Development and Validation of a Scale to assess Self-Concept in Mild Intellectually Disabled Children

By

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Abstract

The purpose of this paper was to develop a valid and reliable scale to assess the mild intellectually disabled children's Self-Concept. Such a scale will be helpful in identifying the support required to improve their successful functioning at home, school, and other activities to enhance their Self-Concept. The study was conducted on 80 children aged 9-14 years with an IQ of 50-70. An attempt has been made in this study to identify, develop and validate the six key components of Self-Concept scale necessary for self-identity among children namely – physical (15 items), academic (14 items), social (26 items), emotional (11items), intellectual (16 items), and moral (5 items). Thus a total of 87 items were developed for measuring the Self-Concept in MIDC. The initial development, establishment of validity and estimation of reliability of the Self-Concept are discussed. The findings indicate that the six key components of Self-Concept have high acceptable reliability.

Keywords: *Mild Intellectually Disabled Children (MIDC), Self - Concept, Intervention Programme.*

1. Introduction

Self- concept is a child's armor against the challenges of the world. It can be frequently changed and fine-tuned, as it is influenced by the child's new experiences and perceptions. Normal children can understand their strengths and weaknesses but children with intellectual disabilities face many challenges regarding their disability from early years and they are often met with negative and stereotypical attitudes towards them. Differences among these children in terms of physical, social, emotional and academic aspects influence the development of self -concept. Intellectually disabled children try and fail to succeed but through practice and reinforcement they learn, master, succeed and develop ideas about their own capabilities. In the process of their experimentation they make an attempt to develop self-concept based on their experience and interactions with others.

Since they are characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical adaptive skills. (AAIDD, 2010). These children are slow in their development and lag behind by 2 to 4 years than the normal children. It is important that MIDC develop and refine self-help, psycho-social and cognitive skills, thereby enabling them to enhance their self-identity. Certain common and basic skills need to be developed and refined before children move on to more complex ones. The self is essentially a learned social product arising out of the experiences with the people, parents, siblings, relatives, peers and the general community with the settings of social cultural milieu (Gale, 1969). Self-Concept is not innate, but can be developed by the MIDC through interaction in the environment (Annie Jacob, 2007), which enables them to feel that they are being cared, loved, respected and accepted by others. It helps the children in understanding their own perception about themselves and helps in differentiating their behavior. It is often referred to as 'ages and

stages', which provides a guide as to what can be expected during the different stages of child's development. The importance of self-perception for the growth and development of children has been demonstrated in studies showing how self-efficacy can enhance or impair the level of cognitive functioning and performance (Bandura, 1989). A child's expectations about his/her own capabilities determine his/her behavior and influence motivation, effort, and persistence regarding both the difficulty of the task and task efficacy. During early childhood, knowledge and evaluation of the self's characteristics expands (Harter, 2006) and children begin to construct a Self-Concept. The set of attributes, abilities, attitudes and values that an individual believes defines who he/she is (Laura, 2010). Children with intellectual disabilities evince Self-Concept development similar to what would be expected in typically-developing younger children (Silcon and Harter, 1985).

Individual and social comparisons play an integral part in self concept. Problems in adjustment tend to manifest mainly during school years. The problems compound when differences become more salient and academic performance becomes much more harder. It is at this point of the educational process that early intervention can help intellectually disabled children to form healthy self-perceptions.

A consistent approach when dealing with MIDC with concern over their awareness of 'self' can most often lead to more productive and positive behaviors. The strategies that are planned should be implemented regularly. Whether the child is slow in comprehending, unable to master skills, lacks awareness, and problem in developing concept formation, it is important to ensure that the MIDC have positive interactions and reinforcements which enable the child to develop a feeling of identity and self - awareness. Self-Concept in MIDC develops over time and is influenced by the exposure, encouragement, stimulation, practice and reinforcement given by the parents, care takers and teachers. Intervention programmes were found to be influential in improving the Self-Concept of MIDC (Musgrave and Fifield, 1981; Roswal et al., 1986; Thorkildsen & Lowery, 1991). The early intervention techniques employed by parents, teachers and caregivers should be an ongoing with consistent applications.

