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Development and Construct Validation of an Inventory for Assessing the Home Environment for Motor Development

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A contemporary view of early childhood motor development considers environmental influences as critical factors in optimal growth and behavior, with the home being the primary agent. However, there has been minimal research examining the relationship between motor development and the home. The present study addresses this gap with the goal of creating an innovative parental self-report instrument to assess the quality and quantity of factors (affordances and events) in the home that are conducive to enhancing motor development in children ages 18–42 months. Following initial face validity determination, expert opinion feedback and selective pilot testing, construct validity was examined using 321 Portuguese families. Factor analysis techniques were used to: (a) compare competing factorial models according to previous theoretical assumptions, and (b) analyze the fit of the preferred model. Of the five plausible models tested, the five-factor solution provided the best fit to the data. Reliability was established through the scale reliability coefficient with a value of .85. The findings of this study suggest that the Affordances in the Home Environment for Motor Development Self-Report *is a valid and reliable instrument to assess how well home environments afford movement and potentially promote motor development.*

Key words: affordances, assessment, early childhood

Contemporary research in child development suggests quite convincingly that an optimal level of development occurs with a stimulating environment and strong contextual support (Burton & Davis, 1992; Diamond & Hopson, 1998; Fischer & Rose, 1998; Lerner, 1996, 2002). Furthermore, these factors may have even more impact during the first years of life (Bradley, Burchinal, & Casey, 2001; Ramey & Ramey, 1998). Of the various factors comprising the environment, few would disagree that the home (representing the family) is a primary agent for learning and development. For the past 40 years, effort has been devoted to mapping the relations between the home environment and selected aspects of the child's development. Perhaps the most notable attempt in this area—the *Home Observation for Measurement of the Environment* (HOME) inventory by Caldwell and Bradley (1984)—has been used in numerous studies to examine environmental effects on cognitive and social development. Using the infant and toddler version of the HOME, Caldwell and Bradley proposed a home structure organized along six different dimensions: (a) responsivity of mother, (b) avoidance of restriction and punishment, (c) organization of the environment, (d) appropriate play materials, (e) maternal involvement, and (f) variety in daily stimulation. Interestingly, although the HOME inventory was not designed to test the relationship to child motor development, one of the most striking and consistent findings has been "availability of stimulating play materials were more strongly related to child development status than global measures of environmental quality such as SES [socioeconomic status]" (Bradley et al., 1989, p.217).

Although specific home environment and motor development characteristics have been examined (e.g. Abbot & Bartlett; 1999, 2000; Adolph & Avolio; 2000; Bober, Humphry, Carswell, & Core, 2001; Parks & Bradley, 1991), minimal information is available in relation to the

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multidimensional effects of the home on motor development. In a recent review, Abbott, Bartlett, Fanning, and Kramer (2000) concluded that, although the home environment is within the host of subsystems contributing to infant motor development, little research exists to examine this relationship. Furthermore, they strongly emphasized that, "a valid measure reflecting aspects of the home environment that support infant motor development needs to be created" (p. 66). Arguably, such an instrument could potentially enhance our understanding of the home's role on early childhood motor development. In addition, such an instrument could provide useful information in a wide variety of settings, including clinical research with applications to intervention and remediation. For example, medical professionals and social workers could use the instrument to assess the environment and then provide resources or recommendations to enhance the home's potential in maximizing development.

In this paper, we describe our efforts to develop such an instrument, tentatively titled *Affordances in the Home Environment for Motor Development Self-Report* (*AHEMD-SR*). Our starting premise, founded in selected propositions of ecological (affordance) theory (Gibson, E. J., 2002; Gibson, J. J., 1979), is that the home environment provides *affordances* conducive to stimulating motor development. Affordances are opportunities that offer the individual potential for action and, consequently, to learn and develop a skill or part of the biological system (Heft, 1997; Hirose, 2002; Stoffregen, 2000). Although the term affordance has been interpreted in several ways, ours is more general, as suggested by Gibson, "The affordances of the environment are what it *offers* the animal, what it *provides* or *furnishes*..." (1979, p. 127). In addition to the more obvious set of affordances, such as toys, materials, apparatus, and space availability, stimulation and nurturing by parents (and others) provides the additional component of *events*. We agree with Stoffregen (2000) and Hirose (2002) in that events offering the child opportunities for action can be affordances. Hirose stated, "Affordances are opportunities for action that *objects, events*, or places in the environment provide for the animal," (p. 104). We wish to point out that our intent or use of the term affordance does not ignore the reciprocity between organism and environment, which is frequently addressed in experimental work. However, because our intent was not to examine the precise perceptual-motor mechanisms involved, reciprocity was not germane to this study.

