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Validating PPAT's symbolic meanings of emotional and cognitive functioning among children

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ABSTRACT

The present study inquired into the symbolic content of PPAT drawings (Gantt, 1990) of children age 5–6.5 years. An innovative scoring system (SC-PPAT/c: Symbolic Content in PPAT/children: Bat Or et al., 2014) was developed for scoring symbolic aspects in PPAT as related to the drawn objects in the drawing – person, tree, and apple – as well as their inter-relationships. Specifically, this study explored correlations between PPAT's symbolic content with cognitive (executive functions) and emotional behaviors, self-potency, and motivation of 126 children who were measured by valid tools, respectively: four BRIEF scales (Gioia, Isquith, Guy, & Kenworthy, 2000), three CBCL scales – Child Behavior Check List (Achenbach, 1991), CAMP – Child Adaptation and Measure of Potency (Lev-Weizel, Besser, & Laish, 2005); and the CMS: Children's Motivation Scale (Gerring et al., 1996). The SC-PPAT/c was found to be a reliable tool in terms of inter-rater reliability (Intraclass Correlation Coefficient range $r = .785–.969$) and valid in terms of significant associations with cognitive and emotional aspects. Significant negative correlations were found between low cognitive executive functions and the degree the person was drawn as being active in the picking process ($r = -.259$, $p < 0.01$), with trunk inclines toward the person ($r = -.283$, $p < 0.01$), and with degree of success in the picking process ($r = -.210$, $p < 0.05$). Significant and meaningful gender differences were found in regards to the relation of PPAT with all validity criterion variables. For example, while a positive strong correlation was found between girls' aggressiveness and the strength of the tree $r = .363$ ($p < 0.01$), a negative correlation was found between boy's aggressiveness and the quantity of apples on the tree $r = -.392$ ($p < 0.01$). Furthermore, while boys' PPAT was related to motivation, girls' PPAT was related to self-potency. The discussion deals with the possible meanings of the current results, especially in regard to gender differences in PPAT drawings. Replication studies using clinical groups and samples from different cultures will be needed to assess the generalizability of the results and the diagnostic potential of the SC-PPAT/c with clinical populations.

Introduction

Long before children express their thoughts and feelings into words, they can express them in drawings (Koppitz, 1968). Children's drawings can be used as windows into their minds in terms of their developing cognitive competence (e.g., Piaget & Inhelder, 1956) as well as their emotional experiences, for example, attachment security (Kaplan & Main, 1986). Clinicians use children's drawings as a projective measure to aid in the interpretation of children's subjective thoughts and feelings. This phenomenon stems from the projective hypothesis in psychology, according to which free-format responding to ambiguous stimuli would encourage the expression of personal meanings, feelings, and behavior (Frank, 1939; Murray, 1938). Recent reviews of projective instruments, including projective drawings, have discussed alternative conceptualization for the projective dynamic and identified the provocative aspect of those instruments as a more significant factor (McGrath, 2008; McGrath & Carroll, 2012). Specifically, these tools are performance-based; the style of responding to the stimuli might represent the behavior of interest (McDowell & Acklin, 1996). McGrath and Carroll (2012) recommended using an alternative terminology for projective instruments, *broadband implicit techniques (BITs)*.

This terminology is compact yet captures several key features of BITs: They are intended to access multiple information channels, they potentially access automatic or poorly self-observed mental activities that contribute to social identity, and they are

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primarily data-gathering techniques rather than standardized tests. (McGrath & Carroll, 2012, p. 333)

The art therapy profession is rich with BIT instruments for assessment and interventions purposes; one of the most researched is the PPAT: Person Picking an Apple from a Tree (Gantt, 1990). Since the PPAT task has the potential to access multiple information channels, it can serve as a vantage point for these channels: representations of the self in an action, a depiction of a triangular relationship between three objects (tree, person, apple), goal-reaching representations, and cognitive abilities reflected via problem-solving aspects. Since the subject of the PPAT is harvest accomplishment, it can also provoke issues of self-efficacy and motivation. The three objects in the drawing might tap into early triangular interactions (mother–father–baby), that is, three persons (PPP) (Fivaz-Depeursinge, Lavanchy-Scaiola, & Favez, 2010). According to Fivaz-Depeursinge and Corboz-Warnery's (1999) observations on triads, there are four types of alliances: a cooperative alliance, which is harmonious with positive climate and closeness, yet has clear boundaries between the parties; a stressed alliance, which holds cooperation which requires fairly hard work on the part of the members; a collusive alliance, in which, although the parents are trying hard, relatedness is disturbed by the parents struggling with each other and interfering in each other's interaction with the baby; and finally, a disordered alliance, in which interaction appears ambiguous and confused, with non-participation of the infant. PPAT's three objects might also reflect different introjected "alliances" ranging between harmonious (for example, when the person is active, raising a hand toward the apple with a tree is helpful because it has many apples) to non-mutual (for example, when the drawn person is passive or the tree trunk inclines away from the person).

