Infant Behavior & Development 34 (2011) 434–442

Contents lists available at ScienceDirect

Infant Behavior and Development

The stability of mastery motivation and its relationship with home environment in infants and toddlers

Pei-Jung Wang[a], Ai-Wen Hwang[b], Hua-Fang Liao[e,*], Pau-Chung Chen[c], Wu-Shiun Hsieh[d]

[a] School and Graduate Institute of Physical Therapy, College of Medicine, National Taiwan University, Taipei, Taiwan
[b] Graduate Institute of Early Intervention, College of Medicine, Chang Gung University, Tao-Yuan, Taiwan
[c] Institute of Occupational Medicine and Industrial Hygiene, National Taiwan University College of Public Health, National Taiwan University, Taipei, Taiwan
[d] Department of Pediatrics, National Taiwan University Hospital, Taipei, Taiwan
[e] School and Graduate Institute of Physical Therapy, College of Medicine, National Taiwan University and Physical Therapy Center, National Taiwan University Hospital, No. 17, 3rd Floor, Xuzhou Rd., Zhongzheng District, Taipei City 100, Taipei, Taiwan

ARTICLE INFO

Article history:
Received 18 May 2010
Received in revised form
23 December 2010
Accepted 15 April 2011

Keywords:
Social environments
Mastery motivation
Forecasting
Child development
Temperament

ABSTRACT

Mastery motivation (intrinsic drives to explore and master one's environment) is a key developmental element. The aims of this study were to investigate (1) the stability of mastery motivation between 2 and 3 years of age for two genders; and (2) the associations between early home environment and toddlers' mastery motivation in children with typical development.

Methods: Data of 102 children developing typically from a birth cohort study at Northern Taiwan were analyzed in two parts: (1) stability part: mastery motivation of children were measured at 2 and 3 years of age; (2) environment part: child–parent dyads were assessed from birth, 4 months, 6 months, and 2–3 years of age. Outcomes variables were measured at ages 2 and 3 years by the Dimension of Mastery Questionnaire-17th version. Main predictive variables were measured by Home Observation for Measuring Environment Inventory (HOME) to collect data of the qualities of home environment at 6 months and 2 years; by the Revised Infant Temperament Questionnaire to obtain 4-month activity levels; and by the Comprehensive Developmental Inventory for Infants and Toddlers to obtain 2-year developmental quotient (DQ).

Results: There was moderate stability of mastery motivation from 2 to 3 years, and girls' stability was higher than boys'. 6-Month HOME rather than 2-year HOME measures were positively and significantly correlated with instrumental mastery motivation even when controlling for gender, activity level, and DQ.

Conclusion: Mastery motivation had moderate stability during the toddler period. The quality of home environment in infancy appeared to have a significant impact on toddler's mastery motivation. To promote mastery motivation, caregivers should provide better quality of home environment for infants/toddlers during the very early years.

1. Introduction

Mastery motivation is defined as a multifaceted, psychological force to stimulate the child's attempt to master the tasks that are moderately challenging for him or her (Morgan, MacTurk, & Hrncir, 1995). Children's mastery motivation is also

* Corresponding author. Tel.: +886 2 33668136; fax: +886 2 33668161.
E-mail address: hfliao@ntu.edu.tw (H.-F. Liao).

0163-6383/$ – see front matter © 2011 Elsevier Inc. All rights reserved.
doi:10.1016/j.infbeh.2011.04.005

a force that energizes, directs and sustains goal-directed behavior (Gilmore & Cuskelly, 2009) and may be related to their developmental outcomes, such as cognitive, language, adaptive competence and physical activity (Haverly & Davison, 2005; Jennings, Yarrow, & Martin, 1984; Messer et al., 1986; Niccols, Atkinson, & Pepler, 2003; Pipp-Siegel, Sedey, VanLeeuwen, & Yoshinaga-Itano, 2003; Yarrow et al., 1983). Therefore, understanding its development over time and the factors that influence it, are important.

1.1. Construct of mastery motivation

Mastery motivation is manifested in various behaviors as the child develops (Glenn, Dayus, Cunningham, & Horgan, 2003). The construct of mastery motivation can be measured by two indicators in three domains. The two indicators are: (1) instrumental mastery motivation which is represented by persistence, the duration of goal-directed behavior; and (2) expressive mastery motivation which is referred to as pleasure or positive affect during or after goal-directed behavior (Morgan et al., 1995). The three domains are object (children's attempt to master toys), social (children's attempt to interact with others), and gross motor tasks (children's attempt to master physical skills).