With the aforementioned in mind, we hypothesized that affordances are organized according to a common structure represented by specific stable dimensions of the home environment. In this paper, we report on the initial development of the instrument, the testing of the tool's construct validity by comparing alternative models, and, finally, the construct validity and reliability of the preferred model. The present goal is to create an innovative parental self-reporting research instrument to assess the quality and quantity of factors (affordances and events) in the home that enhance motor development for children ages 18–42 months. After establishing the instrument's validity and reliability, our long-term goals include: (a) tracking the relationship between *AHEMD-SR* scores and child motor development, and (b) increasing the cultural scope of the project by developing different language versions. Note that this project represents a formal collaborative between universities in the United States and Portugal, with much of the initial development completed while the first author was a research resident in the U.S.

Method

Initial Development of the Instrument

In addition to a review of theory associated with affordance (selected references noted earlier), creation of the inventory began with an extensive inspection of contemporary literature related to general assessment tools relevant to this project (e.g., the HOME, Bradley et al., 1989; Bradley, Caldwell, & Corwyn, 2003; Caldwell & Bradley, 1984; Mundfrom, Bradley, & Whiteside, 1993), developmentally appropriate play materials (e.g., Goodson & Bronson, 2003; U.S. Consumer Product Safety Commission, 2002), and selected studies of motor development and the home environment (e.g., Abbott & Bartlett, 1999, 2000; Abbott et al., 2000; Bartlett & Fanning, 2003). These initial efforts resulted in a 112-item list of environmental characteristics and family behaviors deemed theoretically indicative of potential opportunities (i.e., affordances) for promoting motor development in the home. The list was tentatively grouped into three subscales: Play Materials, Variety of Stimulation, and Physical Environment. Items were then grouped according to common content and age-related characteristics, leading to the elimination or collapse of similar items. Following this procedure, the instrument was sent to 15 established specialists (researchers, physical therapists, and occupational therapists) in infant and early childhood motor development for critical review of the instrument's basic components—categories and items. Their primary task was to comment on the motor affordance "potential" of the listed items and recommend deletion and addition to the list. These individuals were identified (and agreed to participate) from a list of recommendations from selected researchers whose published work was judged relative to this project.

With this feedback, which helped establish content validity, our research team then adapted the resulting draft to a parental self-report form. Seventy-five questions addressing home and family characteristics were tentatively written in a neutral manner and used affirmative questions. That is, questions were structured in an unbiased and affirmative (positive) manner. For example, "My child plays with other children as a usual and ordinary daily event," was used instead of "My child usually doesn't play with other children as a daily event."

Readability was set at an approximate fourth-grade reading level, which was established in consultation with an elementary school teacher specializing in language arts. As a general note, parents' reports have been described to be a sensitive, accurate and reliable source of information in a naturalistic environment (Wilson, Kaplan, Crawford, Campbell & Dewey, 2000). For example, validity for self-reporting the home environment has been established for a version of the HOME inventory; predictive values of 77% for ages from birth to 3 years and 68% for ages 3–6 years (Frankenburg & Coons, 1985). Reliability (test-retest) coefficients were 0.62 and 0.86, respectively, for age groups.

This first version of the *AHEMD-SR* was subsequently piloted with 15 U.S. families, representing a variety of ethnic, socioeconomic, and education levels. This was a convenience sample drawn from the university and local early childhood school network in the Bryan/College Station Texas community. Parents were asked to answer the survey questions while pointing out difficulties or making suggestions for corrections (e.g., readability, comprehension, cultural sensitivity). In addition to written feedback, 7 parents from the sample volunteered to be interviewed; their remarks were used to clarify the difficulties and corrections suggested. In the process, the vocabulary, syntax, and rating scale were modified. This resulted in the current version of the *AHEMD-SR*, comprising one section on Child and Family Characteristics (11 items), and three on home environment characteristics and affordances: Physical Space (PS; 17 items), Daily Activities (DA; 15 items), and Play Materials (PM; 28 items). As noted in the example shown in Figure 1, three types of questions: simple dichotomic choice, 4-point Likert-type scale, and description-based queries were used. When appropriate, pictorial examples of the general classification were provided and noted by parents as useful in identifying available categories and specific items.

