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Measuring Developmental Outcomes in Autism Spectrum Disorder (ASD)

Michael Lamport Commons
Harvard Medical School

Dristi Adhikari
Dare Association Inc., Cambridge, Massachusetts

Sagun Giri
Pennsylvania State University

Michael Weinberg
Brandman University and Amego Inc., Attleboro, Massachusetts

Jeffery John Baran
Northeastern University

Eman Malik
Mount Holyoke College

The purpose of the study was to generate a behavioral-developmental scale and see how well it predicted performance in the participants diagnosed with Autism Spectrum Disorder (ASD). Forty-two children diagnosed with ASD were given a behavioral-developmental instrument, Autism Developmental Task Sequence (ADTS). The instrument was found to be a very good predictor of how developmentally difficult the task items were. The correlation between Order of Hierarhical Complexity (OHC) of the items and Rasch score was extremely strong, $r(43) = .892$, $p = .000$. The instrument was also found to be a very good predictor of performance. The mean stage of performance was $M = 4.26$, $SD = 2.36$. The age range and mean stage of performance of the sample did not line up with the age and stage distribution of normal population (Commons & Rodriguez, 1993). With the instrument, we were able to show the development sequence cross sectionally. This information is useful for knowing where to intervene and to measure effectiveness of intervention over a reasonable period.

Keywords: autism spectrum disorder, behavioral-developmental instruments, model of hierarchical complexity, Autism Developmental Task Sequence, infant autism

Autism spectrum disorder (ASD) is a developmental disorder characterized by (a) impaired social reciprocity and communication and (b) repetitive and stereotyped patterns of behavior. ASD starts developing with subtle signs in as early as infancy and continues to be a lifelong disorder. Experts believe that the difficulties are caused by a variety of conditions that occur either before, during, or after birth affecting brain development (National Institutes of Health, n.d). The most severe cases are marked by extremely repetitive, unusual, self-injurious, and aggressive behavior. The milder cases resemble personality disorder associated with a perceived learning disability.

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Michael Lamport Commons, Department of Psychiatry, Beth Israel Deaconess Medical Center, Harvard Medical School; Dristi Adhikari, Dare Association Inc., Cambridge, Massachusetts; Sagun Giri, Department of Education, Pennsylvania State University; Michael Weinberg, Brandman University and Amego Inc., Attleboro, Massachusetts; Jeffery John Baran, Department of Behavioral Neuroscience, Northeastern University; Eman Malik, Department of Psychology, Mount Holyoke College.

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Correspondence concerning this article should be addressed to Michael Lamport Commons, Department of Psychiatry, Beth Israel Deaconess Medical Center, Harvard Medical School, 234 Huron Avenue, Cambridge, MA 02138-1328. E-mail: commonsmlc@gmail.com

ASD is the fastest-growing severe developmental disability in the United States. On a recent data released by the Centers for Diseases Control, the prevalence of ASD was reported to be one in 68 children (one in 42 boys and one in 189 girls; National Institutes of Health, n.d.). Research has shown that early intervention improves outcomes of children with autism (MacDonald, Parry-Cruwys, Dupere, & Ahearn, 2014). There is a further need of instruments to determine how to identify which children will respond best to what specific behavioral therapy training and on what they are being trained. The development of such instrument is vital toward designing effective interventions and giving diagnostics.

In the study reported here, a developmentally based behavioral instrument, Autism Developmental Task Sequence (ADTS), is introduced. The instrument has been developed with the understanding of the difficulties the children and adults with ASD may face and how they may progress. The instrument covers all aspects associated with the development of individuals with ASD. The instrument is strictly created for conducting a behavioral study. That is, we are interested in the individual's ability to complete various tasks while avoiding making inferences. As a result, the questions in this instrument are completely task based. In addition to questions developed here, the instrument contains information from past research modified in the form of task as well as items from other instruments. This helps to better track the development of individuals with ASD (Brazelton & Nugent, 2011; Autism Center of Excellence, 2016). The expectation is that, with this instrument and diagnostics, progress of autistic children and adults can be tracked through the developmental stages of behavior. With the use of this developmentally based behavioral instrument, individuals with ASD can be diagnosed even as early as age of three months. Further, it is hypothesized that the instrument will be a good predictor of performance in participants with ASD. Moreover, the use of the instrument will be helpful in informing the health care providers on right interventions based on developmental sequence.

