DEVELOPMENT OF A LANGUAGE ASSESSMENT TOOL FOR CHILDREN BETWEEN 10 – 16 YEARS

INTRODUCTION:

Language is a universal human ability, a social tool, where specific symbols stand for something else. Although the majority of language development occurs from infancy throughout the preschool years, the development of language is found to persist into adolescence as well. Though the linguistic development during the adolescent period is subtle, its importance has been emphasized. The literate lexicon and figurative expressions are the two aspects of semantic development that are crucial for academic success (Nippold, 1993). Adolescents learn to use word derivations, synonyms, antonyms, or homonyms (Nippold, 1998a). The skills in word relation and definition is associated with measures of verbal ability, and academic achievement in school-age children and adolescents (Wechsler, 1991). Morphological awareness which is a higher-order ability, influences phonological awareness, semantic awareness, and orthographic awareness (Kuo & Anderson, 2006). Analogical reasoning skills have shown steady improvement throughout the school years, and is also dependent on the intellectual capacity and academic achievement (Kaufman & Kaufman, 1983). Figurative expressions such as proverbs, idioms, and metaphors frequently occur in written and oral language during high-school and college. These expressions which is influenced by a good foundation in literate lexicon (Kamhi, Masterson, & Apel, 2007) are understood with increasing levels of accuracy during the adolescent period (Nippold, 1988). Adolescents having persistent language impairments are found to have a delay in their acquisition of age appropriate vocabulary (Stothard, Snowling, Bishop, Chipchase, & Kaplan, 1998). These adolescents with language disorders are also found to exhibit deficits in analogical reasoning tasks (Forrest, 2004), and the production of derived words (Chung, Ho, Chan, Tsang, & Lee, 2010).

Need for the study: Adolescence is a critical phase of the life course that deserves attention, due to the growing realization that the present youth are constantly under pressure and face challenging problems, in a society that is driven by the need to excel in literacy. The development during the adolescent years is less acute, with the study of language development in this period being relatively new, especially in India. With only a handful of standardized
language tests available to assess language development in adolescents, identifying language impairment in this population have always been a challenge.

**Aim of the study:** To develop a language assessment tool for the Indian population between 10 – 16 years of age, with the objectives being to develop a language assessment tool, and to administer the developed language assessment tool on children between 10 – 16 years.

**METHOD:**

A two stage cluster random sampling research design was adopted for the present research. The research protocol was approved by Institutional Ethical Committee of Kasturba Medical College (Manipal University), Mangalore. A total of 432 participants were recruited for the research based on the sample size formula. The participants in the current research included typically developing school going adolescents aged between 10–16 years. The participants were allocated into six groups (Group I: >10 – ≤10.11, Group II: >11 – ≤11.11, Group III: >12 – ≤12.11, Group IV: >13 – ≤13.11, Group V: >14 – ≤14.11, and Group VI: >15 – ≤15.11 years) based on their age and standard for the data collection. Each group consisted of n=72 participants. An informed consent was obtained from all the participants involved in the research prior to their inclusion in the study.

**Procedure:** The development of the language assessment tool followed 3 phases. Phase 1 comprised of designing the tool along with pilot study, Phase 2 included the administration of the developed language assessment tool, and Phase 3 focused on establishing test validity and reliability measures.

Phase 1 began with the identification of the language constructs, and the allocation of the tasks, and test items to be used in the tool specific to a modality (auditory and/or visual) of concern. After subjecting the tool for initial validation and revision, the tool was used for the first pilot study. The participants in the first pilot study included N = 90 individuals between 10 – 15.11 years, with 15 participants in each group. The participants of a particular standard received sets of stimuli varying in complexity. The obtained data was scored and certain items were eliminated from the stimuli set. Following this, the second pilot study commenced with N = 60 individuals between 10 – 15.11 years, with 10 participants in each group. The obtained responses
were subjected to content validation and reliability related measures, and thus stimuli was ready to be used for the final data collection.