Given the nonexistence of instruments measuring a similar construct, we establish the concurrent validity of the self-report using a direct observation measure of the home (Anastasi & Urbina, 1997). That is, an external observer (one member of the research team) assessed 10 homes using the same inventory within 1 week of the parent's self-report. Pearson's product-moment correlations between the self-reported and observed values for the three sections on the inventory were .98 for the PS section, .97 for DA, and .86 for PM items, with a value of .93 for the total scale. These results provided preliminary support for use of the self-report version as a valid instrument for measuring the criterion.

Simple dichotomic question:

	Yes	No
Do you have an outside play area for your child(ren)?	___	___

Likert-type scale question

On a typical day, how would you describe the amount of awake time your child spends free to move in any space of the house?

No time ___ Very little time ___ Some time ___ A long time ___

Description-based question

Play materials used for gross movements with the arm and legs (throwing, catching, kicking, rebounding, striking, etc) Bats, Baseball Gloves, Throwing Targets, etc.

Examples are:

How many of these toys do you have in your house?

None ___ One ___ Two ___ Three ___ Four ___ Five ___ More than 5 ___

Figure 1. Examples of the three types of questions: simple dichotomic, Likert-type, and description-based.

As noted earlier, a long-term goal of the project is to increase the cultural scope of the instrument, for example, by comparing responses from different nations. In addition to the original English version, used to establish the basic items of the instrument, a Portuguese translation was created, which presents the focus of the present study. After initial translation by the Portuguese members of our research team, three Portuguese-speaking specialists in infant development examined the instrument. Of note is that differences between the original (English) version and the translated version were minimal. Minor differences noted were primarily in the pictorial examples of toys, play, and educational materials the researchers and Portuguese reviewers believed would be more familiar to the parents (e.g., stuffed toys, dolls, books).

Participants

Participants were drawn from local affiliates of Early Childhood Education in a moderate sized, primarily middle class, metropolitan community in northern Portugal. An initial sample of 350 volunteer families with children ages 18–42 months were asked to complete the *AHEMD-SR*. From this initial pool, 12 families did not return the inventory, and 17 were removed due to incomplete data sets. Thus, the final sample consisted of 321 families representing 36% (116) in the 18–24-month age group, and 64% (205) in the 24–42-month group. In regard to single versus two-parent homes, the percentages were about 4 and 96%, respectively. More precisely, our question concerned the number of adults living in the home: one or two or more. Another statistic of interest was the parents' educational level; 26% of the fathers had completed college or professional school, while 37% of the mothers had done the same.

Procedure

Directors of the early childhood centers gave each family a letter that explained the purpose of the study, asked for their collaboration, and provided consent forms. Approximately 1 week later, a package with the *AHEMD-SR* was sent to the home of the volunteer families with instructions to return them within the same week. A coded number was assigned to each family/child to keep the researchers naive to the results until all the testing procedures were completed. The investigators' university institutional review boards granted approval for this study.

Initial Exploratory Analysis. The 71 items initially used on the *AHEMD-SR* were grouped according to common content in 20 variables, representing expected markers of the meaningful characteristics of the home environment. Contribution of the original items to the assigned variable was checked for consistency using a correlation (bivariate) matrix. Ten items from the original pool were deleted due to one or more of the following: (a) not being positively correlated with the other items within the variable, (b) having a higher relationship to another variable, (c) showing no discrimination properties, and (d) exhibiting redundancy. Estimation of normality assumption of the measured variables showed a generalized deviation from the normal configuration. Although this type of distribution was expected, it suggested the need to use robust techniques to fit the data.

