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Reliability and short version of the Dunphy Outcomes Framework (DOF): Integrating the art and science of dance movement therapy

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ABSTRACT

There is an increasing requirement of evidence-based outcome frameworks in the health sciences. This article presents the *Dunphy Outcomes Framework (DOF)* for dance movement therapy (DMT), the first generic outcomes framework for DMT. The framework is posited to measure outcomes intrinsic to DMT, and comprehensive for all client groups and contexts. It is therefore suggested as suitable for assessment of DMT interventions and clients' progress. The DOF comprises six domains (physical, cultural, cognitive, emotional, social and integration), further divided into sub-domains and objectives. Informed by theory and evidence, both from published research and professional practice, the DOF has been developed through an extensive Delphi-like consultation process. The article presents the DOF and data on its reliability and validity. Reliability testing confirmed the factor structure of the original DOF with very good scale homogeneity and excellent interrater-reliability. Heuristically based on the results of an exploratory factor analysis that yielded six dimensions – five corresponding to the original DOF domains, with a slightly different weight of factors – a short version of the DOF *(DOF-BREVE*) is proposed. Benefits and limitations of the DOF as an assessment tool for the profession of DMT and creative arts therapies are discussed.

Introduction

In many areas of human service, from health to education community support, there is an increasing priority on achieving and measuring outcomes for clients. Operation within evidence-based paradigms is increasingly emphasized (Laska et al., 2014; Melnyk et al., 2014). The development of comprehensive *outcomes frameworks* is a growing practice internationally which enable agencies, sectors, and governments to measure progress and enable work towards shared achievements. Outcome schemata are used in many countries across a wide range of human services, such as government departments of Communities and Justice in Australia (NSW Government, 2019); children in New Zealand (Oranga Tamariki Ministry for Children, n.d.); early childhood services in the USA (Head Start Early Childhood Learning and Knowledge Center, n.d.) and mental health (Department of Human Services, 2008).

An international initiative, the COMET (Core Outcome Measures in Effectiveness Trials) (COMET, 2018) has been instigated to support the development and application of agreed standardized sets of outcomes to

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Table 1
Demographic characteristics of the participants.

Variables	*N*	*Percent*
Gender		
Women	106	94,6%
Men	6	5,4%
Professional background		
Dance movement therapists	109	97,3%
Other (psychomotor therapists, music therapists)	3	2,7%
Age		
Mean (SD)	45.7 (13.5)	
Range	20–84	
Country		
Global north	105	93,8%
Global south	4	3,6%
Missing information	3	2,7%
English level		
Native speaker or equivalent	71	63,4%
Very good	36	32,1%
Moderate	5	4,5%
Work experience of participants in the field		
None	11	9,8%
1–5 years	24	21,4%
6–10 years	19	17,0%
More than 10 years	58	51,8%
Ethnicity		
White	88	78,6%
Asian	10	8,9%
Hispanic	3	2,7%
African	1	0,9%
Others	4	3,6%
Missing information	3	2,7%
Work setting		
Education	57	50,9%
Health	65	58,0%
Medical settings	64	57,1%
Community settings	37	33,0%
Private practice	44	39,3%
Intervention approach		
Arts-based/artistic	73	65,2%
Creative	75	67,0%
Humanistic	68	59,8%
Integrative	54	48,2%
Eclectic	53	47,3%
Developmental	54	48,2%
Behavioural	23	20,5%
Gestalt	7	6,3%
Psychodynamic	33	29,5%
Psychoanalytic	33	29,5%
Jungian	9	8,0%
Phenomenological	2	1,8%
Family-systems and polyvagal-informed	1	0,9%
Somatic	1	0,9%
Queer-/feminist/anti-racist-informed	2	1,8%

be measured and reported in all clinical trials of specific conditions. Following the initiative, the Child Outcomes Research Consortium in the UK (CORC, 2020) collected data of more than 400,000 children and young people, used to inform practice and policy. Such data sets allow the definition of specific objectives, useful methods and cost-effective approaches for specific conditions or client groups and enable clients to make informed choices. The possibility to understand the impact of the therapeutic process is important for both the therapist and the client (Jones, 2020).

Despite evaluation processes being more regularly included in therapy, dance movement therapists (DM therapists) face difficulties in responding to the demand for outcome-based frameworks. DM therapist are often challenged in providing evidence-based assessment of their programs (Cruz, 2013; Dunphy et al., 2016; Karkou, 2010) for reasons including lack of user-friendly and comprehensive assessment frameworks (Cruz & Koch, 2012; Powell, 2008) that adequately describe observable movement (Powell, 2008), and a lack of frameworks or systems that can be used by therapists without highly specialized training (Cruz & Koch, 2012; Koch et al., 2001). Particularly underdeveloped are systems that might provide data relevant for therapists, stakeholders, and participants themselves (Dunphy et al., 2016; Dunphy & Scott, 2003; Snow & D'Amico, 2009). Use of specialist jargon, such as Laban Movement Analysis (LMA; Laban, 1980; Bartenieff & Lewis, 1980), contributes to the professionalism of Dance Movement Therapy (DMT) and the capacity for practitioners to have detailed and shared understandings. At the same time, it can limit lay-persons' (especially clients, but also family/careers and other staff) capacity to contribute to the assessment process. For example, one of the best-known tools for DMT assessment - the Kestenberg Movement Profile (Kestenberg, 1995; Kestenberg Amighi et al., 1999) - requires a high level of specialist expertise, hence limiting its potential, even for use by DM therapists (Koch et al., 2001).

A further barrier to an outcome-focus in DMT is a lack of agreed outcomes and associated measures amongst the profession. There is a need for more standardized and domain-relevant outcome measures to be used by DM researchers, for example, to facilitate systematic reviews, meta-analyses and other secondary studies of evidence-based results, which in DMT are often limited by heterogeneity of measures. Currently, only a minority of DMT practitioners do formal assessment (ADTA, 2017), relying on sets of outcomes and measures from other professions. Examples from psychology include the General Self-Efficacy Questionnaire (GSE; Schwarzer & Jerusalem, 1995), or the Beck Depression Inventory (BDI 2; Beck et al., 1996). Similar examples from psychiatry are the Brief Symptoms Inventory (BSI; Derogatis & Melisaratos, 1983), the Symptom Checklist Revised (SCL-90 R; Derogatis, 1994), or the Profile of Mood States (POMS; McNair et al., 1971). Because these instruments often do not include specific outcomes relevant to the discipline of DMT or CATs, individual DM therapists tend to develop schema separately for evaluation of their own programs (ADTA, 2017). This is time-consuming and inefficient, given the repetition of work occurring across multiple contexts as well as the likelihood of ineffective assessment undertaken with tools developed by those without specialist skills in psychometric testing. The use of custom assessment tools also reduces the possibility of data aggregation that could advance the evidence base for the profession of DMT.

A recent review on DMT effectiveness refers to promising findings for improving relevant health outcomes of 14 patient populations, although it has been stated that the heterogeneity of outcome measures limits the identification of results (Koch et al., 2014; Koch et al., 2019). Also, DM therapists' skills are often stronger in activation of creative processes than assessment of outcomes (Meekums, 2010). Additionally, there is also some ambivalence in the DMT profession about outcome-focused approaches, especially those involving numerical assessment tools, which can sometimes be seen as reductionist and inadequate to capture the essence of creative therapeutic processes (Meekums, 2010, 2014).

Thus, the development of reliable and standardized outcome measurement tools for physical and mental assessments in DMT is crucial to enhance the quality of future studies in the field, particularly efficacy studies (Takahashi et al., 2019; Koch et al., 2019). The introduction of such a framework to DMT and creative arts therapies (CAT) aligns with international best practice standards. This paper proposes an outcomes framework that can be used to not only articulate outcomes that support clients' understanding of progress, but to also provide evidence supporting the DMT profession. This study provides initial empirical tests of the reliability and validity of the *Dunphy Outcomes Framework (DOF)*, and suggestions for a short version. The DOF is a carefully developed observational instrument with a holistic approach to health and well-being, comprises six outcome domains: 1. Physical, 2. Cultural, 3. Emotional, 4. Cognitive; 5. Social and 6. Integration. These domains align with Hanna's (2008) universal descriptors of learning that occur through dance, comprising physical, cognitive, emotional, interpersonal and expressive/aesthetic domains, and encompassing the three aspects (physical, mental and social) of health and well-being identified by the World Health Organization (WHO, 2022). The DOF has been drawn from theory, evidence and practice throughout an extensive period of

consultation and trialling (Dunphy et al., 2016; Dunphy & Hens, 2018; Dunphy, Lebre et al., 2020).

Method

Sample

Sample of the DOF development phase

Regarding the development of the DOF domains, $N = 260$ colleagues of the global DMT community from twelve countries (including Australia, New Zealand, China, Taiwan, Netherlands, Italy, USA, Germany, Portugal, Switzerland, and the UK) contributed to the *Dunphy Outcomes Framework (DOF)*. Recruitment included direct approach of members of DMT professional associations either personally or through website listings, and other colleagues from training sessions or conferences. Some participants were invited because of their expertise on a topic, and others volunteered to contribute because of their interest (see Dunphy, Lebre et al., 2020).

Sample of reliability testing

The reliability trial was carried out with $N = 117$ participants between September 2019 and February 2020. Five datasets could not be included because participants stopped halfway in the questionnaire, with no demographic data available. In the end, we calculated with $N = 112$ data sets. Table 1 shows the demographic characteristics of participants.

There was a clear bias towards white cis-gender participants from Western countries, and a highly uneven distribution of more than 95% women in both the development and the testing part of this study. However, 95% women is about the rate of women in the field of DMT, which makes this also a representative sample. Note that the described biases also apply to the authorship team of this article. Participants did not receive any incentive or reward for their participation, other than helping to drive research and professional development in DMT forward.

Procedure

Procedure of the DOF development phase

Drawing initially from a schema of assessment for dance programs for clients with disability proposed in Dunphy and Scott (2003), the DOF has been developed through a *Delphi-like process* with global DMT colleagues from 2016 until 2020. Participants were engaged through a range of methods: one-on-one interviews, focus groups (in person or by Zoom) and group discussions at public presentations and workshops. Each iteration of the framework was circulated to participating therapists, who then offered, by email or personal communication, their own suggestions drawing from their practice or knowledge of the literature. The resulting DOF version was used in this reliability study (Dunphy, Lebre, et al.; see Appendix A).

