

Hallucinations and the meaning and structure of absorption

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Absorption refers to the hypothesized propensity for experiencing all-encompassing episodes in which one's attention is so strongly engaged in an activity or experience that they lose awareness of their surroundings (1, 2). It is typically indexed using the *Tellegen Absorption Scale* (TAS) (1), which was subsequently modified to improve its psychometric properties (2). This scale has been used to demonstrate that absorption is a reliable predictor of hypnotic suggestibility (2, 3), hallucinations (4), and subjective responses to psychedelics (5). Continuing in this tradition, Luhrmann and colleagues (6) report a robust correlation between TAS scores and the hallucination of perceiving the presence of another person or entity in the absence of objective evidence for their physical presence. This study nicely builds upon previous research showing that absorption predicts the disposition to experience a sensed presence (4) by documenting this association in multiple regions and cultures. The authors interpret this to indicate that sensed presence experiences are associated with "an immersive orientation toward inner life" (6), that closely mirrors Tellegen's (1) original conceptualisation of absorption.

Despite the numerous strengths of this study (6), interpretation of this correlation is clouded by the measurement and meaning of absorption. Although the authors provide example TAS items in framing their interpretation, they did not acknowledge that this scale includes two items that measure the tendency to sense a presence, which comprise a factor in this scale (2) (**Figure 1**), thereby rendering the results somewhat circular. Insofar as sensing another's presence is not a cardinal feature of absorption in an activity or one's own mentation, the inclusion of such items on the TAS raises deeper questions about what this scale is measuring.

Tellegen has offered three distinct interpretations of absorption (**Table 1**). However, there has been almost no construct validation research seeking to formally verify or discriminate between these interpretations. Problematically, the factor structure and item content of the TAS does not clearly align with any of them. Rather, this scale comprises five correlated factors representing different predispositions to imaginative experiences and unusual perceptual states (**Figure 1**). Whereas some factors are commensurate with the hypothesized absorption trait (e.g., imaginative involvement), others are not (e.g., sensed presence, synaesthesia). Indeed, some researchers have interpreted the TAS as indexing suggestibility (4). Given this psychometric ambiguity, others have rejected this scale in favour of a more item-congruent index (7) of phenomenological

detachment (intense engagement in an experience resulting in reduced exogenous awareness), a form of dissociation (8), which is among the most reliable predictors of hallucinations in clinical and non-clinical samples (9).

Table 1

Interpretations of the absorption trait and the Tellegen Absorption Scale (TAS)

Interpretation	Examples
Absorption in experience	“total attention involving a full commitment of available perceptual, motoric, imaginative and ideational resources to a unified representation of the attentional object” (1), p. 274
Surrender of an instrumental set and adoption of an experiential set	Instrumental set: “active, realistic, voluntary and relatively effortful planning, and decision making and goal directed behaviour.” Experiential set: “effortless, non-volitional, deep involvement with the objects of consciousness” (10), p. 222
Restructuring of the phenomenal self	“the capacity for marked restructuring of one’s phenomenal field, especially the self and its boundaries” (Tellegen, 1992, as cited in (2))

MODTAS factor	Representative item
Imaginative involvement	While watching a movie, a TV show, or a play, I become so involved that I forget about myself and experience the story as if it were real and as if I were taking part in it.
Aesthetic involvement in nature	I like to watch cloud shapes in the sky.
Synaesthesia	I find that different odours have different colours.
Altered states of consciousness	I can step outside my usual self and experience an entirely different state of being.
Sensed presence	I somehow feel the presence of someone who is not physically there.

Figure 1. Factor structure and representative items of the Modified Tellegen Absorption Scale (MODTAS), based on (2).

All of these interpretations are viable and worth considering. However, given the scarcity of basic construct validation research on the TAS, and bearing in mind the phenomenological complexity of its item content, this scale does not provide a clear theoretical vehicle within which proneness to hallucinations can be explained. It will be imperative for future research on absorption to undertake a renewed line of research to clarify what this scale is measuring.

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