Examination of the Structural Validity. Given the data's departure from normality, an asymptotic variance-covariance matrix was computed to perform a robust Confirmatory Factor Analysis (CFA) in PRELIS 2.52 and LISREL 8.52 to test each alternative model (Jöreskog, Sörbom, Du Toit, & Du Toit, 1999). When using CFA, the chi-square statistic assesses absolute fit of the model, but it is sensitive to sample size, so a variety of fit indexes were needed to evaluate the fit of the specified model(s) (Jöreskog & Sörbom, 1993; Mueller, 1996). Absolute fit indexes used in our study included the Satorra and Bentler scaled chi-square (1994) with correction for non-normality, and adjusted goodness-of-fit index. Relative fit indexes included the normed fit index, the non-normed fit index, and the comparative fit index to test for the proportionate improvement in fit. For all these indexes, values over .95 and up to 1.0 were deemed indicative of a good fit. The root mean square error of approximation (RMSEA) and respective confidence intervals (CI) were used to evaluate how well the model implied reproduced the original variance-covariance matrix, keeping in mind that RMSEA values as low as .05 represent a good fit to the model. Finally, modification indexes (MI) were interpreted within the theoretical framework for each model, and alterations were made accordingly. Variables were considered for modification from their initial path to another factor or for deletion, when MI suggested that such procedure resulted in a significant improvement of the model fit.

To assess construct validity of the instrument, alternative explanatory models were tested using CFA. Five plausible models were fitted to the data, and their results were compared: a global one-factor model, a three-factor model, 2 four-factor models, and a five-factor model. All the alternative models, although entailing different parsimonious views of home affordance provisions, were drawn from a common theoretical perspective and, therefore, share the same type of path loadings associations. Model specifications were set to accommodate for an expected relationship between latent factors in the multidimensional models and independent measurement errors. The following is a description of the five models of fit.

1. *One-Factor Model.* This simplest model assumes a one-dimensional structure (i.e., that each home/family globally provides motor opportunities along a single continuum ranging from low to high levels).

2. *Three-Factor Model.* This model specifies that families organize their provision of affordances according to three different (although possibly related) dimensions: (a) the physical space characteristics and materials, (b) the variety of stimulation provided to the children, and (c) the type and number of play materials.

3. *Four-Factor Models.* Derived from the previous model, these two alternatives allow for the possibility that either the PS or the PM dimensions could be subdivided into two factors. Consequently, the first four-factor model (4Fa) assumed that homes' PS characteristics can be distinguished between Inside (IS) and Outside Space (OS); while the second model (4Fb) accounted for a different organization of Fine Motor (FMT) and Gross Motor Toys (GMT) within the home environment.

4. *Five-Factor Model.* Representing a complete factorial combination of Models 4Fa and 4Fb, this model assumed a different representation of IS, OS, Variety of Stimulation (VS), FMT, and GMT (i.e., when making decisions on providing motor affordances for their children, families tended to be stable and coherently organized them according to these five-factor/groups). This model, considered the most restrictive, was used initially to determine potential modifications to the original model specifications according to the theoretical predictions of this study. These analyses, fitting the data to the five-factor model, resulted in altering the path loading of one variable (Musical Materials) from FMT to GMT. It also dictated the elimination of Inside Surfaces due to low loadings and lack of interpretation for the alteration suggested by the modification indexes. This resulted in the final specification of the different models as noted in Table 1.

Checking for the necessary conditions to identify CFA models, our total number of observations (321) respected Guadagnoli and Velicer's (1988) recommendations that a sample size of 300 or more should be used to interpret a model solution such as ours. Due to the outcome that all the models, with the exception of the 2 four-factor models, were nested (i.e., each restricted model was a special case of the preceding one, obtained by constraining specific parameters), differences in chi-square according to the reduction in degrees of freedom could be used to judge the statistical significance of changes in fit between models (Jöreskog & Sörbom, 1993). The internal consistency of the instrument was estimated by the scale reliability coefficient (SRC; Raykov, 2001), the magnitude of its standard error (SE), and corresponding confidence intervals. Briefly, SRC is based on the correlations between the individual items or measurements that make up the scale, relative to the variances of the items.

Table 1. Specifications of the path loadings of the five different models

Variables	Models				
	5F Model	4Fa Model	4Fb Model	3F Model	1F Model
Outside surfaces	OS	OS	PS	PS	Affordances
Outside apparatus	OS	OS	PS	PS	Affordances
Inside space	IS	IS	PS	PS	Affordances
Inside apparatus	IS	IS	PS	PS	Affordances
Inside play space	IS	IS	PS	PS	Affordances
Play stimulation	VS	VS	VS	VS	Affordances
Freedom of movements	VS	VS	VS	VS	Affordances
Encouragement of stimulation	VS	VS	VS	VS	Affordances
Daily activities	VS	VS	VS	VS	Affordances
Replica toys	FMT	PM	FMT	PM	Affordances
Educational toys	FMT	PM	FMT	PM	Affordances
Games	FMT	PM	FMT	PM	Affordances
Construction toys	FMT	PM	FMT	PM	Affordances
Real materials	FMT	PM	FMT	PM	Affordances
Others	GMT	PM	GMT	PM	Affordances
Musical materials	GMT	PM	GMT	PM	Affordances
Manipulative materials	GMT	PM	GMT	PM	Affordances
Locomotor materials	GMT	PM	GMT	PM	Affordances
Body exploration materials	GMT	PM	GMT	PM	Affordances

