Perceived “togetherness” and “MA”

between two dancers in joint improvisation

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Introduction

Non-verbal communication plays a crucial role in building interpersonal understanding and promoting social bonding. All newcomers to a specific culture need to learn how to appreciate the communicative signs during interactive movements and adjust accordingly to become socially integrated. For engineers and psychologists, it has been a big challenge to develop scientific methods to capture this dynamic interaction.

This study is part of an interdisciplinary research project exploring a culture specific intersubjective construal, namely the Japanese notion of MA. The research project centers on joint dance improvisation, as a sort of ecological laboratory for the study of non verbal communication and more specifically the shared (or not) experience of MA. One way of probing a culture specific meaning of a construal is by finding how it relates to construals which are cross-culturally (more) stable. In the study reported here we were interested to find out to what

extent the experience of (the Japanese specific) MA is related to the experience of interpersonal togetherness (a term found in both Japanese and Occidental languages).

"MA" is a Japanese sign which participates in multiple words referring among other things to specific qualities of time, space, interpersonal dynamics (e.g. speaking, walking, to social interaction), aesthetic experiences in a variety of Japanese arts (e.g. architecture, tea ceremony, dance) and sports (e.g. Japanese wrestling, fencing, martial arts). It is sometimes translated as 'gap', 'interval' or in between'. In preliminary informal inquiry into the experience of MA by improvising dancers during a dance duet, we found that MA may refer to moments of stillness (or silence), specific intercorporal configurations, but also to specific *shared moments* with the dancing partner that seemed to us to be not so different from the experience of 'togetherness' during improvisation(Sawyer 2003,Hart et al 2015, Himberg et al 2018). "Togetherness" between dancers (or musiciens or, more generally, groups engaged in a common task) is a specific quality of experience, often reported as a "magic moment" when the individuals experience a sense of constituting a single entity. This feeling emerges from a joining of actions, gestures or movements in a shared situation, which contains more than a mechanical synchrony or pattern similarity.

Our research group held an exploratory event in Kirishima Open Air Museum located in Kagoshima, Japan on April 30, 2018. It consisted of a 45-min improvisation performance under the theme of "MA" by two dance improvisers (Chico Katsube, Shoko Kashima) and a musician (Naomi Minomo). Part of the performance can be viewed at: https://youtu.be/17huFXOZFfo. An open discussion was held right after the performance, and the spectators filled in a questionnaire. From the feedback of spectators, all Japanese with little or no dance experience, we learned that while most were familiar with the concept of MA, its application to the specific domain of dance performance was novel to them. Given that our qualitative in depth study of MA during dancing has focused primarily on the experience of the (expert) dancers, we were interested to explore in a more systematic fashion the experience of MA by novice spectators. In particular, we wanted to find out whether novice Japanese spectators associate MA with moments of shared experience or togetherness. For this purpose we included a group of non-Japanese novice spectators to allow us to evaluate the cross-cultural stability of this latter concept.



Figure 1. A contemporary dance and music improvisation centered around “MA”. This exploratory event took place in Kirishima Open Air Museum located in Kagoshima, Japan. Part of the performance (April 30, 2018) can be viewed at: https://youtu.be/17huFXOZFfo.

Methods

Two experienced Japanese dancers were invited to perform a dance improvisation duet in a 3.5 x 3 m space installed with a motion capture system (OptiTrack Flex3). Both dancers wore full-body suits which included 19 sensors placed at predetermined body parts (Figure 2). Ten infrared cameras installed at the top of the room picked up the optical signals from the passive sensors which could later be transformed into time-series data for analysis. A standard camera, positioned in a traditional spectator perspective, was used to film the dance. For the purpose of this specific study we used the standard video rendition of the dance. In total, we had 20 Japanese and 20 non-Japanese participants in this study. For the non-Japanese viewers, their average stay in Japan at the time of the experiment was 16 months. All participants signed consent forms before the start of the experiment.