Procedure of reliability testing

In 2019–2020, the data collection for the reliability testing was conducted with colleagues from the global DMT community in an online study. Colleagues entered their responses into an online questionnaire distributed through the University of Melbourne (Qualtrics Survey): this Web Version-Questionnaire of the DOF was the consented version from the Delphi-like process and is included in Appendix A.

Participants completed the DOF questionnaire after watching a video of a person dancing ('old man throws down crutches to dance' in the street of a major city in South America, available at https://www.youtube.com/watch?v=fgMBUIIt8TE; length 3:01'). They watched the video once completely with the sound and were then allowed to continue to run the video in a loop without the sound while completing the questionnaire. Participants assessed their observations against the DOF-items. An option of N/A was allowed for items that participants felt could not be observed from the video material (for complete instructions see Appendix A1).

Materials and instruments

The *Dunphy Outcomes Framework* (DOF) in its successively developed versions (Dunphy et al., 2016; Dunphy & Hens, 2018; Dunphy, Lebre et al., 2020) is an observation-based tool, and relies on the expertise of the therapist. The DOF offers a comprehensive schema of the main outcomes of DMT. The breadth of this model is intended to enable assessment of DMT outcomes for all DMT participants, regardless of presenting clinical issues, age, gender, cultural background, therapy context and other differences. It is predicated on the assumption that all human beings have the same basic needs, aspirations to grow and flourish, and therefore can be assessed using the same tool, notwithstanding the differences they might be experiencing on any aspect related to the outcomes at the current time, given the factors listed above. The DOF supports DM therapists to undertake formative and summative assessments. It also assists therapists to evaluate, document, plan programs, make decisions about therapeutic program goals and objectives, and justify specific interventions or activities. The DOF domains correspond to DMT outcomes included in DMT definitions from professional associations in Australasia (DTAA, 2020), Europe (EADMT, 2020), and the United States of America (ADTA, 2021). Its content has been drawn from theory, empirical evidence, and professional practice to include all possible outcomes through DMT.

The DOF and its outcomes have the desired overall endpoint of producing flourishing individuals, with 'flourishing' understood by Seligman (2011) as finding fulfilment in ones' lives, accomplishing meaningful and worthwhile tasks, and connecting with others at a deeper level (i.e., a strength-based approach; Koch, 2017, 2020; Koch & Bräuninger, 2020; Samaritter, 2018). Each outcome domain, subdomains, and objectives contribute to this overall endpoint. Each domain has its own specific endpoint that is posited to be relevant for every individual and for which evidence indicators can be impacted by DMT. The outcomes are ordered in terms of their significance in DMT. The Physical domain refers to a stable, mobile, functional and expressive body; the Cultural domain refers to a creative, aesthetic, expressive self (note that this is an innovative outcome domain, crucial to the effects of creative arts therapies; single items see Appendix A; further information see discussion); the Emotional domain focuses on healthy, regulated emotions; the Cognitive domain focuses on an active enquiring mind; the Social domain refers to satisfying reciprocal relationships; and, the Integration domain to a sense of wholeness, vitality, aliveness and integration across all areas, including spiritual aspects. The Integration domain is a specificity of CATs and brings together all other domains in a culminating feeling of an integrated self, wholeness, vitality and aliveness, meaning-making, sense of flow, and the perception of a positive future (Dunphy et al., 2016; Dunphy & Hens, 2018; Dunphy, Lebre et al., 2020). It also encompasses unity with oneself, the environment (e.g., others, music), or a higher force (transcendence; EADMT, 2020; Schott-Billmann, 2015).

Each DOF domain is divided into several sub-domains, all with associated objectives (items), and turned into specific outcomes when used in therapy sessions. Objectives relate to observable behaviour and can be measured in a numerical score following the judgment of a specific moment in time. Each domain includes two to six subdomains with a variable number of objectives measured on a scale from 1 to 10 ('not at all' to 'maximum conceivable' evidence of progress). The scores are not norm-referenced, but referenced against client's potential at that moment, as recognized by the therapist (or the client themselves), drawing on the knowledge of and expertise about each client (full version V.81.2 of the DOF is available at https://www.makingdancematter.com.au/about/outcomes-framework).

Table 2
Results of the factor analysis by domains.

Item	Factor loadings					
	1	2	3	4	5	6
Factor 1: physical domain	.078	.032	.240	**.663**	-.068	-.007
1 1 1 Use of breath to support movement.	.137	.103	**.607**	.105	.473	-.026
1 1 2 Activation of body parts	.146	.234	**.647**	.072	.411	.020
1 1 3 Activation of body hemispheres.	.300	.187	**.575**	.332	.066	.305
1 1 4 Body parts connection: Centre to extremities, head to tail connections.	.102	.156	**.789**	.321	.049	.045
1 1 5 Body part connections: upper and lower body.	.289	.166	**.708**	.081	.064	.231
1 1 6 Body part connection: right and left sides.	**.556**	.184	.373	.295	-.122	.261
1 1 7 Body parts connection: diagonal movement	.322	.089	.443	.005	.323	**.530**
1 1 8 Sequencing of body parts in movement	.065	.245	.425	.163	**.544**	.369
1 1 9 Self-synchrony	-.007	.270	.053	.332	.219	**.625**
1 1 10 Synchrony of movement with others	.205	.206	.184	.082	.090	**.818**
1 1 11 Control of movement succession	.349	.395	.357	.002	**.486**	.066
1 2 1 Kinaesphere: access to near, mid, far reach space	**.531**	.489	.177	.056	.330	.061
1 2 2 Movement planes: access to vertical, horizontal, sagittal planes	.364	.468	.195	.030	**.610**	.050
1 2 3 Spatial intention: mover identifies and uses directions or points in space	.482	.295	.149	**.508**	.144	-.176
1 2 4 Levels in space: access to low, medium, high levels	.293	.067	.092	-.006	**.705**	.366
1 2 5 Managing body boundaries in space	.269	.086	.145	**.606**	.347	.171
1 3 1 Shape Flow: access to shape flow representing a relationship of the body to itself	.080	**.526**	.083	.332	.463	-.016
1 3 2 Directional: access to directional shaping	**.663**	.256	.266	.203	.248	.036
1 3 3 Shape qualities: access to shape qualities	**.757**	.162	.120	.362	.079	.029
1 3 4 Carving: access to space carving	.229	**.635**	.270	.293	.139	.134
1 4 1 Weight: access to active (Light–Strong) and Passive (Limp-Heavy) Weight Efforts	.248	**.618**	.168	-.168	.300	.075
1 4 2 Space: access to Direct– Indirect Space Efforts	.022	**.810**	.223	.095	-.062	.208
1 4 3 Time Sudden–Sustained Time Efforts	.090	**.675**	.139	.381	.156	.134
1 4 4 Flow: Access to Bound-Free Flow Efforts	.147	**.613**	.104	.508	.170	.255
1 4 5 Effort combinations: access to combinations of Effort elements	**.457**	**.457**	-.034	.304	-.030	.329
1 4 6 Effort phrasing: access to Effort phrasing, coming and going of Effort	**.561**	.282	.327	-.010	.386	.099
1 5 1 Stamina	**.543**	.267	.482	-.108	.097	.141
1 5 2 Strength	**.658**	-.046	.056	.375	.305	.257
1 5 3 Flexibility	**.629**	-.094	.251	.196	.376	.234
1 5 4 Balance	.151	.208	-.050	**.641**	-.136	.167
1 6 1 Release of physical tension	.260	.159	.238	**.631**	.291	.183
1 6 2 Body ease						
Factor 2: cultural domain						
2 1 1 Creativity expressed	**,843**	,059				
2 1 2 Experience of aesthetic enrichment	**,757**	,339				
2 1 3 Making aesthetic decisions	**,809**	,222				
2 2 1 Appreciation of diversity and difference of cultural expression	**,505**	**,549**				
2 2 2 Sense of belonging to a shared cultural heritage experienced	,109	**,928**				
Factor 3: emotional domain						
3 1 1 Identification of own feeling or emotional states	**.771**	.149	.144	.142		
3 1 2 Authentic expression of own feelings or emotional states	.222	.239	**.780**	.234		
3 1 3 Expression of fun, pleasure, enjoyment	.090	**.923**	.203	.101		
3 1 4 Access to playfulness	.087	**.901**	.161	.137		
3 1 5 Access to full range of affects	**.784**	.086	-.052	.275		
3 1 6 Sense of positive body image	.319	.108	.435	**.659**		
3 1 7 Sense of confidence in self	.065	.492	.059	**.740**		
3 2 1 Expression of feelings and emotions appropriate to current situation, indicating adaptive coping	.037	.131	**.892**	.055		
3 2 2 Capacity to cope with challenges and difficulties	**.600**	-.238	.150	.501		
3 2 3 Release of psychological tension:	**.812**	.078	.179	-.076		
Factor 4: cognitive domain						
4 1 1 Attention to activity	-.080	.402	**.754**			
4 1 2 Energy attuned appropriately to activity	-.113	.576	**.634**			
4 1 3 Indication of preferences and choice-making	.111	**.867**	.039			
4 1 4 Independent initiation of an action or activity	.038	**.832**	.126			
4 1 5 Leading, taking ownership of an activity	.010	**.701**	.437			
4 2 1 Sense of enthusiastic anticipation evident	.176	-.022	**.804**			
4 2 2 Recall of movement sequences	**.618**	-.031	.151			
4 2 3 Recall of themes or activities from previous sessions	**.815**	.040	-.081			
4 2 4 Meaningful evocation and exploration of life memories	**.818**	.186	-.015			
4 3 1 Reflective capacity evident	**.807**	.156	.036			
4 3 2 Capacity for organizing thinking, making connections, identifying patterns	**.607**	.212	.166			
4 3 3 Theory of mind evident	**.838**	-.026	-.057			
4 3 4 Bodyful sense of a positive future displayed	**.416**	.376	.376			
4 3 5 Knowledge, ideas or insights attained: information received and thinking	**.845**	-.051	.025			
4 3 6 Reality orientation indicated: sense of reality in terms of time, place or sense of self	.392	**.468**	.068			
Factor 5: social domain						
5 1 1 Capacity to identify feelings or emotional states of others	-.043	**.688**	.386			
5 1 2 Socially acceptable response to emotions of others	.345	**.713**	.023			
5 1 3 Comfort in proximity to others	**.804**	.204	-.118			
5 1 4 Appropriate use of personal space in relation to others, including body boundaries	**.713**	.356	-.075			
5 1 5 Emotional connections with others: increased interest and capacity for social emotional engagement, increased desire to be 'seen' and 'recognized'	.279	**.559**	-.006			