Note. 1F = one-factor model; 3F = three-factor model; 4Fa = the first four-factor model; 4Fb = the second four-factor model; 5F = five-factor model; OS = outside space; IS = inside space; PS = physical space; VS = variety of stimulation; FMT = fine motor toys; GMT = gross motor toys; PM = play materials.

Results

Comparison Between Proposed Models

Table 2 presents the chi-square results and measures of fit for the five confirmatory models tested. The five-factor solution consistently revealed the lowest chi-square values, higher values for all fit indexes, and a RMSEA value below .05, therefore, portraying a good fit to the data for this particular model. Furthermore, when comparing the statistical significance in chi-square reduction for respective degrees of freedom, the five-factor solution showed an overall significant improvement in fit ($p < .001$), therefore, supporting the selection of a structure underlying the following five factors: OS, IS, VS, FMT, and GMT.

Model-Fit Assessment (Five-Factor Model)

After analyzing the solution that proposes a model of item organization according to the five related substructures (see Figure 2), we concluded that this model provided an acceptable association to the data structure. All fit indexes were over .90, the RMSEA was smaller than 0.05, and all factors were well defined by single path loadings. The standardized factor loadings varied in a range from .33 to .85 but revealed in every case a statistically significant t ratio ($p < .001$). The pattern of loading coefficients seemed to suggest that OS, FMT, and GMT emerge as robust dimensions of the home, while IS and VS showed a less (although significant) structured organization to the fitted data. The correlation matrix of the latent factors revealed a pattern adequate to the theoretical prediction, that is, significant values for all the combinations between factors IS, VS, FMT, and GMT and two significant associations of OS with IS and GMT. Furthermore, modification indexes and residuals analyses did not suggest any significant alteration to the initial model specification. In essence, these results indicate a good fit of this model solution to the sample data, thus, providing a reasonable representation of the underlying structure of motor affordances in the home.

The SRC (reliability coefficient) for the *AHEMD-SR* had a value of .85, with a SE of 0.028 and a 95% CI ranging from .80 to .91, which indicated a high consistency of the instrument to measure the construct of interest.

Discussion

From the results noted, the *AHEMD-SR* revealed promise in the potential to evaluate and discriminate among different home profiles according to their theoretically driven characteristics for motor development. These data revealed a common structured organization of potential affordances in the home environment comprising five latent factors: OS, IS, VS, FMT, and GMT, each of which represented a meaningful structure associated with the home, possibly resulting from the underlying decisions on how families provide specific environmental stimuli to their children. Although correlation values between factors could imply an overall degree of stability within each home, the better fit of the five-factor model on portraying home characteristics probably means that parent's decisions are not (or cannot) always be consistent across dimensions. This assumption complements the notion of individual differences in children that are likely between and within homes.

In addition to finding support for a common structure represented by a number of specific stable dimensions of the home environment, this study found that the *AHEMD-SR* is a valid and reliable instrument for assessing how well home environments afford movement and potentially promote motor development. It is our expectation that the *AHEMD-SR* has promise in address-

Table 2. Chi-square statistics, indicators of fit, and nested model comparison for the models

	Indicators of model fit								Nested models comparison (p values for difference in X^2/df)			
	df	X^2	NFI	NNFI	CFI	AGFI	RMSEA		1F	3F	4Fa	4Fb
1F	152	487.8	.88	.90	.91	.83	.083					
3F	149	372.0	.91	.94	.94	.86	.068		< .001			
4Fa	146	284.9	.93	.96	.96	.89	.055		< .001	< .001		
4Fb	146	320.3	.92	.95	.95	.87	.060		< .001	< .001		
5F	142	233.7	.94	.97	.97	.90	.045		< .001	< .001	< .001	< .001

Note. The two 4-factor models are not nested with each other; *df* = degrees of freedom; NFI = normed fit index; NNFI = non-normed fit index; CFI = comparative fit index; AGFI = adjusted goodness-of-fit index; RMSEA = root mean square error of approximation; 1F = one-factor model; 3F = three-factor model; 4Fa = the first four-factor model; 4Fb = the second four-factor model; 5F = five-factor model.

ing the statement by Abbott et al. (2000) recommending that "a valid measure reflecting aspects of the home environment that support infant motor development needs to be created" (p. 66).