We invited all participants to watch a 3-minute-20-seconds (200 seconds) recorded clip and to report the moments (in 1 second granularity) when they felt the two dancers were “dancing together” or the moments they felt best expressed “MA”. In the first part of the experiment, we explained to them that “togetherness” did not refer necessarily to the physical proximity or similarity of movement/tempo, and they were free to base their reports on their personal intuition. There was no upper or lower limit on the number of moments reported or the duration of the perceived moments (i.e. they could feel it for a short instance or they could feel it in a continuous period of time). Participants were tested separately with a PC provided by us, and they noted down the perceived “togetherness” of the video on a piece of paper. The participants

could stop and repeat the videos without time limit. Most participants chose to watch the video without any action for the first time, and start responding from the second viewing. It usually took less than 10 minutes to complete.

In current study, we design an exercise that requires viewers to

For the second session of the experiment, they were asked to re-watch the same video and report “MA” moments. We interviewed each participant about his/her understanding of “MA.” For all Japanese participants, the answers covered a wide range of possibilities from MA in arts (e.g. Japanese floral arrangement, painting, tea ceremony), daily life (e.g. space in room decoration), or social etiquette (e.g. right timing to speak). As for the non-Japanese participants, most of them were recruited from the University campus, and many were knowledgeable about MA from their Japanese language or cultural classes. Interestingly, from the interview, MA was most frequently mentioned as pauses/silence in verbal communication (e.g. longer silence in a Japanese conversation than their native language conversation). Some mentioned its extended meaning (e.g. the extra care and attention to another person by providing extra space during a communication), and few on other areas. For a few participants who requested clarification, we let read a brief summary of MA (https://new.uniquejapan.com/ikebana/ma/) and watch an introductory video (https://www.youtube.com/watch?v=VI0xgxCOf8E&ab_channel=CarnegieHall).

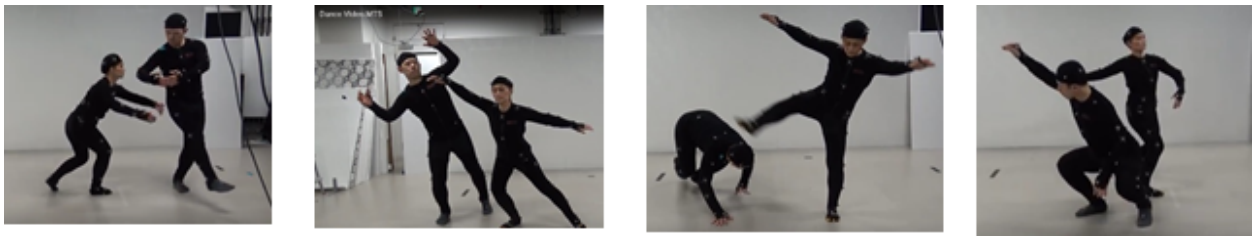


Figure 2. Two experienced dancers wear full-body suits and improvised on the theme of “MA”. Their movements were captured with an optical motion track system.

Results

Togetherness

We found the concept of 'togetherness' to be cross culturally stable (at least in our specific sample of spectators and regarding this specific video). The similarity in responses across the two groups can be appreciated through simple visual inspection of Figure 2 left panel, where we tabulated the number of participants who have reported "perceived togetherness" during the 200-second video clip. The statistically significant correlation between the two cultural groups ($r(198) = 0.80$, $p < .00001$) confirms a shared evaluation basis of perceived togetherness.

In the five intervals highlighted (per group) in green a large portion of spectators indicated a feeling of togetherness. As can be seen, these intervals overlap between the two groups.In order to try and understand what features of the dance brought about these reports, we went back to the videos to inspect these specific moments. We informally noted that during these 'togetherness' windows dancers 'acknowledged' each other either by moving in similar patterns, moving closer to each other, or through mutual gaze. However, more data and quantitative analysis of the movement pattern will be required to fully understand the kinematic features that bring about reported togetherness. The high similarity of the response pattern across groups arguers for a cross cultural stability of the togetherness construal.