(*continued on next page*)

Table 2 (*continued*)

Item	Factor loadings					
	1	2	3	4	5	6
5 1 6 Appropriate eye contact, focus or gaze	**.840**	-.011	.050			
5 1 7 Appropriate response to offer of social connection	**.803**	.273	.063			
5 1 8 Appropriate use and reception of touch	**.871**	.268	-.122			
5 1 9 Appropriate initiation, sustainment and release of social connection	**.654**	.544	.084			
5 1 10 Appropriate physical connection or contact with others	**.879**	.255	-.006			
5 1 1 Appropriate give and take in relationship, turn-taking	**.632**	.472	-.015			
5 1 12 Sense of belonging, connection and contribution experienced	.388	**.569**	-.002			
5 2 1 Expressive vocal /verbal communication	.068	-.050	**.894**			
5 2 2 Appropriate vocal /verbal communication	-.006	.073	**.930**			
5 2 3 Capacity to reflect on experiences and make reflections known via non-vocal, vocal and verbal communication	-.119	.155	**.736**			
Factor 6: integration domain						
6 1 1 Integration of body sensations, feelings, imagination, thoughts in creative expression	**.814**	.135				
6 1 2 Integration of past, present and future embodied self	**.900**	.117				
6 1 3 Resonance: sense of felt unity with music, partner or other stimulus	.095	**.992**				
6 1 4 Sense of meaning, numinous or spiritual connection or transcendence	**.731**	.002				

Note: N = 112. In the factor analysis of the Physical domain, we used the Kaiser-Guttmann criterion (Eigenvalues>1 get included into the analysis; double checked with the scree plot bent criterion) to arrive at six independent factors, which had a variance explanation of 76.22%, and the following resulting subdimensions: 1. Body parts connection, movement planes, shape, carving, effort, stamina, strength, flexibility and balance, 2. Efforts (domain 1.4), 3. Activation of Body Parts (1.1), 4. Breath and Shape Flow (1.3), Pause, Release and Ease (1.6), 5. Space (1.2), Levels, Kinesphere, 6. Synchrony and Sequencing (1.1)
In the factor analysis of the cultural domain, the items added for this dimension; resulting from the factor analysis (with a variance explanation of 70.67%), using the criterion of the scree plot bent, had the same two factors that were theoretically proposed at the DOF:1. Creativity, Beauty, & Meaning Expressed & Aesthetic Choice (2.1), 2. Openness to cultural diversity experiences, and sense of belonging to cultural heritage (2.2)
In the emotional domain, using the scree-test (Cattell, 1966), we found a clear structure indicating a factor of emotion perception (introspective; internalizing; affect part) vs. three externalizing factors of the construct: aa. emotion expression (+coping), bb. playfulness, fun, and pleasure, and cc. self-confidence and positive body image. The scree-test thus suggests a four-factor solution: 1. Emotion perception (affect, interoception, internalizing), coping, pausing), 2. Playfulness, fun and pleasure, 3. Emotion expression (adaptive coping), 4. Self-confidence and positive body image (2.−4.: all externalizing). This structure did not correspond to the subdomains proposed at the DOF which was a two-dimensional construct 3.1 emotion perception, expression, fun, playfulness, body image, self-confidence vs 3.2 coping, adaptive coping and pausing. The bent in the curve of the scree plot is after the second items, which corresponded to the factor structure consented for the emotion sub-dimension (total variance explanation of 70.67%)
). The factor analysis of the cognitive domain yielded three factors following the criterion of the scree plot bent (variance explanation 59.88%): 1. Past cognition, reflective capacity, memory, knowledge, 2. Present cognition, action awareness, reality orientation, 3. Future cognition, anticipation, reflecting the original sub dimensions. Scree-Plot Inspection: the bent in the curve of the Eigenvalues of the cognitive items is after the third item.
The factor analysis in the social domain yielded three factors oriented at the criterion of the scree plot bent (scree-test; Cattell, 1966), in accordance with the Kaiser-Guttman criterion, with a total variance explanation of 65.31%: 1. Appropriate reaction toward others, 2. Emotional connection with others
3. Verbal communication
The factor analysis of the four items of the integration domain using the scree plot bent criterion yielded two dimensions: integration (3 items) and resonance (1 item); the variance explanation of that solution was 75.86%, $N = 112$.

Statistical analysis

The data was analysed with SPSS, Version 23.0. We employed reliability analysis to compute (a) the *scale consistency* (homogeneity of items) of the DOF using an alpha-level of $p < .05$, and (b) the *interrater-reliability* of this trial using intra-class coefficient (ICC) analysis with a two-way-mixed random-effects model. For the homogeneity analysis, we left SPSS at the default settings and selected "scale if item deleted" to identify potential outliers of the single items regarding the internal consistency of the scale(s).

For assessing the DOF dimensionality and the reliability of the domains, we employed factor analysis (principal component analysis = PCA). A PCA was computed with $N = 112$ participants for each of its six subscales, assuming orthogonal dimensions, and employing Varimax rotation on the initial factor solution. For the development of the short version, we computed an exploratory factor analysis of all 81 items of the entire DOF. Despite the methodological limitations of this exploratory PCA due to sample size (PCA usually requires 5–10 subjects per item, Pallant, 2021; see discussion section), we included this PCA for the entire DOF, making heuristic use of its results to help us guide the construction of a short version. The use of this data base can be justified because the other criteria for PCA were given: The Kayser-Meyer-Olsen criterion was at a high level (*KMO* =.70; *Bartlett* =.000), and all anti-imaging matrices showed significant correlations with values between $r = .49$ and.88, mostly above.70. We also used theoretical criteria for the construction of the short version.

For interpretation of the results of the factor analysis we applied the Scree-Test (Cattell, 1966). Using the Scree-plot 'bent' or 'elbow' criterion, which in four of the seven analyses corresponded to the Kaiser-Guttman criterion (which cuts off factors under the Eigenvalue of 1), also required us to use forced dimensions in the tests of the overall framework and the cultural domain. We interpreted the rotated component matrices (after Varimax rotation) to identify factors and dimensions.

Handling of missing values

From $N = 117$ initial participants, $n = 5$ had not entirely completed the questionnaire and were excluded from the analysis. The remaining $N = 112$ participants had completed all items (the online questionnaire did not allow missing values).

Outlier analysis

We identified 27 outliers across the 6 domains. We computed all analyses with and without the outliers and found no difference in fit of the factor solutions, and no relevant differences (i.e., that would have changed the interpretations) for the reliability analysis of the scale homogeneity. We thus decided to keep the entire sample of $N = 112$ for computations of the factor analysis, the homogeneity analysis, and the inter-rater reliability analysis.

Results

Reliability testing of the dunphy outcomes framework (DOF)

Reliability testing ($N = 112$), to check the distinctness, reliability, and validity of the domains, was done on basis of factor analysis (PCA),

homogeneity analysis and inter-rater reliability analysis. An exploratory PCA was conducted with the overall scale to provide heuristic hints on the dimensions. In the following paragraphs, we use the terms *dimension* and *factor* interchangeably, when we talk about the computational results of the factor analysis; when we refer to the theory of the DOF, we talk about *domains*.

Results of factor analysis by domains

We computed six separate factor analyses, one for each domain. The rotated component matrix and the scree plot bent criterion (Scree-test, Cattell, 1966; see Table 2, and Appendix B Table B1) confirmed the factor structure of the subscales proposed by the DOF in wide parts. The factor analysis yielded a partial confirmation of the original subdomains. Table 3 provides an overview of the confirmed factors and their subdimensions according to the factor analysis by domains displayed in Table 2.

The subdimensions of the physical, cognitive, cultural and social domain were roughly confirmed, whereas the subdimensions of the emotional (10 items) and integration domain (4 items) yielded a different factorial substructure.

For the emotional domain (10 items) we found a differentiation of the original subdomain *of emotional expression* into (a) *emotion expression and coping*, (b) *playfulness, fun, and pleasure*, and (c) *self-confidence and positive body image,* and instead of the factor *emotion regulation*, which went into subdimensions of emotional expression, we found a factor on *emotion perception* (introspective, internalizing, receptive aspects of emotion).

For the integration domain (4 items), we found two factors (a) integration (3 items: integration of sensations, feelings & thoughts; integration of past, present, and future; and integration of sense, spiritual connection or transcendence) and (b) resonance (1 item: resonance: sense of felt unity with music, partner or other stimulus) with clear factor loadings and a variance explanation of 75.86%.

Results of the exploratory factor analysis of the DOF for development of short scale

Even though the exploratory factor analysis for the complete DOF (including the hypothesized six dimensions) was strongly limited by sample size, we computed the overall PCA as a heuristic guide for the development of the short version. The analysis was computed with all $N = 112$ participants and all $N = 81$ items, using the rotated component matrix and the scree plot bent criterion (scree-test, Cattell, 1966).

The six-factor solution explained 55.47% of the total variance (see Appendix C, Table C1). The first factor (with 12.46% variance explanation = *VE*) unified items from the cognitive (domain 4: 4.2 and 4.3), communication (domain 5: 5.2), integration (domain 6: 6.1), and emotion (domain 3: 3.1 and 3.2 perception of emotions). It may best be interpreted as yielding / rendering a *psychological dimension (reflective capacity)*. The second resulting factor (with 11.94% *VE*) was the *physical* dimension (domain 1), and the third resulting factor (with 11.15% *VE*) was the *social* dimension (domain 5) minus the three communication items of the DOF, plus the two items of synchrony with others and resonance with others. The fourth resulting factor (with 7.12% *VE*) was *emotion expression* (part of domain 3) and *activity* (part of domain 4), and the fifth resulting factor (with 6.81% *VE*) was the *cultural-aesthetic* dimension (domain 2). The last resulting factor (with 5.97% *VE*) included the items of playfulness, pleasure, and the sense of confidence from the *emotion dimension* (domain 3) and leading and taking ownership of activity from the *cognitive dimension* (domain 4). Also loading high on the *activity* items (originally 4.1, cognitive domain), we may label this 'the new *integration dimension'* (play, lead, and ownership of action dimension).