Therefore an attempt has been made in the present study to develop and validate an assessment tool that measures the Self-Concept of MID children's which is of paramount importance to the field of special education ensuring that the children learn in an environment which is conducive to them and which reflects on his/her identity and culture. The various aspects of self concept like physical, social, academic, emotional, intellectual and moral aspects can be taught to them through the use of training modules developed such as picture cards about themselves, their family members, their name and address for functional purposes. Further in a structured environment opportunities and avenues are offered for them to share information about their interest, hobbies, likes, dislikes, peer relation, cognitive skills, social skills to demonstrate his/her capabilities and by providing appropriate levels of challenges, they can be assured a sense of accomplishment.

2. Method

Sample
The study sample consisted of 80 children with mild intellectual disability, who are in the age bracket of 9-14 years (46 boys and 34 girls). They were identified as children with an IQ range of 50-70 based on Binet - Kamat test, Vineland Social Maturity Scale and Seguin form board test. Some simple tests were also conducted to assess the disability. The sample was selected from special schools in Bangalore city through Purposive sampling technique.

Technique and procedure
The objective of developing a scale is to create a valid measure of an underlying construct. The theoretical principles, practical issues, and pragmatic decisions must be considered in construct validity of scales and the subscales. It is essential to conceptualize on the content of the scale and the initial item pool should include items representing all the subsections of the scale, if any. The method of wording the

content and formulation of the statements need careful attention. The item pool should be later tested, along with variables and the objectives of the study to assess closely related constructs, on a heterogeneous sample representing the entire range of the target population. Finally, in selecting scale items, the goal is unidimensionality rather than internal consistency; this means that virtually all inter - item correlations should be moderate in magnitude. Factor analysis can play a crucial role in ensuring the unidimensionality and discriminant validity of scales (Lee and David, 1995).

Validity: It is the most important consideration when developing, evaluating and interpreting tests. It refers to the appropriateness, meaningfulness, and usefulness of the specific inferences researchers make based on the data they collect. Validity has been described as 'the agreement between a test score or measure and the quality it is believed to measure' (Kaplan and Saccuzzo, 2001). It is the most important step to be considered when preparing or selecting an instrument for research study and the degree to which evidence and theory support the interpretations of test scores entailed by the proposed test.

Creation of item pool and face validity:
Once the objectives and the content domain were tentatively identified, the task of formulating the items /questions for the scale was completed. The formulation of the initial pool of items related to the various domains is a crucial task for developing the scale. The fundamental goal at this juncture is to formulate all content systematically in a sequential manner that is potentially relevant to the target construct. The importance of the initial literature review becomes quite obvious in this process. Loevinger (1957) offered the classic articulation of this process: "The items of the pool should be chosen so as to sample all possible contents which might comprise the putative trait according to all known alternative theories of the trait ".

For the present study the items / questions reviewed from books, journals and electronic media were identified, adapted and compiled in framing of 150 items that covered the six key concepts of Self - Concept of the MIDC attending special schools based on five points a Likert scale – always =4, frequently =3, sometimes =2, rarely =1 and never =0. Positive items were given the ratings of 4 to 0 and negative items were given the ratings of 0 to 4 respectively. The 150 items were screened for face validity with the help of expertise.

Content validity: Content Validity is based on the extent to which a measurement reflects the specific intended domain of content (Carmines & Zeller, 1991). It refers to the conceptualization of the statements for developing the scale for the study. If the researcher has focused in too closely on only one type or narrow dimension of a construct or concept, then it is conceivable that other indicators are overlooked. In such a case, the study lacks content validity. An estimate of content validity of a test is obtained by thoroughly and systematically examining the test items to determine the extent to which they reflect and do not reflect the content domain.

For the present study, the individual statement was drawn from a large pool of items that covered a six key concepts of Self-Concept of the MIDC namely – physical, social, emotional, academic, intellectual and moral. The developed scale was assessed for both face and content validity by a panel of experts from the field of Human Development, Education, Psychology, Special Education and Psychiatry. The items on the scale were rated as strongly relevant, relevant, needs modification or irrelevant. The experts reviewed all the 150 items across six key concepts of Self-Concept. The statements that were found to be irrelevant and confusing were deleted and those that were rated as needs modification were revised. The suggestions made by the panel were incorporated to enhance clarity and readability of the instrument.

