Table 1. Studies examining explicit agency.

	Authors •Task	Facet rated	Subject	Object	Key findings	Factors examined	Factors' operationalization	Factors' key effects
Section 3.2	**van der Wel et al. (2012)** •Rotate pole back and forth between two targets	Control	•Self	•Not specified	Self-agency derived from partners' collective contribs	Task perf	Target and speed accuracy	Weak corr with self-agency
						Physical effort	•Average force •Difference between partners	No corr with self-agency
						Task experience	Trial-by-trial changes	Self-agency increases with experience
	van der Wel (2015) •Move dot from centre to one of two targets	Control	•Self	•Not specified	Self-agency derived from partners' collective contribs, except when one partner must dominate	Role	One partner chooses and the other follows, or both can choose and one dominates	Distribution of roles modulates influence of collective contribs
						Own sensori-motor info	Own mvmt smoothness	Weak corr with self-agency, reduced when following
						Partner perc-eptual info	Partner's mvmt smoothness	Weak corr with self-agency, except when dominated
						Task perf	Task completion time	Weak corr with self-agency
						Subjective perf	Ratings of perf	Strong corr with self-agency
	Dewey et al. (2014) •Keep dot centered on moving target	Control	•Self •Partner	•Joint outcome	Self- and partner-agency derived from partners' collective contribs, when complementary	Partner contribs	Complementary vs. overlapping	Self- and partner-agency derived from partners' collective contribs when complementary
						Visuomotor coupling	Corr between own mvmt and dot position	Strong corr with self-agency for both types of contribs
							Corr between partner mvmt and dot position	Strong corr with partner-agency for complementary contribs
						Task perf	Target accuracy	Weak corr with self- and partner-agency
	Fribourg et al. (2020) •Virtually move controller from table to one of four spheres	Control	•Self	•Not specified	Self-agency is sensitive to veridical control and to visuomotor coupling even in the absence of veridical control	Veridical control	Each partner has 0-100% control over trajectory	Self-agency increases linearly with veridical control
						Pre-trial instructions	Specify target, target and trajectory, or neither	Self-agency is stronger when target pre-specified
						Visuomotor coupling	Diff between own mvmt and controller trajectory	Self-agency increases with visuomotor coupling
						Personality trait	Internal Locus of Control (ILC)	Stronger impact of true control on self-agency with higher ILC
	Cho et al. (2020) •Move cursor from centre to one of three targets	Control	•Self	•Joint outcome	Cooperation induces IBC of central and temporal theta oscillations	Cooperative/ competitive context	Participants believe they are cooperating/competing to move to same/different targets	Weaker self-agency in cooperative than competitive context
3.3	**Bolt et al. (2016)** •Produce tone sequences	Control	•Joint (type)	•Joint outcome	More shared agency for mutual than one-way coordination; mediated by degree	Type of coordination	Mutual vs. one-way adaptation	More shared agency for mutual adaptation
						Degree of coordination	Cross-corrs between partners' tap timing	Better coordination corr with more shared agency