So, what are the implications of this work? The anticipated contributions are to be found in the instrument's research and clinical applications. The outcome of this project has merit in enhancing our basic understanding the home environment's potential in optimizing children's motor development. Use of the *AHEMD-SR* has promise in providing insight into the specifics and relations between variety, type, and amount of affordances as influencing factors for motor development. For example, perhaps it is not the influence of a few types of affordances or the amount, rather it is the interaction between them; this instrument provides a way to view the home as a multifaceted setting. From our perspective, one of the most apparent applications of the instrument is as a research tool. As noted in the introduction, studies addressing the relationship between the home environment and infant motor development are sparse—application of the *AHEMD-SR* may stimulate such inquiry from a number of perspectives (i.e., perspectives that stretch beyond an isolated look at motor development). For example, earlier reports using the HOME inventories found that "availability of stimulating play materials were more strongly related to child development status than global measures of environmental quality such as SES [socioeconomic status]" (Bradley et al., 1989, p. 217). Use of the *AHEMD-SR* in some instances provides the collection of more specific data regarding movement affordances (compared to the HOME), which may clarify developmental outcome. As evidenced by a more recent study (Goyen & Lui, 2002), researchers are becoming increasingly interested in the longitudinal effects of the home environment on the motor development of normal and high-risk infants. This interest is prompted in part by the fact that infants born with low birth weight are at risk for motor dysfunction and delay (Case-Smith, 2000; Liebhardt, Sontheimer, & Linderkamp, 2000; Torrioli et al., 2000). Furthermore, underlying many studies of this nature is the suggestion