Construct Validity: is the extent to which a test measures the concept or construct that it is intended to measure and assesses the underlying theoretical construct (i.e., the test is measuring what it is purported to measure). Construct validation requires the compilation of multiple sources of evidence. In order to demonstrate construct validity, evidence that the test measures what it purports to measure as well as

evidence that the test does not measure irrelevant attributes are both required. To evaluate construct validity, a pilot study was conducted on 20 mild intellectually disabled children (10 boys and 10 girls) who were in the age bracket of 9-14 years, with an IQ of 50-70.

Readability test: For the present study, 87 items were formulated for Self-Concept scale. After the tool was developed, a draft copy of the tool was prepared and was tested for readability by the investigator so as to ensure that the items of the tool did not have double barrel questions, the items were not contradicting in nature and also further to ensure that there was no repetition of any items with similar meanings.

Reliability is the extent to which a test or procedure produces similar results under constant conditions on all occasions. For the present study, test- retest method was used to assess the reliability of the instruments. The following reliability test was carried out to estimate the reliability.

Test-Retest method involves administering same test twice given to the same group after a certain interval of time has elapsed. A reliability coefficient is then calculated to indicate the relationship between the two sets of scores obtained.

A pilot study was conducted on 20 MIDC in age group of 9 -14 years with IQ range of 50-70, to determine the validity and to estimate reliability of the tools developed for the present study. **Children with mild intellectual disability were interviewed and observed with the help of the developed tool. The parents and teachers were also interviewed to get the accurate information about the children.** After data collection the validity and reliability were tested through statistical analysis.

3. Results and discussion

In the present study 150 items were identified, adapted and compiled for the formulation of scale to measure the self-concept in Mild Intellectually Disabled Children. The items that were not relevant, contradicting and confusing were deleted and only 87 items were standardized for the study. In this study all the items of the scale were standardized based on Likert's five point rating and the ratings given were always = 4, frequently = 3, sometimes = 2, rarely = 1 and never = 0. Positive items were given the ratings of 4 to 0 and negative items were given the ratings of 0 to 4 respectively.

Table 1. **Items selected from various sources for face validity**

Sources	No. of items	percentage
Thesis	10	7
Articles	20	13
Manuals	80	53
Books	40	26
Total	150	100

Content validity: (also known as **logical validity**) refers to the extent to which a measure represents all facets of a given social construct. The generally accepted quantitative index for content is the Aiken`s V index. This index will be used to quantify the ratings of panel experts constituted for evaluating the items in the instrument. The Aiken's V index with 0.80 indicates the good content validity of the measure. The eight steps of Aiken`s V index for content validity are as follows (Aiken, 1980).
- n experts rate the degree to which the item taps an objective on a 1 to c   on Likert-scale, where c is the maximum score in grading scale
- Let lo = the lowest possible validity rating (usually, this is 1 on the Likert-scale)
- Let r = the rating by an expert
- Let s = r – lo
- Let S = the sum of s for the n raters

Development and Validation of a Scale to assess Self-Concept in Mild Intellectually Disabled Children

- Aiken's V is then V = S / [n*(c-1)]
- The range will be from 0 to 1.0
- A score of 1.0 is interpreted as all raters giving the item the highest possible rating

Content validity was assessed by a panel of subject experts. The purpose was to depict those items with a high degree of agreement among experts. The 150 items were initially screened using face validity with experts, only 87 items were screened. Panels of five subject experts were given the scale for content validity. The subject experts consisted of experts from the fields like, Human development, Education, Psychology, Special Education and Psychiatry.

Table 2. Content validity by five subject experts for developing a Self - Concept of MIDC

Description	No. of items	percentage
No. of items screened at face validity	150	100.0
No. of items evaluated by experts	150	100.0
No. of items satisfied Aiken's Index	87 (95*)	58.0
No. of items not satisfied Aiken's Index	63	42.0
No. of items considered for pilot study	100	66

*Includes sub statements

After scrutiny by the subject experts some items which were found to be irrelevant or contradicting were deleted. The questionnaire was modified using face validity, content validity, and readability test. The final questionnaire was framed with six dimensions of self- concept such as Physical self-concept (15 items), academic self-concept (14 items), social self-concept (26 items), emotional self-concept (11items), intellectual self-concept (16 items) and moral self-concept (5 items).