1.2. Assessment tools of mastery motivation

Three types of measures of mastery motivation in infants and toddlers have been developed, including: challenging structured tasks, free play, and the Dimensions of Mastery Questionnaire (DMQ) (MacTurk, Morgan, & Jennings, 1995). The individualized, structured task measures object (cognitive) mastery motivation by observing the child's behavior in manipulating three types of tasks (puzzles, shape-sorters, and cause-effect tasks) that are moderately challenging for that child (Morgan, Busch-Rossnagel, Maslin-Cole, & Harmon, 1992; Yarrow et al., 1983, 1984). As proposed by Morgan et al. (1992), instrumental and expressive mastery motivations are rated by counting numbers of task-directed behaviors and positive affect for 4 min. The free play is conducted by providing children with one set of toys for 15 min. The instrumental mastery motivation is indicated by duration and quality of play behavior (Jennings, Harmon, Morgan, Gaiter, & Yarrow, 1979; MacTurk, Vietze, McCarthy, McQuiston, & Yarrow, 1985). For young children, the DMQ is an adult report questionnaire assessing mastery motivation by having a parent rate his/her perceptions of the child's behavior in mastery contexts (Gilmore, Cuskelly, & Purdie, 2003; Glenn et al., 2003; Majnemer, Shevell, Law, Poulin, & Rosenbaum, 2010; Morgan, Busch-Rossnagel, Barrett, & Wang, 2009). The DMQ provides data not only limited to the object mastery motivation and expressive motivation, but also to the persistence in gross motor and social interaction tasks. Although the structured tasks or free play may be more objective than DMQ, they can only provide limited information related to mastery motivation because researchers observe and rate children for only a small amount of time in a single setting. The DMQ might be affected by parents' perceptions; however, parents have the opportunity to observe a child over a longer period of time and in various settings. In addition, the DMQ is quicker and easier to use than more complex behavioral assessments. Therefore, we used the DMQ to measure mastery motivation in the present study.

1.3. Stability of mastery motivation

The stability of mastery motivation in early life is inconclusive from the results of previous studies. While two previous studies showed that mild stability of object persistence occurs from 6 to 12 or 14 months of age (Banerjee & Tamis-LeMonda, 2007; Yarrow et al., 1983), another study found no significant correlation between 12- and 20-month-old on mastery motivation (Frodi, Bridges, & Grolnick, 1985). Besides, the stability of mastery motivation might be affected by gender, age, type of tests or tasks used to measure mastery motivation (Gilmore et al., 2003; Jennings et al., 1984). Jennings et al. (1984) showed moderate stability in persistence on a cause–effect task from 1 to 3 years of age in boys, but not girls. Gilmore et al. (2003) reported moderate stability on a shape-sorter task from 2 to 8 years of age in girls, but not boys. Regarding stability of expressive mastery motivation, poor stability from 12 to 20 months of age was revealed (Frodi et al., 1985). These inconclusive results might be partially due to the natural features of the mastery motivation across different phases of development. Barrett and Morgan (1995) proposed that explicit behavior characteristics of instrumental and expressive mastery motivation would change through the three phases, namely, birth to 9 months for the first phase, 10–22 months for the second phase, and 23–36 months for the third phase. For example, the instrumental mastery motivation in the first phase is manifested by awareness of the contingency between action and response, preference for novelty, and using familiar means to master the task. However, the instrumental mastery motivation in the third phase would be featured by persistence at moderately challenging tasks, planned attempts to master multistep tasks, and preference for tasks anticipated to be solvable. Therefore, stability of mastery motivation should be further investigated using the same test in the same developmental phase with separate gender groups to avoid possible confounders. Moreover, previous studies were limited to instrumental object mastery motivation: the single indicator of the specific domain in mastery motivation.

1.4. Relationships between mastery motivation and home environment

Another important issue of mastery motivation is its relationship with the environment (Busch-Rossnagel, Knauf-Jensen, & DesRosiers, 1995). Young children develop within family systems; the home environment is the most important social