Note that the variance explanation of the rotated factor solution provided is distributed relatively evenly onto all six resulting factors (*VE* between 11.9% and 5.9%), whereas the subsequent Eigenvalues (from seven on) asymptotically approach zero. Thus, the original organization of the domains in the consented DOF was roughly confirmed but varied in the details. The empirical data suggests that the ranking of importance in terms of the resulting Eigenvalues / explained variance of the factors (original domain in parenthesis; see Appendix C, Table C1 Note) is: 1. (New) Psychological Dimension ('reflective capacity' containing *cognition, communication, integration,* and *emotion* items); 2. Physical Dimension (D1); 3. Social Dimension (D5), [without communication items (D5), with synchrony and resonance items (from D1)]; 4. Emotional Dimension (D3) [+ D4 activity items]; 5. Cultural Dimension (D2); 6. (New) Integration Dimension (D6) (Playfulness and Ownership; with items of the *emotional* (D3) and the *cognitive* domain (D4); many of which are active in nature).

Table 3
Confirmed subdimensions (SD) according to the factor analysis by domains.

Domain (# of SD)	Confirmed Subdimensions	# of Items
Physical (6)	1 Body parts connection, movement planes, shape, carving, stamina, strength, flexibility and balance.	8
	2 Efforts	7
	3 Activation of Body Parts	5
	4 Breath, Shape Flow, Pause, Release and Ease	5
	5 Space, Levels, Kinesphere	4
	6 Synchrony and Sequencing	3
Cultural (2)	1 Creativity, Beauty, & Meaning, Expressed & Aesthetic Choice	3
	2 Openness to cultural diversity experiences, and sense of belonging to cultural heritage	2
Emotional (4)	1 Emotion perception (interoception, internalizing), pausing, coping	4
	2 Playfulness, fun and pleasure	2
	3 Emotion expression (adaptive coping)	2
	4 Self-confidence and positive body image	2
Cognitive (3)	1 Past cognition, reflective capacity, memory, knowledge	8
	2 Present cognition, action awareness, reality orientation	4
	3 Future cognition, anticipation	3
Social (3)	1 Appropriate reaction towards others	8
	2 Emotional connection with others	4
	3 Verbal communication	3
Integration (2)	1 Integration	3
	2 Resonance	1

Note. For factor loadings and explanations, see Appendix B

Item homogeneity, internal consistency and interrater-reliability

The internal consistency of the *overall DOF* was very good (Cronbach's alpha = 97.57) which underlines the strength of the resulting factor solution (see Appendix C, Table C1).

The internal consistency of the *DOF domains* were very good to good, ranging from $\alpha = .949$ (*Physical domain*) to $\alpha = .691$ (*Integration domain*). The lowest values may be explained by the cultural-aesthetic and integration domain being new, non-classical outcome domains, which both had only few items in the consented DOF version: this makes those results more fragile in terms of reliability than results from other domains. Regarding the emotional domain, we also reinforce the fact that emotion was loading on three different dimensions (a. emotion perception and decoding loads with cognitive and integration on factor 1; b. playfulness, fun, and self-confidence loads with the leadership, ownership and action items of the cognitive domain; and c. emotion expression loads by itself; see Table 2). In the homogeneity analysis, no outliers were identified. The overall DOF analysis yielded the constant value of.957 as the 'Cronbach's alpha if item deleted', and thus revealed an excellent homogeneity of all items.

We computed interrater-reliability using the intraclass correlation coefficient (ICC; Shrout & Fleiss, 1979) with a two-way-mixed random-effect model yielding Cronbach's alpha values > .90, with ICC values between.929 and.987, indicating excellent interrater-reliability (Koo and Li, 2016) for the overall DOF, and for the single domains.

Table 4
Scale consistency (homogeneity of items) and interrater reliability (ICC) indicated by Cronbach's alphas of each domain and the overall DOF.

Scale/Domain	# of items	Cronbach's alpha (Scale Consistency)	Reliability (Scale Consistency)	Cronbach's alpha (ICC for *N*=112 raters)	Interrater-Reliability (ICC)
DOF overall	81	.957	very good	.978	excellent
1. Physical	32	.949	very good	.973	excellent
2. Cultural	5	.765	Good	.929	excellent
3. Emotional	11	.798	Good	.981	excellent
4. Cognitive	15	.855	very good	.984	excellent
5. Social	15	.819	very good	.987	excellent
6. Integration	4	.691	Good	.976	excellent

Note. Reliability is defined as the extent to which measurements can be replicated. Reliability values range between 0 and 1, values closer to 1 represent higher reliability. Table 4 contains two types of reliability: (a) Internal Consistency or Scale Homogeneity and (b) Interrater-Reliability, the main quality criterion for observational data.
Internal Consistency: DOF's overall reliability as a homogenous instrument is very good; Subdomain-analysis yields further highly reliable results; value for emotional domain can be rounded to a Cronbach's alpha-value of.80; we then have a very good reliability of all classical scales and a good reliability of the two non-classical domains "cultural-aesthetic" and "integration", which also had considerably fewer items; these two scales need development.
Interrater-Reliability (Observer Agreement): We computed the ICC=Intraclass Correlation Coefficient for the $N = 112$ expert raters (global DM therapists), with a two-way-mixed random-effects model yielding Cronbach's alpha values $> .90$, indicating excellent interrater-reliability (Koo and Li, 2016). Interrater reliability is the single most important quality criterion for observational data, it indicates aspects of reliability, validity and objectivity of an observational instrument. With a two-way-mixed random-effects model Cronbach's alpha corresponds directly to the ICC (Koo and Li, 2016).

Table 5
Suggested short version of the DOF (DOF-BREVE).

Domain	#items	Items (Domain/Subdomain)
I. Psychological (Reflective Capacity)	5 (of 19)	1. Person displays interoceptive abilities. (EMO-INT) 2. Person displays reflective pausing to inform actions based on body signals. (EMO/COG-INT) 3. Person displays an active enquiring mind. (COG) 4. Person displays good communication skills. (COMM/SOC) 5. Person displays a sense of wholeness and vitality. (INT)
II.Physical	3 (of 31)	6. Person has a mobile, functional body. (PHYS) 7. Person uses capacity for expressive movements. (PHYS/EMO/ CULT) 8. Person uses breath to support movement and body connections. (PHYS)
III. Social	2 (of 14)	9. Person displays reciprocal behaviour. (SOC) 10. Person displays synchrony and resonance with others. (SOC)
IV. Emotional	2 (of 9)	11. Person displays regulated emotions. (EMO-EXT) 12. Person displays a genuine/authentic emotion expression. (EMO-EXT)
V. Cultural-Aesthetic	3 (of 6)	13. Person displays creativity. (CULT-AEST) 14. Person displays aesthetic choices.[1] (CULT-AEST) 15. Person displays a sense of cultural belonging. (CULT-AEST)
VI.Integration[2] (Behavioural)	3 (of 4)	16. Person displays playfulness / play. (INT-Play) 17. Person displays ownership of actions. (INT-Own) 18. Person displays initiative / leadership. (INT-Lead)

Note: The proposed short version of the DOF questionnaire with 18 items employs 10-point-Likert scales for the ratings from 'not at all (1)' to 'maximum conceivable (10)', with an N/A option - paralleling the original DOF questionnaire; note that for research questions differentially geared to the physical domain, we recommend the long version of the DOF; [1]'Aesthetic choices' are choices based upon experienced beauty / authenticity (Item 14), [2]The 'integration' domain may according to the results of the FA also be called 'integrated behavior' or 'integrated embodiment' or 'activity/agency' domain.

Interrater reliability (observer agreement) is the most important quality criterion for observational data, encompassing aspects of reliability, validity, and objectivity of observational instruments. The inter-rater-reliability analysis resulted in excellent intraclass correlation coefficients (Koo and Li, 2016).

Reflective statements of participants on the online testing of the DOF questionnaire

Because the DM therapists who participated in the study were respected experts from all over the world, it is informative to check the feedback they provided in the last comment field ("We invite you here to offer any feedback about the Framework: anything you think is missing or could be improved") of the trial questionnaire. Comments were received from 27 therapists. Eight positive comments included expressions of gratitude and curiosity, with appreciation for the clear introduction, thorough framework, and integration of movement analysis with social and therapeutic variables. Twelve comments addressed the phrasing of questions. Four therapists considered phrasing to be too vague (such as on initial items relating to upper and lower body parts) and open to many forms of interpretation, potentially giving rise to difficulties in rating, while three expressed concerns around over-specificity. Four persons addressed difficulties to answer multiple adjective-items. One therapist wished for the possibility to specify dominant traits within Laban categories (Laban, 1980). Some therapists noted the limitations of the video format and expressed a desire to reflect with the subject directly on their experience. One therapist considered movement to be an observable construct, in contrast to verbal processing and insight, which are more difficult to measure. Another participant expressed concern as to whether the questions would allow for capture of the full significance, impact, and richness of particular movement qualities, including lack of movement. Suggestions for rating scales included the possibility of wording the rating scales for different questions differently, and the need for clearer instruction regarding the use of the scales to rate the physical domain.

Proposal of a short version of the DOF questionnaire

Because of the length and complexity of the DOF, we propose a short version of the DOF (DOF-BREVE) that consists of 18 items, with two to three for each resulting dimension (see Tables 5 and 6). The DOF-BREVE was developed considering the highest factor loading on central items of the DOF domains, theoretical, and practical considerations (such as for the Physical Domain to choose items that can be understood from therapists' 'common sense', without requiring an explicit LMA background). This short version is useful for clinical contexts where there is not much time to assess one client, allowing for a faster global assessment and more immediate progress tracking than the long version.

The DOF-BREVE has also been turned into a self-report version for further use and triangulation of observational and self-report data (see Table 6).

Table 6
Suggested self-report version of the DOF-BREVE (DOF-BREVE-SR).