Reliability and internal consistency:
Reliability was evaluated by Split –half reliability index and consistency was performed using the Cronbach`s alpha and Intra-class correlation co-efficient (ICC). Results on Cronbach`s alpha, ICC and Split-half reliability co-efficient was presented in table 3. It is observed from table 3 that, all the dimension of scale had good reliability and consistency index (>0.80). Hence the developed scale for measuring Self-Concept in Mild Intellectually Disabled Children is more reliable and accurate.

Table 3. Test-Retest reliability (stability) and Cronbach alpha (consistency) co-efficient based on pilot study

Dimensions of self-concept	No. of items	Max score	Cronbach alpha	Intra-class Correlation (ICC)	Reliability index	P value
1.Physical self-concept	16	64	0.948	0.897	0.942	<0.001**
2.Academic self-concept	15	60	0.954	0.935	0.944	<0.001**
3.Social self-concept	30	120	0.976	0.954	0.977	<0.001**
4.Emotional self-concept	11	44	0.947	0.935	0.875	<0.001**
5.Intellectual self-concept	18	72	0.961	0.919	0.924	<0.001**
6.Moral self-concept	5	20	0.871	0.711	0.815	<0.001**
Overall	95*	380	0.982	0.971	0.918	<0.001**

*Includes sub-items, **highly reliable

Construct Validity and Factor analysis: General method of finding the constructs in the scale was item –total correlation. The item-total correlation was to be good and positive for most of the items. The factor analysis was performed to confirm the number of factors present in the scale. Six factors were extracted as shown Fig1 Scree plot with total cumulative variance of 71.01%. The factors extracted using the principal component method with Varimax rotation and results are presented in table 4 and 5.

Table 4**. Content and Construct validity by Item-Total correlation & Factor analysis of Physical Self-Concept**

Item	I. Physical Self-Concept	Aiken's Index	Item-Total correlation	Factor loadings					
				F1	F2	F3	F4	F5	F6
1	I am a boy /girl								
2	I am nice to look at eg.,: I have fair skin/I have nice hair/I am tall/I am thin /fat)	1.000	0.590	0.115	0.079	**0.755**	0.049	0.230	0.250
3	I brush my teeth	0.850	0.543	0.096	0.096	**0.745**	0.249	0.212	0.022
4	I take bath by myself	0.750	0.609	0.185	0.111	**0.738**	0.097	0.131	0.229
5	I eat by myself	0.750	0.612	0.247	0.079	**0.738**	0.009	0.226	0.126
6	a) I eat good food: eg., rice, chapathi, dhal, vegetables, fruits, milk, curds, egg etc.	1.000	0.528	0.234	0.009	**0.698**	0.045	0.116	0.129
	b) I like junk to eat foods like chips, cakes, chocolates, fried foods, soft drinks	0.750	0.538	0.189	0.109	**0.787**	0.194	-0.022	0.057
7	I am strong physically	1.000	0.659	0.213	0.234	**0.713**	0.075	0.236	0.101
8	I play games very well	1.000	0.517	0.096	0.136	**0.661**	-0.097	0.149	0.279
9	I do exercise regularly	1.000	0.479	0.128	0.073	**0.698**	0.103	0.128	0.045
10	I like to groom myself	0.700	0.601	0.112	0.497	**0.612**	0.168	0.047	0.021
11	I like to be clean and tidy	0.750	0.748	0.412	0.425	**0.649**	0.063	0.008	0.048
12	I keep my things clean	0.750	0.704	0.397	0.391	**0.675**	-0.046	0.011	0.011
13	I sleep well at night	1.000	0.619	0.250	0.208	**0.742**	0.032	0.126	0.039
14	I fall sick very often	0.600	0.360	0.025	-0.029	**0.833**	0.044	0.078	-0.070
15	I can identify the parts of my body (eg.,eyes, ears, nose, head, hair, hands, stomach, legs, fingers, toes, nails, eye lashes, eye lids, thigh etc.)	1.000	0.539	0.000	0.457	**0.652**	-0.010	0.013	0.190

Table 5. Content and Construct validity by Item-Total correlation & Factor analysis of Academic Self-Concept