					of coordination	Role	Leader produces first sequence tap(s)	More shared agency for followers, especially in one-way coordination
	Bolt & Loehr (2017) •Produce tone sequences	Control	•Joint (type)	•Joint outcome	More shared agency with a predictable partner	Partner predictability	Partner's timing is more or less predictable	More shared agency with predictable partner
						Task perf	Pace accuracy	Better perf corr with more shared agency
	Loehr (2018) •Produce tone sequences	•Control •Respon-sibility	•Joint (type)	•Joint outcome	More shared agency for more successful joint perf	Task perf	Pace accuracy	Better perf corr with more shared agency; stronger effect given explicit feedback
	Dell'Anna et al. (2020) •Sing melodies together	Control	•Joint (type)	•Joint outcome	Shared, not united, agency during duets with temporally distinct contributions	Task perf	ms-level timing fluctuations and deviations from score durations	Smaller timing deviations corr with more shared agency
						Mvmt	Performers can or cannot move during performance	Moving increases shared agency in pairs who perform less well
	Shiraishi & Shimada (2021) •Produce tone sequences	Control	•Joint (type)	•Joint outcome	Shared agency associated with IBC of theta oscillations between leader's right frontal and follower's right temporo-parietal regions	Type of coordination	Mutual vs. one-way adaptation	More shared agency for mutual adaptation
						Role	Leader produces first sequence tap(s)	No difference in shared agency
						Task perf	Percent of intervals falling within the required pace	Better perf corr with more shared agency
3.4	**Kostrubiec et al. (2018)** •Trace Lissajous figures	Control	•Self •Partner •Joint	•Joint outcome	Collective *we* is subject of agency	Task experience	Trial-by-trial changes	No effect on agency
	Le Bars et al. (2020) •Move cursor from centre to one of four targets	Control	•Self •Joint	•Joint outcome	Self-agency influenced primarily by individual contribs; joint agency additionally influenced by collective contribs	Role	Partners make equal or high/low contribs (travel same distance or one travels farther)	•Self-agency reduced for low-contrib role •Joint agency enhanced for equal-contrib roles
						Reward	Partners received equal, contrib-based, or random all-or-none rewards	•Joint agency enhanced for equal rewards overall •Rewards affect self- and joint agency differently depending on role
						Motor noise	Deviations added to cursor mvmt	Self-agency more impacted by motor noise than joint agency
	Le Bars et al. (2020) •Move cursor from centre to one of four targets	Control	•Self •Joint	•Joint outcome	Self- and joint agency predominantly influenced by individual contribs and collective goal alignment, respectively	Goal alignment	Partners share target+reward goals or can have misaligned target or target+reward goals	Joint agency more impacted by goal alignment than self-agency; lowest when both goals can be misaligned
						Role	One partner chooses and the other follows, or both can choose and leader ambiguous	Leader role boosts self- and joint agency but especially self-agency when both goals can be misaligned
						Motor noise	Deviations added to cursor mvmt	Self-agency more impacted by motor noise than joint agency

	Andersen et al. (2019) •Move Ouija board to spell out words	Pushed, moved	•Self •Partner •External	•Joint outcome	Agency attributed to external agent or partner rather than to oneself	Prior beliefs	Prior beliefs that Ouija boards can contact spirits	Prior beliefs modulate attribution of agency to external agent vs. partner
						Action-effect prediction	Predictive eye movements	Reduced prediction might account for reduced self-agency
3.5	**Reddish et al. (2020)** •Synch cyclical arm mvmts	Control, cause, will, unity	•Self •Partner	•Own part •Partner's part	•People have a sense of mutual agency when they move in synch •Joint agency influenced by perceived coordination but not role or task instructions	Type of coordination	Mutual vs. one-way adaptation	Mutual adaptation elicits mutual agency; modulated by role
						Role	One partner hears metronome and is instructed to lead; other partner follows	Leading boosts self-agency over partner's actions; following boosts partner-agency over own actions
			•Joint	•Joint outcome		Cooperation instructions	Explicit instructions to work together	No effect on agency
						Subjective synch	Ratings of synch	Better synch corr with stronger joint agency
						Subjective perf	Ratings of task success	Better perf corr with stronger joint agency
	Christensen et al. (2021) •Play musical duets	Control	•Self •Partner	•Own part •Partner's part	Perceptual distinguishability influences self-agency over own part but not over partner's part or joint agency	Perceptual distinguish-ability	Duet part (melody vs accompaniment) and distance between parts	Perceptual distinguishability enhances self-agency over own part
			•Joint (type)	•Joint outcome		Coordination	Synch between tone onsets	Better coordination corr with more shared agency, regardless of perceptual distinguishability
3.6	**Noy et al. (2015)** •Synch mvmts in 1D mirror game	Togeth-erness	•Joint	•Joint outcome	Joint agency linked to mvmt, physiological (heart rate) response	Coordination	Co-confident motion	Joint agency co-occurs with coordinated mvmt and also occurs during periods of little movement
	Zhou et al. (2021) •Play musical duets or synch tone sequences	Integra-tion	•Joint	•Joint outcome	Shared goal impacts joint agency beyond degree of coordination	Shared goal	Shared goal includes rich vs. sparse inter-part relations	Stronger joint agency for rich shared goal
						Coordination	Synch between tone onsets	Better coordination corr with stronger joint agency
						Self-reported factors	Qualitative interview responses	Joint agency attributed to song knowledge, performance, task difficulty, enjoyment