Model of Hierarchical Complexity

The instrument's structure is primarily based on the model of hierarchical complexity (MHC). The MHC is a nonmentalistic, neo-Piagetian, and quantitative behavioral development theory. It offers a standard method of examining the universal pattern of development. A fundamental assumption is that development proceeds across a large number of general sequences of behavior. These sequences exist in every domain, including, but not limited to, the mathematical, logical, scientific, moral, social, and interpersonal domains. The stages of the MHC have been shown to predict humans' "smartness" in the colloquial sense using the laundry and balance beam instruments (Featherston et al., 2016; Commons et al., 2008; Commons & Chen, 2014).

The different layers in a hierarchical sequence of task complexity are referred to as orders. The successful completion of a task of a given order is referred to as a stage. The order of hierarchical complexity assesses the predicted difficulty of behavior tasks (Commons, Gane-McCalla, Barker, & Li, 2014; Commons & Miller, 1998; Commons & Pekker, 2008; Commons & Richards, 1984; Commons, Trudeau, Stein, Richards, & Krause, 1998). The order of hierarchical complexity is an equally spaced unidimensional ordinal scale that measures difficulty independent of domain and content. The higher the order of hierarchical complexity, the more difficult the task. There are three axioms of the MHC. A higher order action (a) is defined in terms of task actions from the next lower order of hierarchical complexity, (b) organizes two or more less complex actions, and (c) is carried out in a nonarbitrary way (see Figure 1). It enables the examination of universal patterns of evolution and development (Commons, 2008). The MHC argues that it "accounts for the developmental changes seen in an individual person's performance on the task" (Commons, 2008). The argument for this is that, less complex tasks must be completed and practiced before tasks that are more complex. Moreover, tasks that are more difficult require higher stages of conceptual development (Commons, 2008).

The tasks in the instrument are also placed according to the MHC. According the MHC, every task contains a multitude of subtasks (Overton, 1990). When the subtasks are completed in a required order, they complete the task successfully. Similarly, in the instrument introduced in the paper, each task that the individual performed was scored according to the level of its complexity. The tasks in the instrument are between Stages 1 through 12 (see Appendix A). The higher the stage the task falls

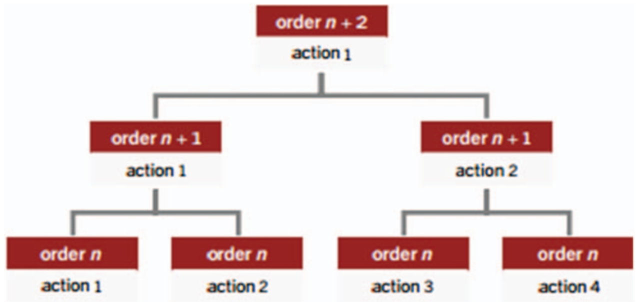

Figure 1. Task completion is a prerequisite for stage development. The higher order task action organizes two or more next lower order of hierarchical complexity. The Order of Complexity of the task is determined through analyzing the demands of each task by breaking it down into its constituent parts. The more demanding the task are, the more complex it is, and therefore the higher it is scored. Additionally, each question is a task, and a task is broken down according to the stages and the level of complexity. These new items are inclusive to all levels of task complexity in regards to development of ASD.

under, the more complex it is. Figure 1 illustrates task sequence.

Method

Participants

There were 42 children (29 males and 13 female) diagnosed with ASD who participated in the study (see Figure 2). Their age ranged from 0–6 months to 8 years and above (see Figure 3).