Item	II. Academic Self-Concept	Aiken's Index	Item-Total correlation	Factor loadings					
16	I am good at my school work	1.000	0.659	0.336	**0.666**	0.189	0.001	0.134	0.095
17	I can draw well (eg.,figures, shapes, objects etc.)	1.000	0.607	0.284	**0.677**	0.371	-0.239	-0.113	0.180
18	I can sing	0.750	0.670	0.356	**0.554**	-0.004	0.016	0.427	0.182
19	I can dance	0.750	0.546	0.199	**0.636**	0.088	-0.173	0.212	0.187
20	I complete my work in time a) At school	0.750	0.755	0.396	**0.684**	0.275	0.015	0.250	-0.002
	b) At home	0.750	0.719	0.370	**0.756**	0.186	0.015	0.215	-0.008
21	I write well (words, numbers, alphabets etc.)	1.000	0.730	0.263	**0.845**	0.207	-0.052	0.143	0.209
22	I am very good at making art work (eg., paintings, pasting, folding paper, printing)	1.000	0.702	0.224	**0.736**	0.356	-0.028	0.112	0.169
23	I do not like to learn new things easily	1.000	0.505	0.141	**0.626**	-0.035	-0.005	0.216	0.251
24	I dislike Maths	1.000	0.568	0.320	**0.617**	0.109	-0.245	0.095	0.202
25	I enjoy seeing picture books	0.750	0.709	0.375	**0.546**	0.044	-0.015	0.335	0.343
26	I take help from my teacher	0.850	0.652	0.287	**0.681**	0.053	0.053	0.231	0.179
27	I can form meaningful words (eg.,bat, book, pencil, school etc.)	1.000	0.777	0.211	**0.671**	0.325	0.117	0.251	0.326
28	I like school	1.000	0.701	0.596	**0.417**	0.054	-0.121	0.278	0.154
29	I can speak before my classmates	1.000	0.659	0.336	**0.666**	0.189	0.001	0.134	0.095

Table 6. Content and Construct validity by Item-Total correlation & Factor analysis of Social Self-Concept

	III .Social Self-Concept	Aiken's Index	Item-Total correlation	Factor Loadings					
				F1	**F2**	**F3**	**F4**	**F5**	**F6**
30.	I make friends easily	1.000	0.757	**0.318**	0.383	0.279	0.199	0.607	0.094
31.	I share my things with my a) siblings/cousins	1.000	0.738	**0.549**	0.347	0.312	0.166	0.261	-0.009
	b) peers	1.000	0.753	**0.553**	0.392	0.276	0.019	0.255	0.116
32.	I behave well at home	0.650	0.662	**0.821**	0.190	0.166	-0.060	0.139	-0.101
33.	I am obedient at school	0.550	0.700	**0.665**	0.303	0.209	-0.012	0.269	-0.090
34.	I like to be a leader in games and sports	1.000	0.744	**0.256**	0.414	0.328	-0.087	0.474	0.381
35.	I love to watch others playing	1.000	0.626	**0.308**	0.364	0.187	-0.151	0.630	0.006
36.	I like my a) mother	1.000	0.606	**0.755**	0.068	0.202	-0.034	0.243	-0.170
	b) father	1.000	0.673	**0.790**	0.062	0.111	0.013	0.105	0.252
	c)friends	1.000	0.793	**0.605**	0.376	0.175	0.115	0.393	0.078
	d) siblings	1.000	0.728	**0.678**	0.172	0.233	-0.009	0.400	0.009
37.	I always damage things	1.000	0.652	**0.793**	0.175	0.167	-0.093	0.121	-0.039
38.	I like to work with others	1.000	0.740	**0.545**	0.327	0.160	0.044	0.393	0.157
39.	My teachers like me	1.000	0.860	**0.708**	0.411	0.154	0.094	0.278	0.217
40.	I take care of my father	1.000	0.699	**0.393**	0.256	0.250	0.076	0.601	0.064
41.	I follow rules at school	0.750	0.728	**0.710**	0.309	0.181	-0.044	0.274	-0.029
42.	I follow rules at home	0.750	0.642	**0.771**	0.125	0.237	-0.001	0.176	-0.158
43.	I like to play with my friends	1.000	0.627	**0.355**	0.194	0.197	-0.196	0.566	0.252
44.	I like to help others	1.000	0.836	**0.554**	0.291	0.235	0.048	0.554	0.223
45.	I like take care of elders	1.000	0.696	**0.500**	0.069	0.297	0.068	0.563	0.096
46.	I take care of my mother	1.000	0.691	**0.670**	0.066	0.275	0.050	0.349	0.013
47.	I take help from others	1.000	0.645	**0.767**	0.170	0.081	-0.047	0.180	0.029
48.	I like my home	0.750	0.667	**0.847**	0.159	0.006	0.005	0.126	0.088
49.	I like holidays	0.750	0.673	**0.759**	0.107	-0.013	-0.034	0.223	0.308
50.	I enjoy festivals	0.750	0.857	**0.591**	0.289	0.181	0.110	0.502	0.319
51.	I like to go out with my family members	1.000	0.748	**0.661**	0.282	0.042	0.054	0.332	0.241
52.	I like to play with my pet animals	1.000	0.615	**0.354**	0.166	0.203	-0.063	0.711	0.016
53.	I am a loving child	1.000	0.854	**0.745**	0.286	0.250	0.024	0.319	0.175
54.	I can answer phone call	0.700	0.772	**0.381**	0.277	0.321	-0.109	0.560	0.343
55.	I answer and greet visitors	1.000	0.770	**0.438**	0.189	0.434	-0.133	0.525	0.262