In general, the cross-spectator agreement is statistically higher in Japanese participants. We used an inter-subjective analysis (Nastase et al, 2019) by calculating all possible pairs within each group. For example, 20 participants formed a total 190 pairs of two, and we calculated the correlation coefficients of each pair. The average correlation coefficients from Japanese (mean= 0.32, SD=0.18) is significantly higher than non-Japanese (mean= 0.23, SD=0.25), $t(378)=4.02$, $p<0.0001$.

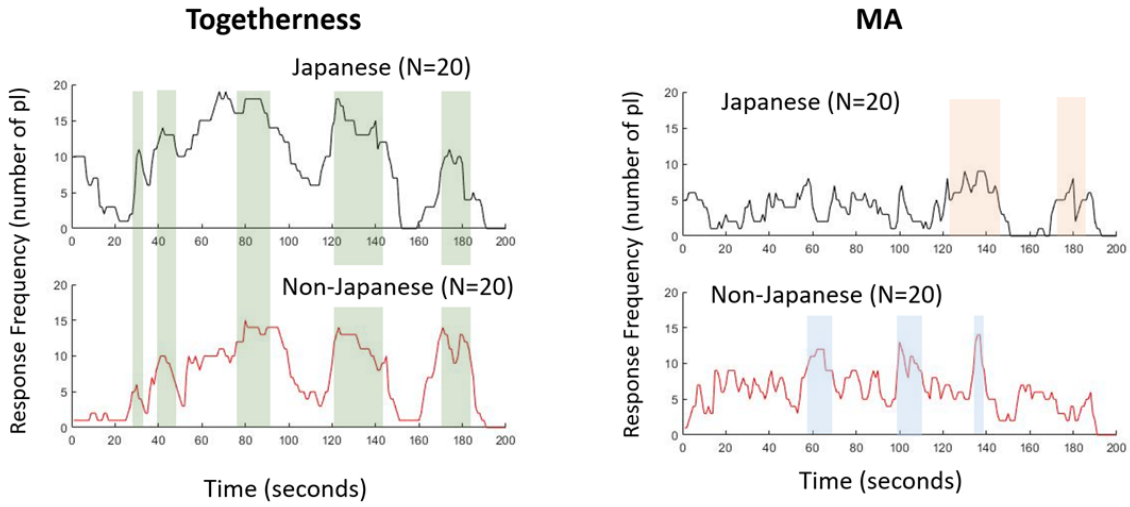


Figure 3. The perceived “togetherness” and “MA” between Japanese and non-Japanese observers. The green zones are the periods where a cross-culturally togetherness occurs.

MA

As expected, there is less cross-cultural similarity regarding the MA reports (figure 2 right panel). Although the correlation of MA moments between the two groups is statistically significant, r(198)=0.24, *p* =0.0006, it is much lower than the one observed for togetherness ratings *(Z= 8.42, p<0.00001)*.

We observed two zones (in organe in figure 3 right top panel) in which there was higher agreement (more than 1/3 of participants) of “MA” moments specifically within the Japanese participants while non-Japanese had very low agreement (less than 20%), and three zone (in blue in figure 3 righ bottom panel) specifically for non-Japanese. Only one of these moments overlaps across groups.

It is worthwhile to note that the non-Japanese group was composed of persons living and studying in Japanand, and most were at least familiar with the concept of MA. This result

implies that the semantic understanding of a cultural concept does not automatically transfer to its application in a new context (joint dance improvisation in this case).