Phase 2 included the administration of the developed language assessment tool. The test administration included the presentation of a single stimuli set targeting age equivalent group. Descriptive statistics was done to analyze the scores that were obtained under each of the tasks under every modality across the groups. Test of normality was performed using Kolmogorov-Smirnov and Shapiro-Wilk Test and was found to be significant. Descriptive statistics was done to determine the mean and standard deviation of the scores of the auditory and visual tasks of the typically developing adolescents and age matched adolescents with language disorder. A one way ANOVA was done to determine the level of significance across the groups for the proverbs/idioms task (visual) and similes task (auditory). Post hoc analysis was done to determine the level of significance between the groups.

Phase 3 included establishing the validity and reliability of the developed tool. The construct validity of the test was attained by comparing the typically developing adolescents with 60 age matched adolescents with language disorders using Mann Whitney test to compare their responses to items and the total scores in every task. Receiver Operating Characteristic analysis was performed to attain the cut-off scores, sensitivity, specificity, and area under the curve. The coefficient of reliability was found by correlating the scores of the responses of all tasks which were obtained at the two instances using Kappa statistics (agreement between each item in every task) and Intra-class correlation coefficient (agreement between total scores for every task).

RESULTS AND DISCUSSION:
A total of 11 tasks tapping on semantics and morphology were developed in auditory and visual modalities. The results were analyzed to obtain test reliability and validity of the language tool.

Contrastive Relations Task (Auditory and Visual)

The high reliability attained by this task implies that antonyms can be considered as a measure to evaluate the semantic skills of an adolescent. The test items of this task consisted of antonyms which were age specific and increased in complexity with age. Sheng, McGregor, and Marian (2006) advocated that the understanding of antonyms is crucial in the acquisition of
adjectives. The good validity attained by this task implies that antonyms can be considered as a measure to identify adolescents with language disorder. The variety of incorrect responses that were generated by the adolescents with language disorder could be attributed to difficulties in word retrieval (Dockrell et al., 1998).

**Multiple Meanings Task (Auditory and Visual)**

The high reliability attained by this task implies that synonyms can be considered as a measure to evaluate the semantic skills of an adolescent. The test items of this task consisted of synonyms which were age specific and increased in complexity with age. According to Marinellie and Johnson (2003), with the use of synonyms, the abstract and specific information increased with age among individuals between grades 6 and 10 and college students. The good validity attained by this task implied that synonyms can be considered as a measure to identify adolescents with language disorder. Bjork and Bjork (1992) attributed the unrelated responses of the adolescents with language disorder to inadequate word learning, or irregular word use.

**Associated Relations Task (Auditory and Visual)**

The high reliability attained by this task implied that associated relations can be considered as a measure to evaluate the semantic skills of an adolescent. The test items of this task were age specific and consisted of words that increased in complexity with age. The good validity attained by this task, except for Group VI, implied that word relations can be considered as a measure to identify adolescents with language disorder. Bjork and Bjork (1992) indicated that these errors could be attributed to the less stored information to differentiate between the semantic neighbors.

**Convergent Naming Task (Auditory and Visual)**

The high reliability attained by this task implied that word definitions can be considered as a measure to evaluate the semantic skills of an adolescent. Nippold (1998b) considered such definitions to provide a maximally informative explanation of a word in a brief and resourceful manner. The good validity attained by this task implied that word definitions can be considered as a measure to identify adolescents with language disorder. The incorrect responses that were
generated by the adolescents with language disorder in this task can be attributed to the presence of weak links between the words at different levels (Dockrell et al., 1998).

**Analogical Reasoning Task (Auditory and Visual)**

The high reliability attained by this task implied that analogies can be considered as a measure to evaluate the semantic skills of an adolescent. Analogical reasoning has shown steady improvement throughout the school years (Kaufman & Kaufman, 1983). This task attained good construct validity for each of the items and the total scores of the task for every group in both modalities, except for two items which received poor validity. Matte and Bolaski (1998) have suggested analogical reasoning abilities to be one of the deficits which can be attributed to poor performance in academics.