Table 7. Content and Construct validity by Item-Total correlation & Factor analysis of Emotional Self-Concept

	IV. Emotional Self-Concept	Aiken's Index	Item-Total correlation	Factor Loadings					
				F1	F2	F3	F4	F5	F6
56.	I am a happy child	1.000	0.365	0.243	-0.025	0.092	**0.760**	-0.023	0.185
57.	I feel sad	1.000	0.256	-0.184	-0.152	-0.084	**0.770**	-0.066	-0.049
58.	I am shy	1.000	0.156	-0.041	0.012	0.082	**0.901**	-0.025	-0.062
59.	I get scared when the teacher calls on me	1.000	0.302	-0.202	-0.192	0.153	**0.796**	-0.054	-0.021
60.	I am scared to write test	1.000	0.254	-0.060	-0.323	-0.061	**0.796**	-0.002	0.123
61.	I worry a lot	1.000	0.268	-0.147	-0.141	-0.133	**0.814**	-0.155	0.061
62.	I cry easily	1.000	0.302	0.010	0.047	0.220	**0.885**	0.016	0.039
63.	I am quarrelsome	0.750	0.186	0.071	0.068	0.011	**0.842**	-0.058	-0.105
64.	I respect others feelings	1.000	0.572	0.311	0.235	0.217	**0.777**	0.095	0.045
65.	I enjoy listening to music	0.750	0.572	0.266	0.189	0.181	**0.739**	0.230	0.116
66.	I am cheerful	1.000	0.705	0.400	0.251	0.246	**0.697**	0.291	0.062

Table 8. **Content and Construct validity by Item-Total correlation & Factor analysis of Intellectual Self-Concept**

	V. Intellectual Self-Concept	Aiken's Index	Item-Total correlation	Factor Loadings					
				F1	F2	F3	F4	F5	F6
67.	I forget what I learn	1.000	0.760	0.324	0.418	0.188	0.128	0.222	**0.640**
68.	I like to take part in competition	1.000	0.719	0.529	0.226	0.194	0.086	0.299	**0.309**
69.	I like to work on puzzles	1.000	0.680	0.095	0.555	0.299	0.065	0.147	**0.615**
70.	I like to work on number concept	1.000	0.652	0.114	0.462	0.362	0.075	0.046	**0.632**
71.	I can narrate stories	0.650	0.647	0.173	0.292	0.187	0.059	0.363	**0.634**
72.	I like to work with colours	0.750	0.699	0.508	0.435	0.080	0.042	0.053	**0.446**
73.	I like to work with shapes	0.750	0.819	0.401	0.318	0.343	0.130	0.187	**0.644**
74.	I like to pass on the message to others (eg., I do my work by myself, I do not hurt others, I help others etc.)	1.000	0.763	0.342	0.272	0.283	0.038	0.564	**0.371**
75.	I like to pick odd one out	1.000	0.665	0.202	0.399	0.115	0.075	0.233	**0.711**
76.	I like to play memory game	0.750	0.591	0.026	0.443	0.298	0.018	0.110	**0.688**
77.	I like to recite rhymes	0.750	0.720	0.487	0.178	0.107	0.062	0.519	**0.342**
78.	I like to repeat the names of the a)days	0.750	0.714	0.747	0.083	0.214	0.009	-0.026	**0.434**
	b)months	0.750	0.732	0.728	0.220	0.148	-0.010	-0.035	**0.442**
	c)seasons	0.750	0.664	0.680	0.210	0.153	-0.104	-0.019	**0.365**
79.	I can tell the time	1.000	0.670	0.252	0.644	0.246	-0.021	-0.020	**0.443**
80.	I can identify day and night	0.750	0.747	0.714	0.259	0.210	0.001	0.064	**0.262**
81.	I know my house address	0.750	0.855	0.494	0.480	0.346	0.082	0.218	**0.334**
82.	I know my house telephone number	0.750	0.885	0.648	0.391	0.257	0.066	0.205	**0.390**