Notes. Contribs=Contributions; Corr=Correlated; Distrib=Distribution; IBC=Interbrain Coordination; Info=Information; Mvmt=Movement; Perf=Performance; Synch=synchronize.

Table 2. Studies reporting first-hand accounts of united and external agency.

Authors	Type of agency and joint action context	Illustrative quote	Key insights about agency in joint action
Gabrielsson (2011)	United agency in large group music-making (7.2E, 18.1D, 18.1F, 18.6B, 19.3A, 19.4B, 24.H)[a]	"Everybody—the orchestra, the soloists, our conductor and the choir—we were one." (p. 260)	• United agency occurs in large- and small-scale musical joint action • Partner-agency over one's own part and external agency also occur in musical joint action • People perceive that their sense of united agency is shared with co-actors • United agency is linked with subsequent social bonding
	United agency in small group music-making (18.1C, 18.1I, 18.3B, 18.6H, 18.6K)	"Suddenly everything falls into place as if *one* person was playing—not several—for a few seconds." (p. 245)	
	United agency as an audience member moving along with the music (7.5A, 7.5B, 25.1C, 26.F, 27.I)	"It became one unit, the audience and the musicians, the boundaries between different roles merged together." (p. 340)	
	Co-performer's agency over own actions in large group music-making and dancing (18.6F)	"It was quite simply as if it wasn't me who was playing but the dancers who were playing me." (p. 245)	
	External agency in small and large group music-making (7.5C, 18.1O, 18.6B, 18.6I, 18.6K)	"Somebody started a tune and then we all joined in. It was so simple to find the right buttons… It felt as if somebody else was controlling my hands." (p. 245)	
Stephens (2020)	United agency in a large community choir	"It's almost like you become—you're not 200 individual people, you're one person, one entity that's working together.' (p. 16)	• United agency fluctuates throughout a musical joint action • Reductions in united agency prompt corrective behaviours that facilitate coordination • People sense united agency of actions and the joint outcome
Silverman (2018)	United agency in large group music-making and dancing	"This is not just my energy. We're "together." We're really "one." (p. 17)	• Mutual responsiveness between leader and followers and visual access to other performers might facilitate united agency
Olaveson (2004)	United agency among people participating in raves	"[E]veryone one has a shared experience of connectedness and hundreds or even thousands of people can feel like one being with a shared purpose and direction." (Fritz, 1999, cited in Olaveson, p. 85)	• Breadth of contexts in which united agency occurs
Sato (1988)	United agency among riders in a Japanese motorcycle gang	"When our minds become, become one.… When all of us become one, I understand something. … When we realize that we become one flesh, it's supreme." (p. 113)	• Breadth of contexts in which united agency occurs
Jackson (1992)	United agency within pair figure skaters	"[H]er mind and my mind were clear and in the same … in a partnership. … That day was really a marriage of [my partner] and [myself] and the ice." (p. 173)	• Breadth of contexts in which united agency occurs

[a]Numbers in parentheses indicate accounts from Gabrielsson (2011), labeled by chapter number (preceding the period), section number (following the period), and account number (final letter).

Table 3. Studies examining implicit agency.