Item	Rating scale 'not at all (1)' to 'maximum conceivable (10)'									
1. I perceive my body signals from inside.	1	2	3	4	5	6	7	8	9	10
2. I listen to my inner signals to inform my actions.	1	2	3	4	5	6	7	8	9	10
3. I display an active inquiring mind.	1	2	3	4	5	6	7	8	9	10
4. I display good communication skills.	1	2	3	4	5	6	7	8	9	10
5. I display vitality and wholeness.	1	2	3	4	5	6	7	8	9	10
6. I have a mobile, functional body.	1	2	3	4	5	6	7	8	9	10
7. I use my capacity for expressive movements.	1	2	3	4	5	6	7	8	9	10
8. I use breath to support my movements and body connections.	1	2	3	4	5	6	7	8	9	10
9. I have the capacity for reciprocity and resonance with others.	1	2	3	4	5	6	7	8	9	10
10. I use synchrony and resonance with others.	1	2	3	4	5	6	7	8	9	10
11. I can recognize and regulate my emotions.	1	2	3	4	5	6	7	8	9	10
12. My emotion expression is genuine/authentic.	1	2	3	4	5	6	7	8	9	10
13. I display creativity.	1	2	3	4	5	6	7	8	9	10
14. I am led by aesthetic choices.	1	2	3	4	5	6	7	8	9	10
15. I have a sense of cultural belonging.	1	2	3	4	5	6	7	8	9	10
16. I use play and playfulness.	1	2	3	4	5	6	7	8	9	10
17. I take initiative and lead.	1	2	3	4	5	6	7	8	9	10
18. I experience ownership of my actions.	1	2	3	4	5	6	7	8	9	10

Note. Suggestion for the DOF-BREVE-SR as a self-report instrument

Discussion

Reliability testing

The reliability analysis of scale homogeneity yielded good to very good internal consistencies of the scales. The interrater-reliability analysis (with the ICC) confirmed an excellent observer agreement among expert raters on all domains. The exploratory factor analysis of the overall DOF yielded theory-corresponding dimensions and the new psychological dimension. Factor analysis of the single domains and their subdimensions largely confirmed their structure and yielded more clearly interpretable sub-differentiations. In sum, results of the psychometric analyses speak for a thorough construction of the questionnaire, with recognizable dimensions as conceived through and consented in the Delphi-like process (Dunphy, Lebre et al., 2020).

Results of factor analyses

The factor analysis of the domains partially confirmed the original domains of the DOF. The original subdimensions were further differentiated, particularly the emotional domain (with four instead of two factors, differentiating emotional expression into three clearly distinguishable subdimensions), and the integration domain (in two new factors, 'integration' and 'resonance').

The two innovative specific domains of cultural and integrative outcomes were further developed in our study. The *Cultural domain*, containing expression of creativity, aesthetic enrichment, aesthetic choice, appreciation of diversity as well as a sense of belonging to a shared cultural heritage, is not usually measured in health contexts. It is a crucial outcome domain to capture the function and value of the creative arts therapies. The scale was reliable, however, adding more items to improve its soundness would be valuable (e.g., there are pretested items by Koch, 2014, 2021). For the *Integration domain*, integration loaded on the first and resonance loaded clearly on a second factor of the new integration domain; new items have been added since the consented version, warranting new testing. The results of the integration domain as well as the cultural domain are particularly valuable for the DOF's further development, since these domains are new, but are outcomes of great relevance for the entire field of creative arts therapies.

In the light of the exploratory factor analysis of all 81 items, dimensionality of the DOF may need revision. A *psychological main dimension* is suggested by the exploratory PCA, which pulls items out of almost all other dimensions, foremost the cognitive domain, but also the emotional, social (the communication items), and integration domain. The other domains were confirmed, although containing slight shifts in items or subdomains (Appendix C, Table C1). Because of the underpowered sample, we recommend increasing the power of the analysis, before further revising the instrument on the basis of these exploratory analyses.

Homogeneity analysis

The homogeneity analysis yielded clear and homogenous results on the internal consistency of scales. No item needed to be excluded. All scales had a good to excellent internal consistency, which confirms the psychometric qualities of the original DOF. Such results are in line with convergent evidence of the DOF also found in other trials (see Dunphy & Hens, 2018, Lebre et al., 2020).

The Internal Consistency (*Cronbach's alphas)* of the DOF was very good (overall, physical domain, emotional, cognitive, and social domain) to acceptable (integration and cultural domain). Not surprising, the two newly constructed domains (integration and cultural) were less reliable and homogenous than the items of the other more classical domains (emotional, cognitive, social). The Integration domain scored together with the new factor "Psychological" with the highest Eigenvalue in the FA of all 81 Items. The cultural-aesthetic domain needs expansion (e.g., with items from Koch, 2021), as well as diversification and testing. An approach to a solution can be to separate the long and complex items into shorter one-dimensional items (as in the DOF-BREVE), which could increase the number of items 2–3 times and then reflect a true dimension (more than 5 items needed to build a reliable scale; Boateng et al., 2018). This process should include reviewing and integrating the existing literature on cultural dimension constructs and respective instruments (UNESCO, 2001, 2019).

Short version development and construction (DOF-BREVE)

The resulting short version of the DOF (DOF-BREVE) was heuristically constructed based on the results of the exploratory PCA of the consented DOF version, the results of the factor analysis by domains, results of the reliability analysis, and theoretical considerations (covering missing aspects, as agreed by authors SK and PL). The DOF-BREVE contains 18 items from the six domains, that is approximately three items per resulting dimension, which have been chosen, because of their prototypicality, load factors, and/or theoretical considerations. Because the results of the exploratory PCA suggests clear structures and meanings corresponding to the original DOF, the DOF-BREVE was constructed on basis of the new emerging dimensions of the exploratory PCA (see Table 6). Both, DOF-BREVE and the self-report version need further psychometric testing.

Limitations of the study

There are some important limitations to this empirical trial. The biggest limitation was the *sample size* for the overall PCA of all 81 items with only 112 participants, which was considerably underpowered (minimum would be 5–10 times the number of items, thus between $N = 450$ and $N = 810$ participants (Pallant, 2021). The overall PCA thus provided exploratory

results, which were used in a heuristic way in this study. For the subscale analyses (PCA of domains), the test power was sufficient.

A second major limitation was the limited *stimulus sampling*, that is, the missing variance in the source stimulus material. All data is drawn from the single observed elderly man in the video ($N = 1$), hence there is no between-person variance in the stimulus material (only between raters). Further, the stimulus *video is not from a therapy setting*, where therapists usually know their clients, and have another information basis for sampling with insight into thoughts, feelings and attitudes of the client and knowledge about the therapeutic process. Also, the video is merely 3 min long, which could be considered a short behaviour sampling sequence to rate the person on 81 items. However, Ambady et al. (2000) showed empirically that even much shorter videos sequences of less than one minute, which show thin slices of behaviour, can be reliably rated.

Item characteristics: Many items in the DOF are *long and heterogeneous* which lead to some difficulties in yielding clear and unanimous categories. Still, the items yielded enough robustness in this trial. It would, nevertheless, be warranted to test shortened and condensed items with a lower degree of heterogeneity. Some of the comments offered by participants indicated this problem in some cases. We addressed this problem in the development of the DOF-BREVE and disambiguated items with more than one 'qualifier'.

Methodological issues with observations: While observations are a main tool in DMT, they are problematic as a reliable data base, particularly when the aim of observation is movement analysis (Bernardet et al., 2019; Tsachor & Shafir, 2019). However, inter-rater-reliability analysis resulted in excellent intraclass correlation coefficients.

Future studies

The exploratory factor analysis suggested a psychological subdomain as domain 1 (with the highest variance explanation) consisting of items of the cognitive, the emotional, the communicative items of the social domain, and, the integration domain. The results of the exploratory PCA needs to be tested in future studies with an appropriately powered sample, which importantly at the same time takes the stimulus sampling problem into account (i.e., provides more than one observational object).

The DOF uses therapists' observations of clients' movement and expression as the basis for assessment. This assessment occurs intrinsic to the therapeutic process, with assessment objectives not being external to, or in a different modality than, the movement experience. The DOF operates at the interface of movement and psyche and in its holistic and strength-based approach contrasts with the use of many tools from other modalities such as physiotherapy (for example, Timed Up and Go Test; Podsiadlo & Richardson, 1991) or psychology (for example, Beck Depression Inventory, BDI; Beck et al., 1961; or BDI 2 Beck et al., 1996) which are currently used to assess DMT intervention programs. A major part of the DOF-items does not rely on clients being able to conceptualize, describe or rate their experiences verbally (Hens & Dunphy, 2020).

The authors propose the use of multiple sources for assessment. Clients can be invited to provide self-report data, which can be used to more accurately understand the observations being made by the DM therapist. In Table 6, we suggest a self-report instrument (DOF-BREVE-SR) that - if psychometrically sound - can be used to allow triangulation of the data. Instead of relying solely on therapist-driven observations, we suggest combining the therapist observations with the client's self-report on the DOF-BREVE-SR, directly in the MARA App (as outlined in Hens & Dunphy, 2020); hence, self-assessment is possible and recommended.

Regarding the association of DOF with psychophysiological measures, motion tracking could provide additional valuable information about physical correlates, heart-rate variability about emotional correlates, and Electroencephalograms (EEGs) about cognitive correlates of DOF items. Such data could be triangulated with the DOF and allow further insights into validity.

For assessment, the authors propose the use of DOF in MARA App (Dunphy & Hens, 2018). The open resource tool allows easy and user-friendly assessment of client progress. MARA App provides the DOF items by default, and the possibility for therapists and clients to formulate their own therapy goals and add them in MARA App.

The broader view

The DOF has been developed to support DM therapists to plan programs, make decisions about therapeutic program goals and objectives, justify interventions or activities, and assess clients' progress throughout the therapeutic journey. DOF shows promising value for gathering bigger datasets in DMT and thus has a role to play in developing a systematic and replicable approach to data collection.