Observers and Raters of the Participant Behaviors

The professionals who worked directly with the children diagnosed with ASD answered questions about the participants' behaviors. These were teachers, mental health staff, supervisors, researchers and physicians. 42 observers and raters participated in the study. One observer and rater reported for each participant. To find such participants, various autism institutions were contacted and advertised on the Autism listservs (e.g., autism-list@usd.edu). Having such participants served two purposes. First, these centers have teachers, caretakers, supervisors and physicians who work on a daily basis with children and adults with ASD. As a result, they were able to report on the behavioral tasks that the children could or could not complete. Second, these people have contacts with the parents of children. The contact made it possible to get them to participate and get the parents' consent for the research.

Instrument

A new ADTS[1] was developed. The items were created from our experience with children with ASD diagnosis and our experience with the development with "normal" children. They also used existing developmental scales and adapted them to use with this population. With this instrument, the aim was to see the cross-sectional data on developmental progress in individual performance in a number of domains. All the questions in the instrument were task based. The questions were asked to be rated from a Likert scale of 1 (*never*) to 6 (*always*). The people who filled out the instrument answered through current observations and daily interactions with the child.

The instrument was aimed to do an in-depth analysis of the development of individuals with ASD. Therefore, we looked at the various domains associated with autism and other instruments that have been designed to help in the diagnosis of autism and where in the developmental sequence the children fell. Such instruments include the Brazelton scale and iPad app. In addition, the milestones documented by the foundation known as "Autism Speaks" were

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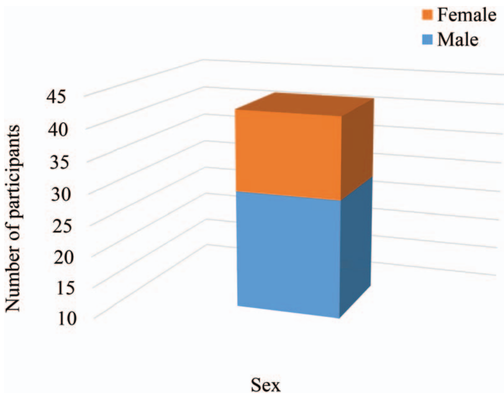

Figure 2. Sexual distribution of the participants.

examined. After putting the items from these scales in to behavioral-developmental form, they have also been incorporated in our instrument making it a multidimensional instrument.

The Brazelton scale (Brazelton & Nugent, 2011) also referred to as *Neonatal Behavioral Assessment Scale* is an instrument used to assess the infant's capabilities across different developmental areas. It describes how the baby integrates these areas as they deal with their new environment. The Brazelton scale is based on various key assumptions, one of them being that "babies communicate through their behavior, which is a rational language" (Brazelton & Nugent, 2011). Moreover, infants tend to respond to emotional cues around them and take steps to control their environment to get certain responses. This is important mentioning because one of the main symptoms of autism is the lack of ability to communicate. Thus, the scale through various tasks can assess the development of an infant and accordingly help diagnose the individual as well. Some of the various tasks conducted by the Brazelton assess their ability to control their motor system, to regulate their state and their ability to interact socially. *State* refers to the "levels of consciousness, which range from quiet to sleep to full cry" (Brazelton & Nugent, 2011). The infant's ability to control their state is important in enabling them to process and respond to information from her caregiving environment. More importantly, this scale conducts tasks to assess the social ability of the infant. Examples for the tests are seeing how an infant follows a red ball, a face, and voice (Brazelton & Nugent, 2011).

A significant amount of research has been conducted on the early signs of autism. The Autism Center for Excellence at the University of California at Santa Barbara discusses in detail possible indicators detecting autism at an early age. Our instrument has considered these and transformed them into task-based questions to assess the development in such areas. These symptoms encompass gesture abilities, commu-