Development and Validation of a Scale to assess Self-Concept in Mild Intellectually Disabled Children

Table 9. **Content and Construct validity by Item-Total correlation & Factor analysis of Moral Self-Concept**

	VI. Moral Self- Concept	Aiken's Index	Item-Total correlation	Factor Loadings					
				F1	F2	F3	F4	F5	F6
83.	I respect my parents	1.000	0.561	0.007	-0.012	0.241	0.128	**0.719**	0.004
84.	I pray to god	1.000	0.631	0.289	0.249	0.070	0.051	**0.528**	0.189
85.	I respect my teachers	1.000	0.779	0.133	0.347	0.131	0.173	**0.736**	0.141
86.	I love my siblings	1.000	0.685	0.082	0.165	0.130	0.104	**0.793**	0.085
87.	I am friendly with my peers	1.000	0.627	0.004	0.117	0.119	0.070	**0.702**	0.279

Table 10. Explorative Factor analysis: Extraction and Rotation Sums of Squared Loadings

| Components	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings (Varimax)		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	41.61	43.80	43.80	41.61	43.80	43.80	20.76	21.85	21.85
2	8.20	8.64	52.44	8.20	8.64	52.44	12.67	13.33	35.19
3	6.89	7.26	59.69	6.89	7.26	59.69	11.76	12.38	47.56
4	5.10	5.37	65.06	5.10	5.37	65.06	7.80	8.21	55.78
5	2.93	3.09	68.15	2.93	3.09	68.15	7.62	8.03	63.80
6	2.71	2.86	71.01	2.71	2.86	71.01	6.84	7.20	71.01

Scree Plot
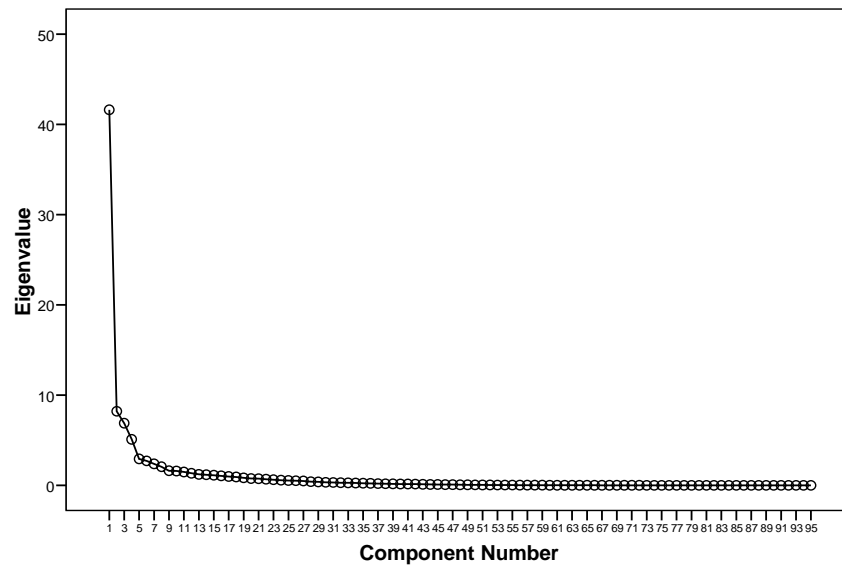
Fig.1: Scree Plot determining the number of factors using the factor analysis