**Morphological Derivations Task (Auditory and Visual)**

The high reliability attained by this task implied that morphological derivations can be considered as a measure to evaluate the morphological skills of an adolescent. Researchers have recommended that the acquisition of these complex morphological words is a late linguistic achievement with the most rapid growth occurring between the fourth and eighth grade (Nagy, Berninger, & Abbott, 2006). The good validity attained by this task implied that this can be considered as a measure to identify adolescents with language disorder. Kieffer (2014) suggested that the skills exhibited in morphological analysis can be used to differentiate skilled readers from students with reading difficulties.

**Double-Function Words Task (Auditory)**

The high reliability attained by this task implied that homographs can be considered as a measure to evaluate the semantic skills of an adolescent. Homographs have multiple meanings which are considered to be important for the understanding of academic concepts which are presented in school (Durkin, Crowther, Shire, Riem, & Nash, 1985). The good validity attained by this task can be considered as a measure to identify adolescents with language disorder. The incorrect responses generated by the adolescents with language disorders can be attributed to the weak links between the richness of semantic representation and word retrieval (Dockrell et al., 1998).
**Homophones Task (Visual)**

The high reliability attained by this task implied that homophones can be considered as a measure to evaluate the semantic skills of an adolescent. The present task is a less explored domain, and hence is recommended to be used in studies pertaining to the development of the understanding and use of homophones in children and adolescents. The good validity attained by this task implied that this can be considered as a measure to identify adolescents with language disorder. The mis-selected words by the adolescents with language disorders can be attributed to the weak links between the richness of semantic representation and word retrieval (Dockrell et al., 1998).

**Compare/Contrast Task (Auditory)**

The high reliability attained by this task can be considered as a measure to evaluate the semantic skills of an adolescent. The present task is a less explored domain, and hence is recommended to be used in studies pertaining to the development of the understanding and use of confusable words in children and adolescents. The task attained good construct validity for each of the items in the task and the total scores of the task for every group, except for an item in Group II which received poor validity. This implied that this task can be considered as a measure to identify adolescents with language disorder.

**Proverbs/Idioms Task (Visual)**

The high reliability attained by this task implied that this can be considered as a measure to evaluate the higher-semantic skills of an adolescent. The understanding of proverbs and idioms are considered to be a good indicator for achieving success in school (Nippold, Hegel, Uhden, & Bustamante, 1998). Descriptive statistics which was done to obtain the mean and standard deviation of the scores of this task, revealed a steady increase in the mean accuracy scores from Group I to Group VI. One-way ANOVA revealed a main significant effect which was obtained across the six groups, indicating an overall development in the comprehension of proverbs and idioms. The present research showed a gradual improvement in the comprehension of figurative language which begins in early childhood, progressing steadily through the adolescent years, at par with the findings of Nippold (2006). The validity attained by this task implied that this can be considered as a measure to identify adolescents with language disorder.
The present findings were at par with the findings of the study done by Cain, Oakhill, and Lemmon (2005).

**Similes Task (Auditory)**

The high reliability attained by this task implied that this can be considered as a measure to evaluate the higher-semantic skills of an adolescent. The interpretation of similes which were used in the present research required abstract thinking (Smith, 1967). Descriptive statistics which was done to obtain the mean and standard deviation of the scores of this task revealed Groups I and II attaining the lowest mean accuracy scores; Group III attaining higher mean accuracy scores; while Groups IV, V and VI attaining higher mean accuracy scores respectively. One-way ANOVA revealed a main significant effect which was obtained for this task across the six groups, indicating an overall development in the comprehension and production of similes. The increase in permissible responses in this task can be attributed to the development of the language skills as described by the language proficiency hypothesis (Stahl & Fairbanks, 1986). The validity attained by this task implied that this can be considered as a measure to identify adolescents with language disorder. Studies have revealed deficits in figurative language processing which have been encountered by children with language impairment (Rinaldi, 2000).

**CONCLUSION:**

The developed language assessment tool is a norm-referenced and a criterion referenced test which can be used in clinical settings to gain insight about task specific problems encountered by adolescents with language disorder. By knowing the exact nature of the adolescent’s language disorder, a structured, tailor-made intervention plan can be prepared to help them communicate with ease.