$, $p<.001$, $\eta_p^2=.15$. Tukey HSD post hoc comparisons indicated that in the solo condition participants were significantly more accurate when watching the 85 tempo compared to the 120 tempo [(85 tempo: $M=0.70$, $SD=0.14$, 120 tempo: $M=0.66$, $SD=0.14$), ($t(57)$ = -6.96, $p<.001$)] and in the together condition were significantly more accurate when watching the 120 tempo compared to the 155 tempo [(120 tempo: M =0.84, SD = 0.11, 155 tempo: M = 0.70, SD = 0.14), ($t(57)$ = 4.82, $p<.001$)] and when watching the 85 tempo compared to the 155 tempo [(85 tempo: $M=0.81$, $SD=0.13$, 155 tempo: $M=0.70$, $SD=0.14$), ($t(57)=-3.49$, $p<.001$)].

To follow up on the interaction between tempo and group, participant's average accuracy for each tempo were submitted to a repeated measures ANOVA with togetherness as within factor, and group as between factor. For the 120 tempo, a significant interaction was found between togetherness and group, $F(2,57)=3.31$, $p=0.05$, $\eta_p^2=.11$. Tukey HSD post hoc comparisons indicated that for the solo condition, contemporary dancers were significantly more accurate than novices participants [(contemporary dancers: $M=0.73$, $SD=0.12$, novices: $M=$ 0.61, $SD=0.12$), ($t(57)=-2.90$, $p=0.05$)]. No significant results were found in the analyses of the 85 and the 155 tempos.

To follow up on the interaction between gaze and group, participant's average accuracy for each type of gaze manipulation were submitted to a repeated measures ANOVA with togetherness (solo vs. together) as within factor, and group as between factor. For the face not-blurred data, a significant interaction was found between togetherness and group, $F(2,57)=4.00$, $p=0.02$, $\eta_p^2=.12$. Tukey HSD post hoc comparisons indicated that for the solo condition, contemporary dancers were significantly more accurate than novices participants [(contemporary dancers: $M=0.81$, $SD=0.10$, novices: $M=$ 0.68, $SD=0.11$), ($t(57)=-3.12$, $p=0.03$)] (see Figure 2). No significant results were found in the analyses of the face blurred data.

Figure 2: Interaction between togetherness and 85 tempo stimuli (top left), interaction between togetherness and 120 tempo stimuli (top middle), interaction between togetherness and 155 tempo stimuli (top right), interaction between togetherness and face blurred stimuli (bottom left), interaction between togetherness and no face blurred stimuli (bottom right)

Reaction Time analysis

Participants' Reaction Times (RT) were submitted to a repeated measures ANOVA with togetherness, tempo, and gaze as within factors, and group as between factor. Results showed a significant main effect for togetherness, $F(1,57)=17.44$, $p<.001$, $\eta_p^2=.23$, and significant interactions between togetherness and tempo, $F(2,114)=3.78$, $p=0.02$, $\eta_p^2=0.062$., togetherness and gaze, $F(1,57)=6.35$, $p=0.01$, $\eta_p^2=.10$., togetherness and group, $F(2, 57)=4.20$, $p=0.02$, $\eta_p^2=.13$, and tempo and group, $F(4,114)=2.36$, $p=0.05$, $\eta_p^2=0.08$.

To follow up on the togetherness and tempo interaction, a analyses were performed on the data averaged over other variables. Tukey HSD post hoc comparisons indicated that for the solo condition, participants' responses were significantly faster for the 120 tempo compared to the 85 tempo [(120 tempo: $M=5.00$ sec., $SD=1.39$, 85 tempo: $M=5.32$ sec., $SD=1.46$), ($t(57)=-3.05$, $p=0.04$)], and for the 155 tempo compared to the 85 tempo [(155 tempo: $M=5.07$ sec., $SD=1.41$), ($t(57)=-2.92$, $p=0.05$)].