707

Table 11. **Results of validated scale for measuring the self-concept of MIDC**

Levels	Physical self-concept		Academic self-concept		Social self-concept		Emotional self-concept		Intellectual self-concept		Moral self-concept		Overall self-concept	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Never	0	0.0	8	10.0	5	6.3	16	20.0	17	21.3	0	0.0	0	0.0
Rarely	11	13.8	35	43.8	16	20.0	36	45.0	18	22.5	12	15.0	29	36.3
Sometimes	40	50.0	24	30.0	35	43.8	15	18.8	31	38.8	32	40.0	39	48.8
Frequently	28	35.0	13	16.3	24	30.0	14	17.5	14	17.5	34	42.5	12	15.0
Always	1	1.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total children	80	100.0	80	100.0	80	100.0	80	100.0	80	100.0	80	100.0	80	100.0

Results of the study reveals that there is a high reliability of the tool on six dimensions of self concept with p value <0.001. The highest score for self-concept in the areas of physical, social and overall self concept was found to be 50%, 43.8% and 48.8% respectively. Academic and emotional self-concept was 43.5% and 45% (percentile) respectively which was seen rarely among the mild intellectually disabled children.

Conclusion:

The present paper on development and validation of a scale to assess Self-Concept in Mild Intellectually Disabled Children was statistically validated and standardized using the validation measures such as face validity, content validity, construct validity and factor analysis. The six dimensions were retrieved by factor analysis. It was found that the MIDC were average in their overall self-concept. Hence there is a need to assess the self-concept of MIDC under different dimensions like physical, academic, social, emotional, intellectual and moral. After finding the deficit in any of these areas, MIDC could be trained to enhance their self-concept through intervention programme to improve their self –awareness.

Implications:
The above scale can be used by special educators, parents, research students to assess the self-concept of children with mild intellectual disability.

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References:

Aiken, L.R. (1980). Content validity and reliability of single items or questionnaires, Educational and Psychologial Measurement. 40 : 955-959.

American Association of Intellectual Developmental Disabilities (AAIDD) Manual (2010). Intellectual Disability, Definition, Classification, and Systems of Supports, 11th Edition Washington, DC.

Annie, K. J. (2007). Relationship between creativity and self-concept, *EDUTRACKS* ,7 (2), 25-30.

Bandura, A. (1989). Regulation of cognitive processes through perceived self-efficacy', *Developmental Psychology*, 25, 729-735.

Carmines & Zeller, 1991, pp.20. in http://writing.colostate.edu/guides/research/relval/com2b5.cfm retrieved -12-7-2011

Gale (1969). In Sarla Grover, 1987, Child Development, Print Well publishers, Jaipur, pp 29.

Harter (2006). 'The Self, in N Eisenberg (Ed.) Hand Book of Child Psychology': vol 3, social, emotional, and personality development (6th Ed. 505-507), Hoboken, NJ: Wiley.

Harter & Pike, S. (1984). 'The Pictorial Scale of Perceived competence and Social Acceptance for Young Children', *Child Development*, Vol.55, 1969 – 1986.
Harter, S. (1982).' The Perceived Competence Scale for children', *Child Development*, 53, 7 – 97.
Silon,E.L. & Harter S.(1985). Assessment of perceived competence, motivational orientation and anxiety in segregated and mainstreamed educable mentally retarded children.Journal of educational Psychology, 77, 217-230.

Kaplan,,R.M. & Saccuzzo,,D.P. (2001). *Psychological Testing: Principle, Applications and Issues (5th Edition)*, Belmont, CA: Wadsworth.
Lee, A. C. & David W. (1995). Constructing Validity: Basic issues in objective Scale Development, *Psychological Assessment*, Vol.7 No.3, 309-319.
Loevinger, J. (1957). Objective tests as instruments of psychological theory, *Psychological Reports*, 3, 635-694.
Musgrave CT & Fifield M , (1981). The development and field testing of an instructional module designed to enhance the self-concept of educable mentally retarded students. *Journal of special education technology*, 4, 50-56.
Roswal G., Roswal P., Harper C. H & Pars A., (1986). *American corrective Therapy Journal* , 40 (4), 91 – 94.

Thorkildsen, R.J. & Lowry, W.H., (1991). Assessing social and cross-cultural impact of group-based video disc technology. Final report, October 1st, 1987-December 31th, 1989. Logan: Utah state university.