table 1

	Construct	Definition	Note	Source
A1	Motor imagery	is a dynamic mental state during which the representation of a given motor movement is rehearsed in working memory without overt motor output.		Toth - abstract
A1.2		MST conceptualizes MI as a simulation of the covert or representational stage of the same executed action		Shea 2017
A2	Mental practice	is the systematic application of MI for the cognitive rehearsal of a task in the absence of overt physical movements	Syn: motor imagery practice; imagined action; motor imagery training	Toth - abstract
A2.1	mental practice	symbolic, covert, mental rehearsal of a task in the absence of any actual, overt, physical movement	Mental practice almost same definition as motory imagery	Toth - 2.1
B	Performance	moderator was characterized according to whether the performance was quantified according to distance (e.g., distance from the target), time (e.g., time to complete a task) or other (e.g. idiosyncratic scoring systems used to measure performance	Absolute performance kann durch MP wahrscheinlich nicht erreicht werden, da sensorisches Feedback fehlt.	Toth - 2.13

C1.1	Covert stage	Covert and overt stages thus represent a continuum, such that every overtly executed action implies the existence of a covert stage, whereas a covert action does not necessarily turns out into an overt action.	Zwar definiert als Spektrum jedoch bietet die Definition des coverten Zustandes ohne Bewegung nur eine dichotome Einteilung - covert oder overt	Jeannerod 2001 - 1
C1.2	covert states	These states include not only intending actions that will eventually be executed, but also imagining actions, recognizing tools, learning by observation, or even understanding the behavior of other people.	isolierte covert state = MI	Jeannerod 2001
C1.3	covert stage	This covert stage is a representation of the future, which includes the goal of the action, the means to reach it, and its consequences on the organism and the external world		Jeannerod 2001
C1.4	covert actions	covert actions are in fact actions, except for the fact that they are not executed	eigentlich synonym mit S-States solange daraus keine overte Aktion folgt	Jeannerod 2001

C1.5		that represented actions (i.e., all covert actions, e.g., MI) can function off-line (i.e., cognitively) by using the same mechanisms as actual action – except that execution is inhibited.	heißt eigentlich nur, dass MI kognitiv stattfindet, also off-line	Shea 2017
C2.1	S - State	The term S-states will be used throughout to designate those “mental” states which involve an action content and where brain activity can be shown to simulate that observed during the same, executed action.	Müsste noch beeinhalten, dass keine MEP´s ausgelöst werden. — Beobachtung von Handung wird auch als S-State benannt!	Jeannerod (2001) - 1
C2.2	S - State / motor Simulation	motor simulation is characterized by action-related cognitive states, such as motor imagery or action observation, which activate cortical motor systems simi-lar to those involved during actual action.	Hier ist noch observation inkludiert	Calmels 2019
C2.3	S-state	Activation of the motor system during S-states is a prerequisite for the simulation theory	Definition des S-State	Jeannerod *2001*
D	Motor system	The cornerstone of MST is the idea that cognitive motor states activate motor systems in the brain that are similar to those triggered during actual action		Shea 2017

E1	Inhibition	Further, and perhaps the greatest implication of the claim of similar representations between ME (motor execution) and MI (motor imagery) in MST, is that in order to maintain its covert status, MI must employ inhibitory mechanisms.		Shea 2017
E2	Inhibition	by an inhibitory mechanism generated in parallel to the motor activation — What remains from these conflicting results is that motoneuron excitability is affected during action simulation	Alternativerklärung → S-State lösen nur subliminale Aktivierung des Motor Systems aus	Jeannerod *2001*
F	“action information”	Accordingly, MST proposes that action information is represented and processed centrally and includes most of the content of an executed action, that is, its goal, plan, motor program and consequences.	Content of covert stage	Shea 2017
H1	*functional equivalence*	“motor imagery … should involve, in the subject’s motor brain, neural mechanisms similar to those operating during the real action”- Functional equivalence suggests that the neurological processes present during actual action are also present in	Grad der Übereinstimmung neuronaler Repräsentationen könnte hier mit W=[0,1] gemessen werden	Jeannerod, nach Thot, 2020

		observed and, crucially, imagined action		
H2	functional equivalence hypothesis	which maintains that “motor imagery … should involve, in the subject’s motor brain, neural mechanisms similar to those operating during the real action” (**Jeannerod, 2001**, pp. S103–S104).		Shea
H3	*functional equivalence*	Since the meta-analysis by Driskell et al. (1994), the concept of *functional equivalence*, derived from the work of Jeannerod (2001), has emerged in an attempt to explain the mechanisms responsible for the positive effects of MP on performance Briefly, this hypothesis suggests that “motor imagery … should involve, in the subject’s motor brain, neural mechanisms similar to those operating during the real action” (pp. S103–S104).		Thot 2020
I1	simulation	was postulated by **Jeannerod (2006a)** to mean “the offline rehearsal of neural networks	synonym zu S-States? In Motorkontext damit synonym zu motor imagery	Shea 2017

I2	simulation	Simulation according to MST rehearses the motor system and is guided exclusively by internal motor representations		Shea 2017
J	expertise	To date, mental practice is thought to be more suitable for experienced or expert performers and can sometimes be detrimental to novice participants who have yet to form an effective cognitive representation of the task to be learned	Einfluss der Expertise auf die Funktionelle Äquivalenz und damit die Performancesteigerung	Toth 2020 - 4. Conclusion
K1	Hebbian learning	… Hebb's postulate: "When an axon of cell A is near enough to excite cell Bor repeatedly or persistently takes part in firing it, some growth process or metabolic change takes place in one or both cells such that A's efficiency, as one of the cells firing B, is increased" (Hebb 1949).	Basis of hebbian learning	Gerstler & Kistler (2002)
K2	Hebbian learning	Today this famous postulate is often rephrased in the sense that modifications in the synaptic transmission efficacy are driven by the correlations in the firing activity of the pre- and the postsynaptic neuron.		Gerstler & Kistler (2002)

Table 1.2

Construct	definition	Source	possible values
Covert Stage	The covert stage is a representation of the future, which includes the goal of the action, the means to reach it, and its consequences on the organism and the external world"	C1.3	binary
Overt Stage	"The motor execution of the represented action in the covert state”	Logical deduction of C1,1 and C1.3	binary
Motor imagery	Motor imagery is a dynamic mental state during which the representation of a given motor movement is rehearsed in working memory without overt motor output.	A1	binary
Mental practice	Mental practice is the systematic application of MI for the cognitive rehearsal of a task in the absence of overt physical movements	A2	binary
Motor system activation	"Activation of neural correlates in the motor system associated with action representation and correlated with action execution”	Deducted from D	?
functional equivalence	"Functional overlap in motor system activation between the motor imagery and the Overt state of a task”	Deducted from H1, H2 and H3	metric / percentage

Inhibition	“Inhibitory mechanisms employed during mental imagery”	Deducted from B	binary
motor performance improvement	"The measurable improvement in distance, time or other scoring system reflecting performance in a motor task"	Deducted from B	metric
hebbian learning	“The concept that correlationally activated clusters of neurons induce transformations in the synaptic transmission efficacy”	K1, K2	?