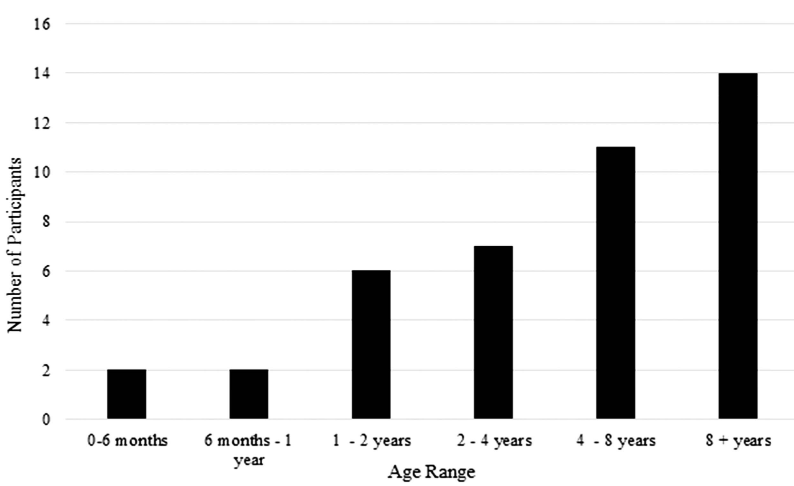

Figure 3. Age range distribution of the participants from 0–6 months to 8 years and above. The age range of the sample is on the *x*-axis. The corresponding frequency of the age range is on the *y*-axis.

nication abilities, and social interaction. To be more specific, the symptoms described are talking or babbling in an unusual voice, unusual sensory sensitivities, making unusual body/hand movements, having little enthusiasm to explore things, ability to point at things and point to request, ability in trying to gain attention, making minimum eye contact, ability in responding to name, showing joint attention, usage of gesture, and facial expressions.

Autism Speaks outlines and runs through the developmental stages from 3 months to 5 years. This outline shows how an autistic child may develop social, emotional and communicative skills. These are skills and domains that our instrument is designed to asses. It identifies the milestones that the child may achieve at a particular age and the progress the child makes. For example, by 7 months, the child can respond to their own name, and by a year start to imitating people.

The items in the instrument were developed using the MHC to determine their developmental difficulty. The domains and subdomains were also based on the MHC. The ADTS broke these domains down to get an understanding/analysis of these impairments and their developmental progress. Each items were scored for their order of hierarchical complexity (Commons & Miller, 1998; Commons & Pekker, 2008). Each task the individual performed was scored according to the order of hierarchical complexity. The tasks in the instrument were between Sensory or Motor Order 2 through Metasystematic Order 13. The higher the stage the task falls under, the more complex it is. Hence, simple tasks were followed by a more complicated one in order to build a sequence and follow the principle of MHC. For example, first task is “child is expected to smile when the person emerges from hiding behind hands while playing peekaboo.” Followed by “child is expected to laugh while playing peek a boo” and then the “child starts initiating the game.”

In each domain, the instrument’s items formed a task sequence. The tasks were based under the following domains: (a) social impairment (subdomains that include social referencing, and social and emotional); (b) communication impairment (subdomains that include response to joint attention, speech reception, speech production, and communicative intent); (c) repetitive and stereotyped behaviors (subdomains that include games, learns by modeling or imitation, cause and effect, and movement, functional play skills, or physical development); (d) cognitive awareness; and (e) sensory-motor skills (subdomains that include sensory or self-stimulatory behaviors, and sensory preoccupations with nonfunctional aspects of toys or objects). (See Appendix B for a full list of questions.)

Procedure

The professionals used an anonymous online survey. A code was designed to help follow up with the participants without knowing who they are and keeping their confidentiality. The code consisted of asking the first letter of their father’s and mother’s name, first letter of the birth town, and their month of birth in numbers.

The professionals were instructed to answer the questions on the basis of relatively current observations and daily interactions with the children. Lastly, certain tasks may have been difficult for the child to perform. For example, at the age of three months a child cannot perform a task that has an order of hierarchical complexity score of 8, according to MHC. In such cases, the raters and observers were asked to rate those tasks as 1. The people who filled out the instrument also reported on the behavioral task sequence that the children with autism could or could not complete while avoiding inferences.

As mentioned above, the people who filled out the instrument had to rate the items on a scale of 1 (*never*) to 6 (*always*). At the end of the survey, they were asked if they would like to be contacted for a follow up study.

Results

The purpose of the study was to generate a behavioral developmental scale for people with ASD. There are a number of steps to seeing how good the scale developed is. First are the descriptive statistics. Then a Rasch Analysis (Rasch, 1980) was performed. With the Rasch analysis, a number of questions can be answered. First, a Rasch analysis produces an additive interval scale. The raw data is converted into scales of Rasch scores that have equal intervals. By conducting a Rasch analysis, one gets whether a single scale is justified by the data.