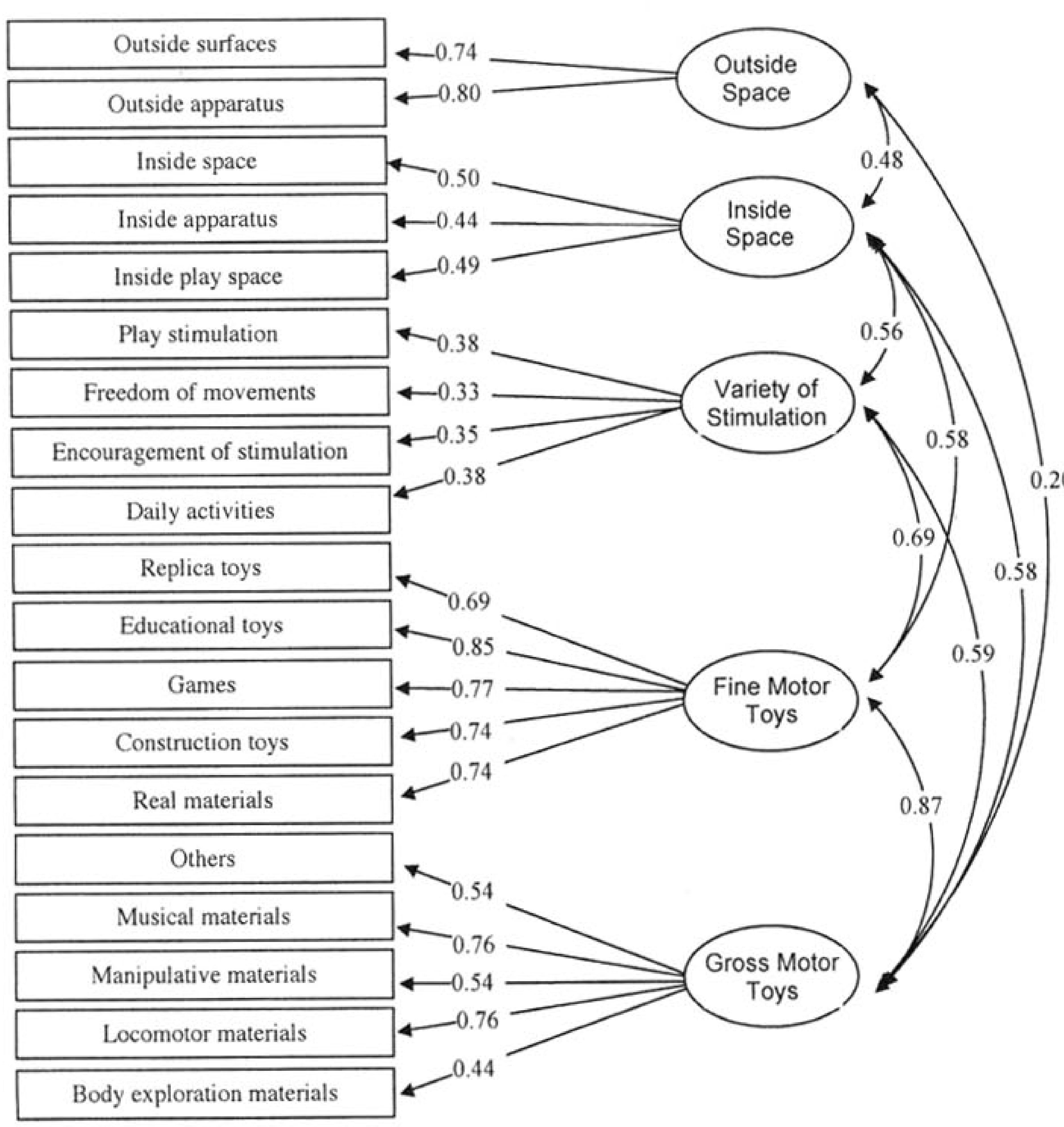

Figure 2. Path diagram of the confirmatory factor analysis with the completely standardized values for the five-factor solution (only significant values are shown for factor loadings and correlations between latent factors).

that motor development plays an integral role in cognitive and academic outcome (Becker, Grunwald, & Brazy, 1999; Bertenthal & Campos, 1990; Diamond, 2000; Thelen, Schoner, Scheier, & Smith, 2001).

By clarifying the relationship between elements in the home and motor development, the instrument could have clinical significance for early intervention. For example, homes of infants at risk could be assessed (screened) to determine or maximize appropriate intervention strategies. Such strategies may include home modification and parental education. Abbott et al. (2000) suggest that if therapists are to be effective, "an understanding of the physical and social home environment is necessary" (p. 66). Although we have not presented the instrument as such, with some modification it has potential as a general "best practice" document, given that most of the items were selected based on expert recommendations. Such a document may also appeal to educators and parents wishing to optimize the development of normal children.

In regard to possible expansion of this work, a next logical step is to delineate the relationship between specific aspects of the home and the child's level of motor development (i.e., by comparing the instrument's components—total score, subscales, and items—with an appropriate motor assessment tool). Complementing this is the need to expand the age range of the instrument. Given the trend toward early intervention, an *AHEMD-SR* for ages 3–18 months and perhaps one for 42–72 months (entering the school years) is warranted. Another appropriate question to address is the instrument's stability over time. For example, does change in the home overtime complement change in motor behavior? And, as noted earlier, an avenue of research of interest to many early childhood educators is a study of the interrelationships between home affordances that stimulate motor development and later academic performance.

In light of our long-term goal to increase the cultural scope of the instrument is the need for further validation in different settings and populations. There is little doubt there are differences in infant behavior among cultural groups around the world and subgroups within a country. It would be interesting to determine, for example, which factors and items from the *AHEMD-SR* remain stable across cultures. Common variables in investigations of this type include relationship to parental expectations, socioeconomic status (SES), child-rearing practices, parent education, and space. In our study, although we were careful to select a Portuguese sample comparable in SES and parent education to the pilot sample in the U.S., living space and child-rearing differences were probable. For example, Western European families in general are more likely to live in apartments or comparatively smaller single-family homes, compared to U.S. families; consequently, there may be a "space" affordance issue. However, as one would expect, within any cultural sample is wide range of variability in those factors.

In summary, the findings of this study suggest that the *AHEMD-SR* is a valid and reliable instrument for assessing how well home environments afford movement and potentially promote motor development. It is our expectation that using this instrument will open new avenues into understanding the multifaceted dynamics of the home environment.

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