To date, the PPAT has been studied mainly through the FEATS scoring system (Gantt & Tabone, 1998), which measures global/formal art elements that emphasizing the way people draw the PPAT more than the content they draw (e.g., Rockwell & Dunham, 2006). However, it can be assumed that PPAT's symbolic content also contains valuable information about the individual who drew it. Some of the research has addressed PPAT's content, for example, Rollins (2005) used the PPAT as a method to promote communication for children with cancer. However, Rollins's study had two limitations: the heterogeneous age group of the sample and the formulation of PPAT's symbolic-interpretations mainly through the clinical comments of art therapists rather than by a reliable rating system. The current research's objective was to explore symbolic content of the PPAT in a quantitative paradigm within a large-scale sample from a homogeneous age group. Since the subject of a PPAT drawing is task fulfillment, it can evoke diverse mental representations, as well as reflect cognitive abilities. The main purpose of this study was to investigate the links between pictorial symbolic contents of PPAT with cognitive and emotional aspects: problems in executive functions, emotional problems, self-potency, and motivation.

Executive functions

Executive function (EF) is an umbrella term for cognitive processes that have been broadly and variously defined. Ozonoff, Pennington, and Rogers (1991) described EF as "the ability to maintain an appropriate problem-solving set for attainment of a future goal" (p. 1083). EFs include behaviors such as planning, impulse control, inhibitions, monitoring, organizing, and flexibility of thought and action.

In a recent analysis of the same sample used in the current research, significant correlations were found between two EFs, namely planning and organizing and initiating, with FEATS' problem-solving scale (Bat Or, 2014). Specifically, children's ability to represent a realistic picking process in which the person is depicted in action is apparently a developmental cognitive ability that presumably rests upon these EFs. The present study will analyze whether children's EFs correlate with additional content aspects in the PPAT drawings.

Emotional behaviors

Children's drawings serve as a mirror to their emotional realm and as a medium of communication (Bombi, Pinto, & Cannoni, 2007). A symbolic approach to children's drawings is widely used in therapeutic settings, whether in psychoanalysis (e.g., Winnicott, 1953) or art therapy (e.g., Naumburg, 1947). However, this approach has not received rigorous empirical support (for a review see Thomas & Silk, 1990). The present study will empirically explore PPAT's symbolic content as related to emotional-problem behaviors as measured by parental self-report. Since behavioral-emotional difficulties derive from close relationships, especially with a child's primary caregivers (Karen, 1998), PPAT drawings, which consist of three-object relationships could assist us in shedding light on children's experiences in these respects. Specifically, parents were asked to report about their children's aggressiveness, anxiety, and social-problems through the CBCL (Achenbach, 1991).

Children's self-potency

As an aspect of health and an individual's self-resource, self-potency has hardly been researched in a systematic way (Caston, 2011). Potency was defined by Ben-Sira (1985) as a construct that entails three aspects: (a) an individual's self-efficacy (Bandura, 1982), which means an individual's belief in his or her ability to complete tasks and to achieve goals; (b) self-locus of control – the belief that one can control events (Rotter, 1966); and (c) perception of the social environment as meaningful for the individual and as a source for support when facing challenging demands. To recap, a sense of self-potency indicates a sense of capability, both as a competent individual and as connected to a supportive social network that could provide assistance in goal-reaching endeavors. Self-potency could thus be seen as one of the protective factors for children's successful adaptation. There are only a few measurement tools for assessing preschoolers' self-potency, most of them verbal (e.g., LSCT: the Learner Self-Concept Test; DiLorenzo, 1975). PPAT drawings were recently found related to young adults' self-efficacy (Eytan & Elkis-Abuhoff, 2013) when high levels of self-efficacy were associated with the problem-solving scale as measured by the FEATS (Gantt & Tabone, 1998). The present study was sought to explore whether children's self-potency is related with unique content in their PPAT drawings, such as different degrees of picking success.

Children's motivation

Motivation is one of the central issues researched empirically in Self-Determination Theory (SDT) (Deci & Ryan, 1985). SDT differentiates between distinct subjective experiences and fulfillment of activities. Specifically, people who appear to be motivated to engage in an activity in the sense of "wanting to" feel autonomous and are described as experiencing "self-determined" motivation. According to Deci and Ryan (1985), humans have an innate need for such autonomy and come into the world with curiosity and agency to fulfill it. However, some will engage in the activity with a sense of imposed coercion. These individual do not feel autonomous, but rather controlled. Research has demonstrated that children's motivation affects their achievements in many life domains, such as in the academic arena (for a review, see Wigfield, Eccles, Schiefele,