This is called the test fit between the data and the model. It shows how unidimensional the fit is by looking at the infit errors. Infit errors greater than 2.00 indicate that the item did not fit on the overall single developmental scale. Second, where on the scale does each item fall. That tells how difficult the item is to perform. That results lets one know where that item lies developmentally relative to other items. Second, what is the range of scaled values between all variables for all participants. A Rasch analysis was performed for all the items together. Then a Rasch analysis was performed for each subscale as measured by items in a domain.

The results showed that the order of hierarchical complexity (a priori task difficulty) of the tasks was a significant predictor of how behavioral developmentally difficult the task items were. A Rasch analysis was run on the ADTS items (Rasch, 1980). The analysis yielded two scales: in Figure 4, the Rasch person score of performance is on the left and the Rasch scaled-item difficulty is on the right. The infit errors were in the acceptable range with only one item at the Sensory and/or Motor Stage II exceeding 2.0. The order of hierarchical complexity was almost perfectly in the right order. This shows that the scale of the test is unidimensional and the dimension being measured is obtained behavioral stage.

A linear regression showed that the prescored order of hierarchical complexity of the items strongly predicted the Rasch item difficulty scores, $r(43) = .892$, $p = .000$ (see Figure 5). The standard error was 1.289. The score of 0.892 indicates that the model explains most of the variability of the response data around its mean. A score of one indicates that the model explains all of the variability. Thus, a score of 0.892 indicates that the model is a good fit for the data.

Person behavioral stage of performance scores were computed for individual participants. The behavioral stage determinations were found using interpolation. The participants' stage ranged from Sensory and/or Motor Stage II to Concrete Stage 9 (see Figure 5). The mean stage of the sample was transitional from Sensory-Motor Stage 4 to Nominal Stage 5, $M = 4.26$, $SD = 2.36$. This is transitional from de-

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Figure 4. Rasch map of persons and items. The Xs to the left of the dashed line mark each person Rasch score, and the items Rasch scores are on the right. The letter abbreviations mark order questions. The number marks the sequential number of that item among items of the same order. SOM = Sensory and/or Motor Stage 2; CS = Circular Sensory-Motor Stage 3; SM = Sensory-Motor Stage 4; NO = Nominal Stage 5; SN = Sentential Stage 6; PO = Preoperational Stage 7; PR = Primary Stage 8; CO = Concrete Stage 9; AB = Abstract Stage 10; FO = Formal Stage 11; SY= Systematic Stage 12; ME = Metasystematic Stage 13.

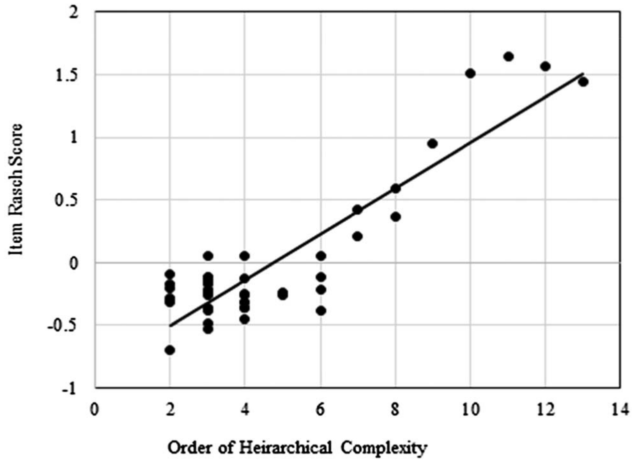

Figure 5. *Autism Developmental Task Sequence* regressed with the Order of Hierarchical Complexity (OHC). OHC is the Order of Hierarchical Complexity on the *x*-axis and the corresponding Item Rasch Score is on the *y*-axis. The Standard Error *S.E.* = 1.289 and $\beta(43) = .892$, $p = .000$. The figure shows that the OHC of the task is a very good predictor of how developmentally difficult the task items were.

veloping an understanding of concepts to forming a representation of these concepts. 33% of the sample started failing at Circular Sensory-Motor Stage 3. Only 7% of the sample went up to Concrete Stage 9 (See Figure 6). It is important to mention that participants could only move to higher stages after passing lower stages. High number of failure in lower stages resulted in lower number of participants' in higher stages.