To follow up on the togetherness and gaze interaction, analyses were performed on the data averaged over other variables. Tukey HSD post hoc comparisons indicated that for the face not-blurred condition, participants' responses were significantly faster for the together compared to the solo condition [(together improvising: $M=4.76$ sec., $SD=1.34$, solo improvising: $M=5.15$ sec., $SD=1.40$), ($t(57)=-4.85$, $p<.001$)].

To follow up on the interaction between togetherness and group, participant's average RT for each both togetherness conditions were submitted to a repeated measures ANOVA with togetherness as within factor, and group as between factor. A significant interaction was found between togetherness and group, $F(2,57)=4.51$, $p=0.02$, $\eta_p^2=.14$. Tukey HSD post hoc comparisons indicated that in the together condition, novices were significantly faster than ballet dancers (novices: $M=4.13$ sec., $SD=0.35$, ballet dancers: $M=5.43$ sec., $SD=1.22$) [$t(57)=5.04$, $p<.001$] and contemporary dancers [(contemporary dancers: $M=5.06$ sec., $SD=0.62$), ($t(57)=-3.62$, $p=0.008$)]. In the solo condition, novices were also significantly faster than ballet dancers [(novices: $M=4.16$ sec., $SD=0.38$, classical dancers: $M=5.86$ sec., $SD=1.18$), ($t(57)=6.76$, $p<.001$)] and contemporary dancers [(contemporary dancers: $M=5.27$ sec., $SD=0.60$), ($t(57)=-4.42$, $p<.001$)].

To follow up on the interaction between tempo and group, participant's average RT for each type of tempo were submitted to a repeated measures ANOVA with tempo as within factor, and group as between factor. A significant interaction was found between tempo and group, $F(2,114)=3.65$, $p=0.008$, $\eta_p^2=.12$. Tukey HSD post hoc comparisons indicated that for 120 tempo, novices were significantly faster than ballet dancers [(novices: $M=4.15$ sec., $SD=0.46$, classical dancers: $M=5.68$ sec., $SD=1.16$), ($t(57)=6.01$, $p<.001$)] and contemporary dancers [(contemporary dancers: $M=5.03$ sec., $SD=0.64$), ($t(57)=-3.46$, $p=0.02$)]. Similarly, for 155 tempo stimuli, novices were significantly faster than ballet dancers [(novices: $M=4.17$ sec., $SD=0.32$, classical dancers: $M=5.58$ sec., $SD=1.24$), ($t(57)=5.41$, $p<.001$)] and contemporary dancers [(contemporary dancers: $M=5.08$ sec., $SD=0.61$), ($t(57)=-3.50$, $p=0.02$)]. Lastly, for 85 tempo stimuli, novices were significantly faster than ballet dancers [(novices: $M=4.11$ sec., $SD=0.39$, classical dancers: $M=5.68$ sec., $SD=1.19$), ($t(57)=6.10$, $p<.001$)] and contemporary dancers [(contemporary dancers: $M=5.39$ sec., $SD=0.63$), [$t(57)=-4.98$, $p<.001$)]. No other significant main effects or interactions were found.

Discussion

This study investigated the ability to perceive whether two people are improvising together and how this ability is influenced by the expertise involved in performing the observed actions. To this end, we evaluated contemporary dancers, ballet dancers, and novice participants. Additionally, we examined how variables such as tempo and gaze direction affected participants' decisions. We hypothesized that experts would perform significantly better than novices, and that dancers trained in improvisation-heavy styles, such as contemporary dance, would demonstrate superior detection abilities compared to ballet dancers.

Results revealed that all participants, regardless of expertise, could discern when two individuals were improvising together. Accuracy and reaction times varied based on whether the performance involved joint or solo improvisation, the tempo of the dance, and the availability of facial cues in the video stimuli. These findings replicated and extended those of Speranza et al. (2024), showing that we can reliably perceive when two people are improvising together. Reaction times were faster when observing dyads improvising together, suggesting participants identified structural and coordination cues indicative of joint action. This supports previous research, such as Hartmann et al. (2023), which emphasized how coupling modes and movement directions shape perceptions of togetherness.