In enabling DM therapists to assess clients against theoretically and empirically supported outcomes measures, the DOF offers several benefits, such as reducing reliance on informal and/or self-developed measures (Powell, 2008; ADTA, 2017), thus, improving validity, reliability, and efficiency of assessment. The DOF prioritizes use of lay language, and minimizes specialist jargon, except in the use of LMA-based items in the *Physical domain*. This enables the use of the DOF by other staff and stakeholders in the therapeutic process (Lebre et al., 2020; Schoenenberger-Howie et al., 2022). This might include staff not trained in DMT, families, carers, and clients whose observation or opinion may be an important complement to the DM therapists'. The valuable contribution of staff who are not trained in DMT to the assessment process is discussed in Dunphy and colleagues (2016). While assessment is most often undertaken by DM therapists, it is also possible for clients to self-rate: these self-ratings are psychometrically recommendable in terms of triangulation of data to not solely rely on therapists' observations. Although DMT assessment has not yet been sufficiently advanced to enable the inclusion of client voice completely, a brief discussion of assessment using the DOF by Dunphy and Hens (2018) shows that client voice is included and emphasized more strongly in this framework. This reflects an advance in *participatory approaches* to DMT, which may help to support the drive for further diversity, inclusion and decolonization in health contexts.

Particularly helpful in this process is the use of MARA App that allows for greater consistency, flexibility, ease and choice regarding assessment. There is much potential behind this idea, and it is worth exploring it in greater depth in future studies. Since both the DOF-BREVE and the self-report version (DOF-BREVE-SR) are not using specialized LMA vocabulary, they are open to wider use across DMT, CATs and beyond. At this point, DOF-BREVE and DOF-BREVE-SR require testing for validity and reliability in future trials. When the long version of DOF is used in the context of other CATs, training is needed for Domain 1 Physical, or Domain 1 should be omitted, or – once validated – the DOF-BREVE items of the domain should be used instead.

The cultural-aesthetic outcome dimension is a clear asset and necessary addition for DMT and CATs research in the future (Dunphy, Smithies et al., 2020). If we do not measure cultural-aesthetic outcomes, how could we fully identify what arts-based-based interventions are doing for patients? Two scales presented by Koch (Fuchs & Koch, 2014; Koch, 2021) have also been addressing aesthetic outcomes: The Body Self-Efficacy Scale BSE (Fuchs & Koch, 2014; e.g., "my movements are beautiful"), and the Active Factors of Creative Arts Therapies Scale AF-CAT (Koch, 2021; e.g., after the intervention measuring the amount of experienced beauty). The DOF cultural-aesthetic dimension could be cross-validated with those scales, and possibly extended by a set of well-working and jointly loading items of the DOF and those instruments.

This study has also led to some further recommendations for developing the DOF to better suit other CAT modalities, as well as DMT. For instance, previous research of Lebre and colleagues (2020) explored the DOF application in a community psychomotor therapy program for adults with high support needs, and Schoenenberger-Howie and colleagues (2022) have initiated this process in music therapy, reinforcing the need to change the items of the physical domain to reflect everyday

language instead of LMA technical terms. Future research should additionally attend to Western, Caucasian, cisgender, able-bodied biases in the tool. These attributes were valid for more than 95% of the participants and for all researchers. Experience shows that the 'attributes' of the researchers will attract persons with similar attributes for participation, thus a research group of persons with more diverse backgrounds than the present research group would be an asset in future studies on the DOF, and future trialling with a more diverse sample is therefore warranted. Decolonialization of research contexts and instruments is an important timely task. It is possible that due to a colonial blind-spot, we are omitting forms of dance therapy that have existed in other cultures across time immemorial. As Dunphy stated upon her visit in Germany in 2018:

> "There is no reason why the history of dance therapy should start with Marian Chace in the US of the 60ies. DMT has been around forever in the cultures of the world. This knowledge needs to be integrated and regarded as equal." (Dunphy, 2018).

Conclusion

The DOF is a carefully constructed, empirically tested, reliable and valid instrument to measure DMT outcomes. Reliability analysis yielded excellent results.

Importantly, the cultural-aesthetic domain claims its space as an outcome of importance in the health sciences, and the physical and integrative aspects are construed and elaborated in detail. The pioneering introduction of the cultural-aesthetic outcome domain in DMT and CATs brings more visibility and communicability to DMT and CATs in the health sciences by highlighting their specific contribution via unique outcomes measures, constructs, and assessments.

For the field of DMT (as well as potentially all CATs), the application of the DOF facilitates: (a) improved comparability of outcomes among primary studies, particularly for secondary data analysis, (b) improved communicability of DMT outcomes among health professionals, (c) increased acceptance of quantifying methods in the DMT community, (d) a flexible tool for treatment and intervention planning in DMT, and (e) greater use of formal assessments (and user-friendly evaluations), and thus general support of research in DMT.

Based on the results of an exploratory factor analysis of all 81 DOF items, a short version of the DOF with 18 items (DOF-BREVE) and a self-rated version (DOF-BREVE-SR) were developed. Both short versions are development based on available empirical data yet are compromised by the sample size of the analysis. Future testing will show their value.

The provision of the DOF as a tool for the comprehensive assessment of all major outcomes addressed through DMT constitutes a major step forward towards the reliable measurement and comparability of DMT and CAT outcomes in the health sciences. Because of the tool integration, it also furthers the use of MARA App as an evaluation and documentation tool. It remains a necessary endeavour to investigate the psychometric qualities of our DMT instruments, particularly of the DOF with its potential as a generic observational tool, and its WHO and UNESCO-based health philosophy reminding us that 'man is not only there to survive, but to thrive' (Bailey, 2023).

Ethics approval

Approval was obtained from the Human Research Ethics Committee of The University of Melbourne number 1647380.3. The procedures used in this study adhere to the tenets of the National Statement on Ethical Conduct in Human Research (2007/2018).

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CRediT authorship contribution statement

Kim Dunphy (KD) was the lead researcher in the development of the framework (and the according software MARA App). She was the lead author on the grant application, and administered the DAAD resources for Australia. She conceptualized the framework and this article idea, organized the consensual development, data collection and wrote the first draft of the article four weeks before her untimely death. Sabine C. Koch (SK) co-led the reliability trial, did the psychometric reliability testing, and administered the DAAD grant for the German part; Paula Lebre (PL) contributed to the development of the outcomes framework and testing of MARA, consulted the team on the psychometric testing, methodology, and display of results, and edited the tables and supplement. She, Ella Dumaresq (ED), Simea Schoenenberger-Howie (SSH) and Josephine Geipel (JG) contributed to the development of the outcomes framework and testing of MARA. JG; ED, and PL put the draft into APA-Style 7. All authors contributed to writing the final draft.

Declaration of Competing Interest

The authors report no conflict of interest.

Data Availability

Data will be made available on request.

Acknowledgments

The authors thank all dance movement therapists and other professionals whose contributions advanced the development of this research as envisioned by Dr. Kim Dunphy. Kim Dunphy passed away on October 14th, 2020, after her diagnosis of pancreatic cancer. She worked on the development of her research and practice tools until late September 2020 in an exemplary effort, including a global launch of the MARA software for the outcomes framework on September 19th and 20th. Her loss has hit the professional field of DMT hard. She was one of the best emerging DMT researchers globally: a visionary, enabler, networker, and extraordinarily creative thinker, a dedicated and diligent scholar working with all major research methods, and with a broad spectrum of topics, Dr Dunphy worked in service of understanding and investigating the power of movement, culture and the arts. We dedicate this article to her and want to honour her vision and creation by renaming the outcome framework (OF) to 'The Dunphy Outcome Framework (DOF)'. It's been such an honour, pleasure and privilege to work with you, Kim.:-).

Consent to participate

Informed consent was obtained from all individual participants included in the study.

Appendix A. : Questionnaire of the Reliability Study (Consented Trial Version)

A1: WebVersion-Questionnaire Complete Instructions

Your research task is to watch a video of a person dancing and then score this person's movement and behaviors against each item of the Outcomes Framework that you can. Each question relates to the person who is the focus in the video. The video is not of a DMT session but has been chosen because of reduced ethical issues in using it, being a YouTube video freely available in the public space, and because it offers a range of observable behavior by the client. Please watch the 3-minute video once through with sound, then if you wish, continue to play the video as you make your assessment, but without sound. Please copy this link to open the video (Funny Old Guy Dancing) in a new window: https://www.youtube.com/watch?v=aD1euxkzE9I The task is designed to be undertaken in a short time, so you should not spend long thinking about any one item. Score as quickly as you can, choosing whichever number best matches your assessment of the client's access to, or performance or behavior on that item. Because this test involves a large number of participants, the important finding will be the average scores. Hence each individual score is not critical, and you do not need to be too concerned about getting each score exactly right. You may choose to use your own embodied response to help you score. You should use your capacity as a dance movement or other creative arts therapy professional in making your judgement. For some items where you have not been able to directly observe a relevant movement behavior in this video excerpt, you may need to infer from other aspects of the person's behavior or affect. For some items where there is more than one element included, such as 'Control of movement succession: Initiation, sustainment, conclusion, release', please make one overall score for the whole item. You must choose a whole number, by marking an X in the appropriate square, on the scale where 1 is 'not at all' (ie that you have not observed this at all in this video excerpt) to 10 'the maximum conceivable' (what you perceive as the maximum possibility on that item for that specific client at that time in their life). If there are any items that you do not understand, or feel that you absolutely cannot score, you can use the box N/A (for Not Assessable). The final part of the task is some demographic data about you and your professional experience that will help us correlate patterns from the data. About the Framework and related iPad assessment app MARA. We also welcome comments about the content of the Framework, although this is not the focus of the current research project. More information here: www.makingdancematter.com.au.

A2: The DOF - Dunphy Outcomes Framework (Version 81.2) – Web Version of the Consented Trial Version[7]

Demographic Data:
-Age.
-Home country.
-Sex.
-Gender identification.
-Identity: national, ethnic, linguistic, cultural or other relevant identity.
-Self-assessed English capacity.
-Professional modality.
-Practice experience in your modality.
-Settings in which you practice (choose any many as appropriate).
-Client groups with whom you work.
-Approach to your practice: theory, epistemology or framework that informs your practice (choose as many as you like): -
-We invite you here to offer any feedback about the Framework: anything you think is missing or could be improved.
-Please provide your name and contact email if you would like to be sent results.