The age and stage for the participants were much lower than the behavioral developmental stages found in a normal population (see Table 1 and Figure 7). The age of the sample ranged from 0–6 months to 8 years and above. Participants between ages 0–6 months had the lowest mean stage score of 2.5. This is transitional from Sensory and/or Motor Stage II to Circular Sensory-Motor Stage 3. The transitional stage from general motor movement to task action. The stage score went up with the increase in age range. However, for the participants ages 8 and above the mean stage score was 3.6. This is transitional from circular sensory-motor to sen-

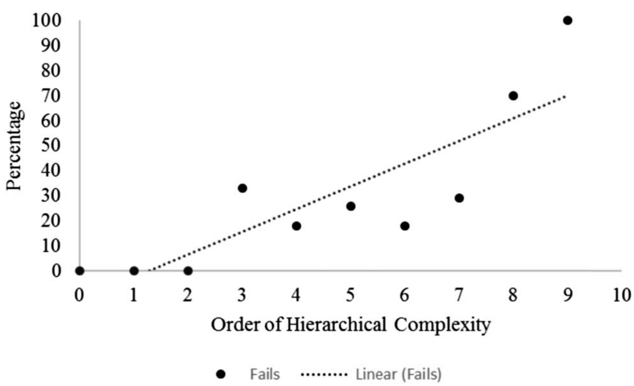

Figure 6. Order of Hierarchical Complexity (OHC) is on the *x*-axis and the corresponding percentage failed is on the *y*-axis. The figure represents percentage failure at each stage.

Table 1
Age Range, Mean Stage of Performance, and Order or Stage

Age range	Normal stage	Mean stage of the sample
0–6 months	Automatic Stage 1, Sensory and/or Motor Stage 2, Circular Sensory-Motor Stage 3	Transitional from Sensory and/or Motor Stage 2, to Circular Sensory-Motor Stage 3
6 months-1 year	Sensory-Motor Stage 4	Transitional from Circular Sensory-Motor Stage 3 to Sensory-Motor Stage 4
1–2 years	Nominal Stage 5	Nominal Stage 5
2–4 years	Sentential Stage 6, Preoperational Stage 7	Transitional from Circular Sensory-Motor Stage 3 to Sensory-Motor Stage 4
4–8 years	Primary Stage 8	Transitional from Sensory-Motor Stage 4 to Nominal Stage 5
8+ years	Concrete Stage 9 and above	Transitional from Circular Sensory-Motor Stage 3 to Sensory-Motor Stage 4

Note. Age range, corresponding mean stage of sample and normal stage population from Commons and Rodriguez (1993).

sory-motor stage. The transitional stage from task action to understanding concepts. This was way below the predictive age of MHC (see Appendix A). The participants' ages 8 years and above can be classified as high severity.

Discussion

The purpose of the study was to generate a behavioral-developmental scale and see how well it predicted performance in the participants diagnosed with ASD. The creation of such an instrument is vital for the purpose of designing interventions and giving diagnostics. The expectation is that, with the instrument, and diagnostics, progress of autistic children and adults can be tracked and accordingly place them in the stages of MHC. This placement will be helpful in designing behavioral and educational materials and procedures to further research and innovate in the field. First, the unidimensionality of the instrument was measured with Rasch analysis. The results showed that the scale of the test was unidimensional and the dimension being measured was obtained behavioral stage. The instrument was found to be a good predictor of performance in participants with ASD. Further, with the instrument, the progression of ASD was tracked by as early as three months of age. The result highlighted the cross-sectional