Interestingly, tempo also influenced decision-making. Slower tempos (85 bpm) facilitated greater detection accuracy, possibly due to enhanced coordination cues in slower movements. This contrasts with Hartmann et al.'s (2023) findings, where faster simultaneous gestures were more positively associated with perceptions of coordination. However, previous research (Speranza et al., 2024) noted that slower tempos allowed for better movement coordination, suggesting that slower movements at similar speeds provide information about the togetherness of the performance. Facial cues, especially gaze direction, also played a significant role. Although participants performed above chance when facial features were blurred, accuracy improved when facial information was available, underscoring the importance of gaze in inferring shared intentionality, consistent with prior studies (Böckler et al., 2011; Huang et al., 2015; Stephenson et al., 2021). These findings emphasize the interplay between

visual and movement-related cues in perceiving joint improvisation.

Contrary to expectations, expertise in contemporary dance did not significantly enhance performance compared to ballet dancers or novice participants. While contemporary dancers outperformed others in videos with non-blurred faces and normal tempos (120 bpm), their performance gains were context-specific. This may reflect contemporary dancers' familiarity with improvisational practices compared to ballet dancers, who are more accustomed to rigid choreographic training. Ballet dancers' limited exposure to improvisation may explain their relatively lower detection accuracy. Novices displayed a notable ability to detect joint action, perhaps reflecting a shared cognitive ability to perceive synergies between individuals and structure in coordinated movements (see Riley et al., 2011). This suggests that detecting togetherness may rely on fundamental cognitive mechanisms rather than specialized expertise, aligning with the notion of a social component of perception as the default mode for the human perceptual system (Beckes & Coan, 2011).

Regarding reaction time results, we expected that, in conditions with joint improvisation and no blurred faces, participants' reaction times would be faster due to the relative abundance of information specifying togetherness. In terms of tempo, unlike the accuracy results, both faster (155 bpm) and normal (120 bpm) tempos allowed for quicker decisions. Future research must delve deeper into the role of tempo in such perceptions, given the variability in behavior and the effects on accuracy and reaction times. As for expertise differences, interestingly, novices exhibited faster reaction times across all tempo and togetherness conditions compared to expert groups. This suggests a trade-off between speed and accuracy, with novices likely relying on heuristic processing while experts engage in more deliberate analysis of the stimuli. This could be explained by the participants' training backgrounds. However, the absence of a validated scale for assessing expertise introduces variability in group categorization, future research should address it with standardized measures.

Our findings suggest that while expertise may enhance performance in areas such as improvisation capacity (Issartel et al., 2017), psychophysiological responses to affective body movement (Christensen et al., 2016), configural action processing (Calvo-Merino et al., 2010), enjoyment (Moffat & Cross, 2024), entrainment (Washburn et al., 2014), and segmentation of dance movements (Bläsing, 2015), it does not necessarily improve the ability to detect improvised joint actions. This is consistent with the cognitive system's general capacity, though it may be more attuned to the specific stimuli used in this study.

This study is part of a larger project aimed at determining the mechanisms involved in detecting joint improvised actions in the context of dance. To date, we have identified that facial information and movement tempo are key resources for observers. Future studies will include a task where participants are asked to determine whether performances were recorded independently or jointly. Additionally, while our design focused on visual stimuli, future research should consider the role of musical accompaniment. Music may facilitate coordination but could also introduce biases, leading participants to falsely detect joint performances in solo conditions. Examining the interplay between auditory and visual cues will further clarify the mechanisms underlying joint action perception.

In conclusion, this study advances our understanding of how individuals perceive and identify joint improvisation in dance, emphasizing the interplay between universal cognitive abilities and domain-specific expertise. The findings suggest that while expertise enhances certain aspects of perception, fundamental mechanisms of social cognition allow both novices and experts to recognize improvised joint actions. By bridging social cognition with performing arts research, this study opens new avenues for exploring the perceptual and cognitive foundations of human coordination and cooperation.

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