Item number	Item name	Insert your score 1–10
1. PHYSICAL DOMAIN: Towards a stable, mobile, functional and expressive body		
1.	1 1 1 Use of breath to support movement: depth, rate, shape of breath	
2.	1 1 2 Activation of body parts: upper, lower body	
3.	1 1 3 Activation of body hemispheres: left, right sides	
4.	1 1 4 Body parts connection: Centre to extremities, head to tail connections	
5.	1 1 5 Body part connections: upper and lower body	
6.	1 1 6 Body halves connection: right and left sides	
7.	1 1 7 Body parts connection: diagonal movement	
8.	1 1 8 Sequencing of body parts in movement: Ability to sequence body parts for effective movement, including simultaneous, successive or sequential sequencing	
9.	1 1 9 Self-synchrony: body parts moving in rhythm with oneself, use of timing distributed through the body, organisation	
10.	1 1 10 Synchrony of movement with others	
11.	1 1 11 Control of movement succession: Initiation, sustainment, conclusion,release	
12.	1 2 1 Kinaesphere: access to near, mid, far reach space	
13.	1 2 2 Movement planes: access to vertical, horizontal, sagittal planes	
14.	1 2 3 Spatial intention: mover identifies and uses directions or points in space	
15.	1 2 4 Levels in space: access to low, medium, high levels	
16.	1 2 5 Managing body boundaries in space: moving appropriately within the confines of the space	

(*continued on next page*)

[7] *The full current version: Dunphy, K., Lebre, P., & Mullane, S. (2020). Outcomes Framework for Dance Movement Therapy. V. 81.2 is available at www.makingdancematter.com.au*

(*continued*)

Item number	Item name	Insert your score 1–10
17.	1 3 1 Shape Flow: access to Shape Flow Representing a relationship of the body to itself: consciousness expressed through movement	
18.	1 3 2 Directional: access to Directional Shaping, body directed to some part of the environment	
19.	1 3 3 Shape qualities: access to Shape qualities, opening and closing	
20.	1 3 4 Carving: access to Space Carving: Body is actively and three-dimensionally interacting with the volume of the environment	
21.	1 4 1 Weight: access to active (Light – Strong) and Passive (Limp- Heavy) Weight Efforts	
22.	1 4 2 Space: access to Direct – Indirect Space Efforts	
23.	1 4 3 Time Sudden–Sustained Time Efforts	
24.	1 4 4 Flow: Access to Bound-Free Flow Efforts	
25.	1 4 5 Effort combinations: access to combinations of Effort elements	
26.	1 4 6 Effort phrasing: access to Effort phrasing, coming and going of Effort	
27.	1 5 1 Stamina: capacity to sustain prolonged physical effort, including aerobic fitness	
28.	1 5 2 Strength: ability to exert force (on objects); exerting one's sense of self in space	
29.	1 5 3 Flexibility: range of motion of joints and their ability to move freely; mobility of muscles allowing for freedom of movement around joints	
30.	1 5 4 Balance: even distribution of weight; ability to remain upright, steady Static and dynamic	
31.	1 6 1 Release of physical tension: capacity to release physical tension as evidenced in relaxed stillness; deep, slow regulated	
32.	1 6 2 Body ease: Sense of ease in the body apparent	
2. CULTURAL DOMAIN: Towards a creative, aesthetic, expressive self		
33.	2 1 1 Creativity expressed: expression of own creativity through the activity, evidenced in movement, verbal, vocal or non-vocal expression	
34.	2 1 2 Experience of aesthetic enrichment: experiences that comes through the senses that makes something more significant meaningful or valuable, encompassing experiences outside the mundane and everyday, most frequently associated with pleasurable emotions of joy, awe and wonder, arising from perceptions of beauty	
35.	2 1 3 Making an aesthetic decision: expression of personal choices based on response to aesthetic stimuli, a hedonic response to a sensory experience engaging any or all of the sensory domains	
36.	2 2 1 Appreciation of diversity and difference of cultural expression: development of appreciation of diverse forms of cultural expression (the different ways that people express themselves depending on cultural backgrounds, life experience and interests)	
37.	2 2 2 Sense of belonging to a shared cultural heritage experienced: relationship to one's experience of cultural identity and values shared with others, cultural heritage defined as expression of ways of living, developed by a community and passed on from generation to generation	
3. EMOTIONAL DOMAIN: Towards healthy, regulated emotions		
38.	3 1 1 Identification of own feeling or emotional states	
39.	3 1 2 Authentic expression of own feeling or emotional states	
40.	3 1 3 Expression of fun, pleasure, enjoyment	
41.	3 1 4 Access to playfulness	
42.	3 1 5 Access to full range of affects	
43.	3 1 6 Sense of positive body image	
44.	3 1 7 Sense of confidence in self	
45.	3 2 1 Expression of feelings and emotions appropriate to current situation, indicating adaptive coping	
46.	3 2 2 Capacity to cope with challenges and difficulties	
47.	3 2 3 Release of psychological tension: capacity to release psychological tension as evidenced in relaxed stillness; deep, slow regulated breathing; sense of being at ease; quieting of extraneous verbal or non-verbal engagement; sense of being fully present	
4. COGNITIVE DOMAIN: Towards an active enquiring mind		
48.	4 1 1 Attention to activity	
49.	4 1 2 Energy attuned appropriately to activity	
50.	4 1 3 Indication of preferences and choice-making	
51.	4 1 4 Independent initiation of an action or activity	
52.	4 1 5 Leading, taking ownership of an activity	
53.	4 2 1 Sense of enthusiastic anticipation evident	
54.	4 2 2 Recall of movement sequences	
55.	4 2 3 Recall of themes or activities from previous sessions	
56.	4 2 4 Meaningful evocation and exploration of life memories	
57.	4 3 1 Reflective capacity evident	
58.	4 3 2 Capacity for organizing thinking, making connections, identifying patterns	
59.	4 3 3 Theory of mind evident: ability to attribute mental states - beliefs, intents, desires, emotions, knowledge, etc -to oneself, and others, and understand that others have beliefs, desires, intentions, and perspectives that are different from one's own	
60.	4 3 4 Bodyful sense of a positive future displayed	
61.	4 3 5 Knowledge, ideas or insights attained: information received and thinking provoked by information, may lead to insight, a deeper understanding or capacity to see things afresh or in different way	
62.	4 3 6 Reality orientation indicated: sense of reality in terms of time, place or sense of self	
5. SOCIAL DOMAIN: Towards satisfying reciprocal relationships		
63.	5 1 1 Capacity to identify feelings or emotional states of others	
64.	5 1 2 Socially acceptable response to emotions of others	
65.	5 1 3 Comfort in proximity to others	
66.	5 1 4 Appropriate use of personal space in relation to others, Including body boundaries	
67.	5 1 5 Emotional connections with others: increased interest and capacity for social emotional engagement, increased desire to be 'seen' and 'recognised'	
68.	5 1 6 Appropriate eye contact, focus or gaze	
69.	5 1 7 Appropriate response to offer of social connection	
70.	5 1 8 Appropriate use and reception of touch	
71.	5 1 9 Appropriate initiation, sustainment and release of social connection	
72.	5 1 10 Appropriate physical connection or contact with others	
73.	5 1 11 Appropriate give and take in relationship, turn-taking	
74.	5 1 12 Sense of belonging, connection and contribution experienced	
75.	5 2 1 Expressive vocal /verbal communication	
76.	5 2 2 Appropriate vocal /verbal communication	
77.	5 2 3 Capacity to reflect on experiences and make reflections known via non-vocal, vocal and verbal communication	
6. INTEGRATION DOMAIN: Towards wholeness, vitality, aliveness		

(*continued on next page*)

(*continued*)

Item number	Item name	Insert your score 1–10
78.	6 1 1 Integration of body sensations, feelings, imagination, thoughts in creative expression	
79.	6 1 2 Integration of past, present and future embodied self	
80.	6 1 3 Resonance: sense of felt unity with music, partner or other stimulus	
81.	6 1 4 Sense of meaning, numinous or spiritual connection or transcendence	

Appendix B

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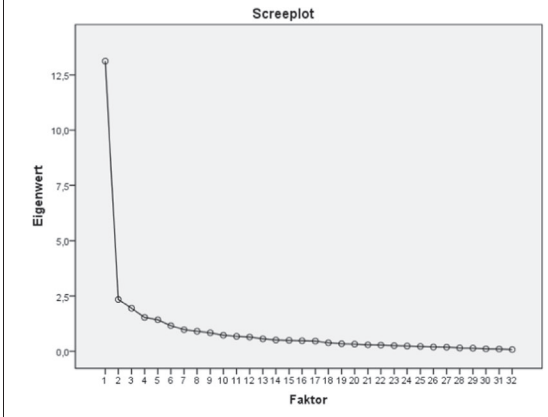
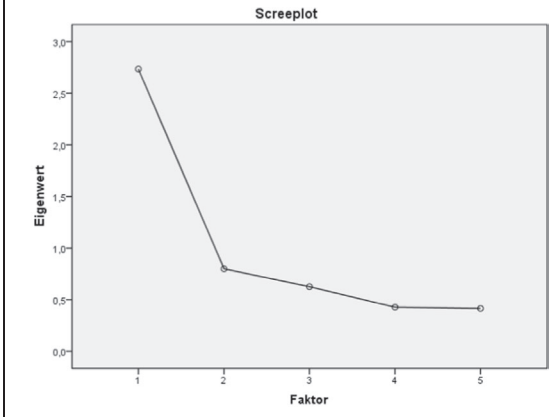
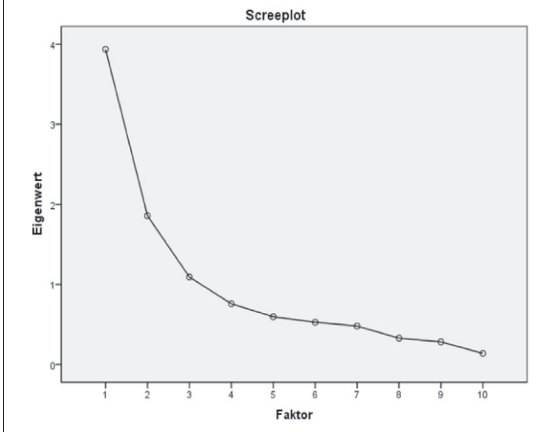
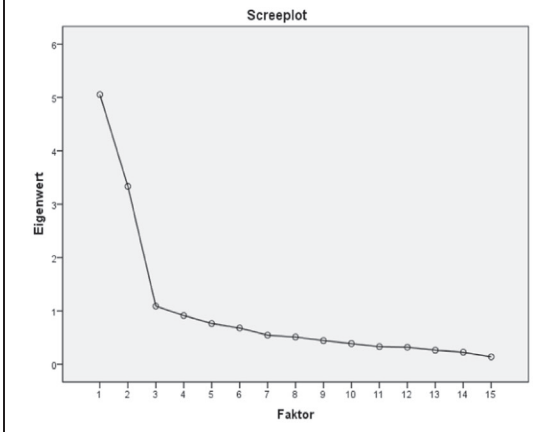
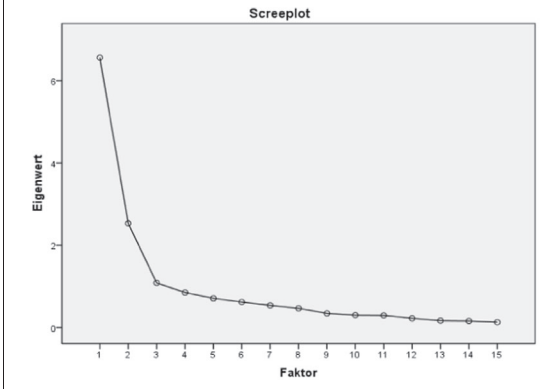
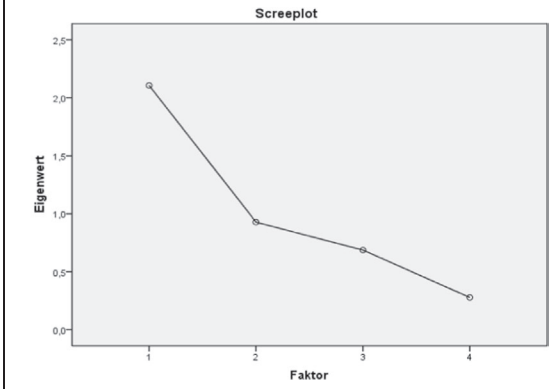
Table B1
Scree Plot Overview of the Six Domains.