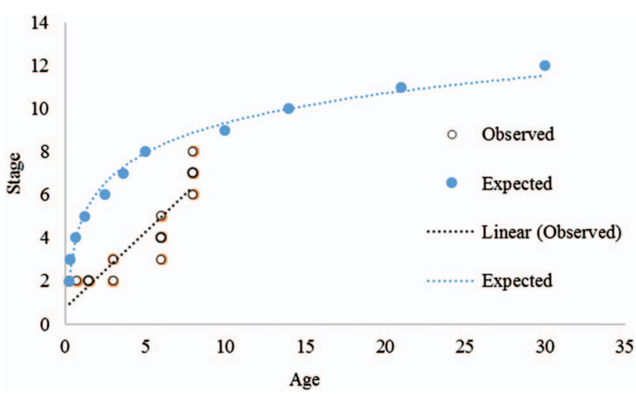

Figure 7. Both of these plots show the behavioral developmental accounts in a task sequence. Reaching Metasystematic Stage 13 on the *y*-axis along the curve $\log_2$. Each circle represents the number of participants having a mean age per range, and Stage. Adapted from "The Development of Hierarchically Complex Equivalence Classes," by M. L. Commons and J. A. Rodriguez, 1993, *The Psychological Record, 43*, pp. 667–697.

development sequence of ASD. Koegel, Koegel, Ashbaugh, and Bradshaw (2014) pointed out that the untreated symptoms of ASD becomes more abundant and severe later in life. Autism has traumatic impact on performance leading to failure in lower stages of performance and hence, cannot move to higher stages. This was reflected in our data. The mean stage of performance increased with the increase in age range. However, the mean stage of performance went down for older participants suggesting a lack of early interventions.

Potential Implications and Future Directions

The use of ADTS allows for making good valuation as to where to begin individual interventions. It also allows for the long-term assessments of intervention choices. Furthermore, long terms intervention program's progress can be assessed by uniting two ways: (a) using instruments to measure behavioral-stage of development change scores: and b) Appling techniques for combining charts (Commons, Miller, & Miller, 2015). This information is useful for knowing where to intervene and measure effectiveness of intervention over a reasonable period. In particular, very low stage behaviors will detect ASD earlier during development. The problem is that the longer one waits the less plastic brain development occurs. The wait-and-see method for early intervention is likely to have significant negative consequences on children with ASD (National Research Council, 2001). We suggest that if there are any signs with eye contact, listening, and orienting to the mother who is speaking to the child that they consider giving this kind of assessment.

In the future, it will be good to compare items other than those associated with ASD to the items we measured. This will be helpful in elucidating to what degree ASD reflects general developmental disability versus specific developmental disability. In addition, it would be good to give ADTS to norma" children within the same age range. Further comparison to the Vineland Adaptive Behavior Scales might be useful. Vineland Adaptive Behavior Scales is a long-standing norm referenced adaptive behavior assessment and addresses "maladaptive" behaviors.

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Appendix A

Corresponding Age and Order of Hierarchical Complexity

Order of hierarchical complexity	Age	Order of hierarchical complexity definition
0. Calculatory	0	Computer computations
1. Automatic	0	Response to single stimulus
2. Sensory and/or motor	1 to 3 months	Movement of limbs, lips, eyes, and head; view objects or move
3. Circular sensory-motor	3 to 4 months	Reach, touch, grab, shake objects, babble
4. Sensory-motor	8 to 12 months	Successful in stimuli response
5. Nominal	15 to 18 months	Use names and other words as successful commands
6. Sentential	2.5 years	Generalize match dependent task actions; chain words
7. Preoperational	3 to 4 years	Count random events and objects; combine numbers and simple propositions
8. Primary	5 to 7 years	Does series of tasks on own
9. Concrete	8 to 10 years	Follows complex social rules, tasks and coordinates perspective of other and self
10. Abstract	11 to 15 years	Make and quantify propositions
11. Formal	16 to 19 years	Solve problems with one unknown using algebra, logic, and empiricism
12. Systematic	20 or older	Coordinates more than one variable as inputConsider relationships in contexts
13. Metasystematic	25 to 30 years	Compare systems and perspectives

Note. Order of hierarchical complexity definitions are actions that correspond to order of hierarchical complexity and age (Commons, 2007; Commons & Rodriguez, 1993).