	Authors •Task	**Implicit measure**	**Object**	**Facet rated**	**Key findings**	**Factors examined**	**Factors' operationalization**	**Factors' key effects**
Section 5.2.1	**Obhi & Hall (2011a)** •Press shared key to elicit tone	Binding •Judge A and E	Own and partner's A/E[a]	Causal resp.	Binding for both self *and* partner despite explicit agency for self *or* partner	Role	Initiator presses first, responder actively joins in	Similar binding for both roles
						Role emergence	Assigned in advance or emerges in task	No difference in binding
	Strother et al. (2010) •Press shared key to elicit tone	Binding •Judge A and E	Own and partner's A/E	Causal resp.	Binding for both self *and* partner despite explicit agency for self *or* partner	Role	Initiator presses key first, responder moves passively	Similar binding for both roles
						Role emergence	Assigned in advance or emerges in task	No difference in binding
	Obhi & Hall (2011b) •Press shared key to elicit tone	Binding •Judge A and E	Own and partner's A/E	Causal resp.	With a human partner: Binding for both self *and* partner despite explicit agency for self *or* partner	Belief re: partner type	Participants believe partner is human or computer	Binding only with human partner
						Feedback re: causal resp.	False feedback indicates self or partner caused tone	Beliefs modulate explicit agency but not binding
5.2.2	**Grynzspan et al. (2019)** •Rotate handles together	Binding •Judge intervals	Joint outcome	Causal contri-bution	With a human partner: Binding between actions and a joint outcome	Role	Initiator moves handle first, follower joins in	Similar binding for both roles
						Partner type	Participants interact with human or robot	Binding only with human partner
	Jenkins et al. (2021) •Move mouse to target and click to elicit tone	Binding •Judge intervals	Joint outcome	None	Similar binding for joint and solo action	Role	One partner moves to target, one clicks to elicit tone	No difference in binding
	•Coordinate keypresses to elicit tone				Reduced binding for cued joint action	Role	Leader provides a verbal countdown cue	No difference in binding
	Hayashida et al. (2021) •Coordinate keypresses to elicit tone	Binding •Judge intervals	Joint outcome	None	Similar binding for joint and solo action; modulated by consequences	Consequence for a third party	Tone pitch signals no, small, or large monetary loss	Reduced binding for harmful joint action
5.2.3	**Pfister et al. (2014)** •Leader prompts follower to act	Binding •Judge intervals	Own and partner's A→E	None	Leaders do not show binding between follower's action & effect	Role	Leader's keypress elicits a tone, which prompts follower to act	Only leaders show binding
	Capozzi et al. (2016) •Leader prompts follower to act	Binding •Judge E	Own and partner's E	None	Leader perceives own tones as early but follower's tone as delayed	Cooperative/ competitive context	Coordinate as if to create a melody vs. follower should 'wipe out' leader's tone	No difference in binding
	Caspar et al. (2018) •Commander instructs agent to act	Binding •Judge intervals	Own and partner's A→E	Overall resp.	Commanding induces explicit agency but not binding for other's action	Role	Commander instructs agent to act	Commanding induces explicit agency but not binding
5.3	**Loehr (2013)** •Coordinate keypresses to elicit tone	Atten. •Aud. N1 ERP	Joint outcome	None	N1 atten. differentiates own from partner's contributions	Action-effect timing	Partners press nearly simultaneously; tone elicited after second press	Atten. only when own action elicits tone
	Weiss et al. (2011) •Press key to elicit tone	Atten. •Perceived volume	Own and partner's E	None	Atten. stronger for own than partner tones	Role	Participant prompts vs. is prompted	Prompting induces atten. for partner's E

	Bolt & Loehr (2021) •Produce tone sequences	Atten. •Aud. N1 & P2 ERPs	Own and partner's E	None	P2 atten. differentiates own from partner's contributions	Agent	Tone produced by self or partner	Agent affects auditory P2 atten. but not N1 atten.
5.4	**Le Bars et al. (2021)** •Move cursor to target	Skin conduct.	Joint outcome	See Table 1	Skin conductance affected by reward distribution	Reward distribution	Equal vs. fair vs. randomly all-or-none	Reduced skin conductance for fairly distributed rewards

Notes. A=Action; E=Effect; Atten= Attenuation; Aud=Auditory; Conduct=Conductance; Resp=Responsibility.

[a]A/E is used when participants judged individual events and A→E is used when participants judged intervals.