Scree Plot of the Physical Domain	Scree Plot of the Cultural Domain
	
Scree Plot of the Emotional Domain	**Scree Plot of the Cognitive Domain**
	
Scree Plot of the Social Domain	**Scree Plot of the Integration Domain**
	

Appendix C

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Table C1
Factor loadings of the exploratory PCA of the full DOF.

Items	Components					
	1	2	3	4	5	6
4 3 5 Knowledge, ideas or insights attained	.829					
4 2 3 Recall of themes or activities from previous sessions	.784					
4 3 3 Theory of mind evident	.773					
6 1 2 Integration of past, present and future embodied self	.771					
4 2 4 Meaningful evocation and exploration of life memories	.764					
4 3 1 Reflective capacity evident	.744					
5 2 2 Appropriate vocal /verbal communication	.728					
5 2 3 Capacity to reflect on experiences and make reflections	.724					
3 2 3 Release of psychological tension	.713					
6 1 4 Sense of meaning, numinous or spiritual connection or transcendence	.682					
5 2 1 Expressive vocal /verbal communication	.628					
6 1 1 Integration of body sensations, feelings, imagination, thoughts in creative expression	.601					
3 1 5 Access to full range of affects	.571	.324				
3 2 2 Capacity to cope with challenges and difficulties	.568					
4 3 2 Capacity for organizing thinking, making connections, identifying patterns	.559					
4 2 2 Recall of movement sequences	.529					
5 1 1 Capacity to identify feelings or emotional states of others	.522					
3 1 1 Identification of own feeling or emotional states	.510					.346
1 6 1 Release of physical tension	.459	.305				
4 3 6 Reality orientation indicated	.434					.340
2 2 1 Appreciation of diversity and difference of cultural expression	.391					.360
1 5 4 Balance		.723				
1 1 7 Body parts connection: diagonal movement		.714				
1 5 3 Flexibility		.704	.310			
1 3 4 Carving		.699				
1 1 4 Body parts connection		.668				
1 3 3 Shape qualities		.612		.316		
1 6 2 Body ease: sense of ease in the body apparent		.603				.305
1 1 6 Body halves connection: right and left sides		.599				
1 1 5 Body part connections: upper and lower body		.584				
1 5 1 Stamina		.579		.443		
1 2 4 Levels in space: access to low, medium, high levels		.571			.387	
1 5 2 Strength		.566		.448		
1 1 8 Sequencing of body parts in movement		.555		.388		
1 2 2 Movement planes: access to vertical, horizontal, sagittal planes		.537		.395	.349	
1 3 1 Shape Flow		.516				
1 4 6 Effort phrasing: access to effort phrasing, coming and going of effort		.500			.357	
1 1 2 Activation of body parts: upper, lower body		.490				
1 1 0 Control of movement succession		.450	.365			
1 1 3 Activation of body hemispheres: left, right sides		.443		.323		.393
1 1 1 Use of breath to support movement: depth, rate, shape of breath	.366	.395				
5 1 10 Appropriate physical connection or contact with others			.825			
5 1 8 Appropriate use and reception of touch			.801	.306		
5 1 7 Appropriate response to offer of social connection			.799			
5 1 9 Appropriate initiation, sustainment, and release of social connection			.799			
5 1 4 Appropriate use of personal space in relation to others, Including body boundaries			.777			
5 1 3 Comfort in proximity to others			.735			
5 1 0 Appropriate give and take in relationship, turn-taking			.732			
5 1 6 Appropriate eye contact, focus or gaze			.677			
5 1 2 Socially acceptable response to emotions of others			.658			
1 1 10 Synchrony of movement with others			.620			
6 1 3 Resonance: sense of felt unity with music, partner or other stimulus			.561		.316	.386
4 1 1 Attention to activity			.529	.311		
1 2 5 Managing body boundaries in space		.309	.482	.449		
4 1 2 Energy attuned appropriately to activity		.443	.481	.395		.347
5 1 5 Emotional connections with others			.439			
3 2 1 Expression of feelings and emotions appropriate to current situation, indicating adaptive coping			.333	.585		
4 3 4 Bodyful sense of a positive future displayed	.355			.563		
2 2 2 Sense of belonging to a shared cultural heritage experienced				.536		
1 2 3 Spatial intention: mover identifies and uses directions or points in space		.390		.523	.416	
1 4 2 Space: access to direct/indirect space efforts				.498	.457	
4 1 3 Indication of preferences and choice-making				.498		.372
1 2 1 Kinaesphere: access to near, mid, far reach space		.386		.459	.378	
3 1 2 Authentic expression of own feeling or emotional states	.304			.452		.320
5 1 12 Sense of belonging, connection and contribution experienced			.410	.446		
4 1 4 Independent initiation of an action or activity				.396		.366

(*continued on next page*)

Table C1 (*continued*)

Items	Components					
	1	2	3	4	5	6
4 2 1 Sense of enthusiastic anticipation evident			.320	.384		
3 1 6 Sense of positive body image	.319			.380		.319
1 4 3 Time: sudden/sustained time efforts					.650	
1 4 1 Weight: access to active and passive weight efforts		.435			.636	
2 1 3 Making an aesthetic decision					.624	
1 4 4 Flow: access to bound/free flow efforts		.383			.602	
1 4 5 Effort combinations		.451	.322		.587	
1 3 2 Directional: access to directional shaping					.578	.333
2 1 2 Experience of aesthetic enrichment					.572	
2 1 1 Creativity expressed		.335			.465	.376
3 1 4 Access to playfulness						.763
3 1 3 Expression of fun, pleasure, enjoyment					.306	.667
4 1 5 Leading, taking ownership of an activity		.330		.416		.571
3 1 7 Sense of confidence in self		.336				.525
1 1 9 Self-synchrony		.382		.342		.402

Note. Extraction method: Principal components, Varimax rotation, Kaiser normalization. Factor loadings above.30 are presented; whereas 18 dimensions would have resulted from using the Kaiser-Guttman criterion, on inspection of the 18-factor solution we found that it often yielded one-item solutions for factors, and since the slope clearly approached the x-axis asymptotically from the sixth item on, we decided on the extraction of six factors. Using the emergent dimensionality from the exploratory factor analysis yields the following dimensions (in the order of variance explanation): **1 (New) Psychological Dimension** This new dimension describes *reflective capacity* – containing *cognition, communication, integration,* and *emotion perception* items) – a bio-psycho-social integrative dimension containing items from domains 3, 4, 5, 6 (3.1, 4.2, 4.3 + 5.2 + 6.); **2 Physical Dimension**: This dimension contains most items of Domain 1: Physical, except for the *effort items*, which loaded on the emotion domain but the second-to-highest load on 2 Physical; items 1.1 (synchrony) and 1.6 (resonance) went into 3 Social; **3 Social Dimension**: This dimension contains most items of the original social dimension, except the communication items (5.2), and with the additional items synchrony (from 1.1) and resonance (from 1.6). **4 Emotional Dimension:** This dimension contains most items of the original emotion dimension, minus two items on emotion perception (EMO-INT), which went into the new psychological dimension. It thus reflects more of the expressed emotions side than in the original scale. **5 Cultural-Aesthetic Dimension**: This dimension is comprised of three original cultural items (too few for a reliable subscale, but fine, when separating items with multiple adjectives into single adjective items; dimension is crucial to effects of DMT/CATs, needing development). **6 (New) Integration Dimension** The new integrative dimension is comprised of mostly integrated activity-related items of cognitive and emotion domain of the DOF (immersion into play and leading; carried by ownership of activity/agency); it could be called '*Integrated Behaviour Dimension'* (play, lead, activity items), but yet there is also the ownership of action aspect, which is more of an attitude item, reflecting experienced authenticity (Domains 4.1, 3.1, + 4.2). A new psychological dimension emerged as the main dimension comprised of cognitive-emotional items from four original domains; dimensions 4 and 5 need further development; one may argue that the new integration dimension 6 could be part of the new dimension 1: Psychological (reflective capacity), however if forced to five factors the items of the new integration dimension 6 distribute into other factors; these items thus form an independent factor with a focus more on integrated behaviour, embodiment, agency/activity, which also comprise core therapeutic factors of DMT/CATs in general (DeWitte et al., 2021).

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