(*Appendices continue*)

Appendix B

Sample ADTS Items

Order of hierarchical complexity	Task
Order 1	1. Social referencing: Child looks at eyes of the care giver 2. Child looks at pictures, TV 3. Response to joint attention: Child attends to faces 4. Sensory or self-stimulatory behaviors: Child performs activities such as Rocking 5. Child flaps his/her hand. 6. Child stares at spinning objects – fans, car wheels, etc. 7. Learns by modeling/imitation: Child is reflexive (e.g., sucking and grasping) 8. Child smiles and laughs
Order 2	1. Speech production: Child performs tacting actions such as pointing. 2. Speech reception: Child follows very simple commands (e.g., look) 3. Social: Child pays little or no attention when addressed. 4. Playing peekaboo: Child gives attention, child laughs and smiles while making eye contact with parent/adult (e.g. full peekaboo). 5. Cause-effect: Child operates a simple toy like kicking a mobile to produce lights, sounds/music, and other actions. 6. Response to joint attention: Speech production: Follows eye gaze or points to reference an object out of reach. 7. Initiates joint attention: Child spontaneously looks at a toy, then the parent/adult, and back at the toy. 8. Sensory preoccupations with non-functional aspects of toys or objects: Child stares at or manipulates toy in nonfunctional manner, may become "fixated" and not easily redirectable to other activities or play. 9. Social referencing: Child looks for cues for what to do from other persons 10. Child looks for social reinforcers. 11. Learns by modeling/imitation: Child alters babbling to sound like the language one is immersed in.
Order 3	1. Sensory/cognitive awareness: Responds to praise. 2. Child is aware of danger 3. Social: Indifferent if parents leave. 4. Speech production: Manding: Child uses single word commands (e.g., up, ma-ma, milk) 5. Communicative intent: Child performs actions such as pointing, eye gaze, gestures, facial expressions. 6. Child takes others by the hand to walk and initiate social contact. 7. Learns by modeling/imitation: Child engages in sensory pre-occupations with non-functional aspects of toys or objects (e.g., more interested in a switch that operates a toy than the actual function or purpose of the toy). 8. Child makes gestures. 9. Child engages in operant imitation e.g. when a parent moves a hand the child does the same. 10. Playing peekaboo: Child initiates peekaboo. 11. Speech reception: Child says words but does not know the meaning. 12. Sensory or self-stimulatory behaviors: Child deferentially responds to gestures.
Order 4	1. Sensory/cognitive awareness: Knows own name. 2. Speech production: Child uses single words representing concepts. 3. Cause-effect: Child pushes toy cars or trains in a directed manner or on train tracks.
Order 5	1. Sensory/cognitive awareness: Child can draw. 2. Dresses self.

(*Appendices continue*)

Appendix B (*continued*)

Order of hierarchical complexity	Task
	3. Social: Child engages in peer interactions and play.
	4. Functional play skills: Child allows peers to play nearby without disrupting their play.
	5. Child engages in parallel play.
	6. Child is aware of their environment.
	7. Communicative intent: Child engages in pointing, eye gaze, gestures, facial expressions and uses others' hands as a "tool" to open boxes, bags, packages to access food, or operate a toy.
	8. Child asks meaningful questions.
Order 6	1. Sensory/cognitive awareness: Understands stories on TV.
	2. Communicative intent: Explains what he/she wants.
	3. Child tells stories.
	4. Functional play skills: Child approaches peers to engage in play (initiates play with peers).
	5. Speech tends to be meaningful/relevant.
Order 7	1. Child tells stories which they know are real or are phantasmal.
	2. First through third grade: Child can write a little (e.g., a few sentences).
	3. Child can use sentences with four or more words.
Order 8	1. Child can write from different characters' perspectives.
Order 9	1. Child can write a simple essay of two or more paragraphs.
Order 10	1. Child can write an argument that is logical or analogical and possibly hypothetical.
	2. Child demonstrates understanding that different people have different roles and different motivations, which affect each other.
Order 12	1. Child can write one to two simple paragraphs.

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