MA and togetherness

In order to evaluate the inter-spectator agreement regarding the two construals, we used an inter-subject correlation analysis (Nastase et al 2019) and found spectators' correlation is higher in "togetherness" than in "MA" rating. The average correlation coefficients from "togetherness" (Japanese: 0.32 (SD=0.18), Non-Japanese: 0.23, (SD=0.25)) are significantly higher than those from "MA" (Japanese: 0.05 (SD = 0.18), Non-Japanese: 0.05 (SD=0.18)), JP: $t(378)=14.62$, $p< 0.0001$, Non-JP: $t(398)=7.30$, $p<0.0001$. Furthermore, inter-spectator agreement regarding togetherness was higher for the Japanese group compared to the non-Japanese group ($t(378)=4.02$, $p<0.0001$).There was no difference in MA rating between the two groups.

A closer look at the participants' rating raw data revealed an interesting observation: participants generally reported a shorter instance when they perceived MA (Japanese: 8.43 second (SD=8.14), non-Japanese: 10.75 second (SD=7.79) than togetherness (Japanese: 26.53 seconds (SD=15.96), non-Japanese: 20.77 second (SD=15.62)). These differences are statistically significant, $t(78)=4.77$, $p<0.0001$. It is probably the case that the low inter-spectator agreement regarding MA comes from this difference in duration

For the Japanese group we observed a highly significant and rather strong correlation (R) between MA and togetherness moments ($r(198) = 0.65$, $p< .00001$). This correlation is consistent with the results of a qualitative interview study with a group of professional dance improvisers (citation) we have discussed in the introduction. Dancers associated MA with moments of shared presence, attention or intention. The results of our study suggest that (non expert) spectators also associate MA with perceived moments of relationality. We note that there was also a weaker yet significant correlation between MA and togetherness ratings for the non-japanese group ($r(198)=0.30$, $p< 0.0001$). However, it is significantly weaker than for the Japanese participants (0.30 v.s. 0.64, $z=4.58$, $p<.00001$). The correlation for the non-Japanese group is too weak to be clearly interpretable but suggests that at least some of these 'newcomers' into Japanese society have integrated the intersubjective dimension of MA.

Discussion

There is a recent calling to attend to the interpersonal dimension of MA. For example, communications between the psychotherapist and the client rely heavily on the dialogic space appropriate for self-self and self-other relationships (Morioka, 2008). This dialogic space, called MA, includes the client's silences as "a body of potential" and "living pauses" because the therapist responded to silences as the client's intentional communication. Similarly, this reciprocal attention was mentioned by a group of experts in joint movement improvisation. They described that MA was brought about by a shared moment when dancers listened to each other and created the space to await for the next movements (situation), and that reciprocal attention created the feelings of togetherness. In other words, MA and togetherness are highly related for professional dance improvisers (Tseng et al, under review).

In the current study, the participants who provided quantitative ratings were non-experts yet their responses seemed to suggest an intersubjective understanding of MA as well. There was a significant overlap between MA and togetherness reports for Japanese participants (familiar with the concept of MA) but not so much for the non-Japanese participants. It is worthwhile noting, however, that the overlap was not perfect (only a partial correlation) and more importantly, MA was reported for much shorter durations then togetherness. This suggests that while related, MA and togetherness are distinct experiences. The precise relation between the two is beyond the scope of this paper (Tseng et al, under review)

This cultural specific knowledge of MA can be thought of in terms of WAZA. Japanese natives, even without dance specific training, used culture specific knowledge to perceive moments of MA during non-verbal communication (dance improvisations). Because none of them had any prior training in dance or improvisation, it is possible the cultural specific reading of MA in dance improvisation comes from the spill-over of their MA practice in other dimensions.

Our aim in the next steps of the project is to use motion capture technology to identify the kinematic features Japanese spectators are sensitive to in their judgement of MA and togetherness and how these two construals relate to each other. With respect to the cultural specific knowledge of MA and the potential for cross cultural exchange and education, we will be interested to explore (in collaboration with our professional dance partners) the potential of dance improvisation for the cross-cultural transmission of the implicit bodily knowledge supporting MA.

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