

INITIAL DEVELOPMENT AND VALIDATION OF ACADEMIC SELF CONCEPT SCALE

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The Academic Self Concept Scale (ASCS) was developed as a measure of the academic facet of self concept for use in high schools. The initial item pool consisted of 80 items, worded to conform to a 5-point Likert type scale. Data obtained from 62 high school students was subjected to an iterative item-total correlation and analysis to develop a 40-item scale that was used in this study. The scale showed an alpha coefficient of .89 ($P < .001$). ASCS was found to have validity of .37 ($P < .01$) with high school class-9 marks and a discriminant validity index of $-.52$ with SPCL ($P < .001$) which lent substantial support to the psychometric quality of the device. It showed a coefficient of .39 ($P < .01$) in predicting marks for matriculation examination 10 months later and significantly differentiated between students who were academically poor and those who were better. Thus ASCS in the initial stage appeared to be a promising tool for further development and research. Recommendations were given in the end suggesting that educational as well as clinical uses of the scale can be investigated in educational rehabilitation programmes, and in school counselling settings.

From the point of view of self concept theory, self is a crucial factor in understanding human behaviour. In particular, most self concept theories imply that it is not possible to explain and predict human behaviour without knowledge of the perceptions held by individuals with respect to their environment. These perceptions and conceptions define how individuals will perceive themselves and in what behaviour and task they will engage themselves. Self concept has, therefore, been viewed as a causal agent and as an active constituent in the prediction of human behaviour. But mostly it has been studied as a general concept, and the one closest to self esteem concept. Most of the measures of self concept are hence global measures. In a thorough review on self concept research, Wylie (1974) emphasized that such global measures tended to cover too many personality facets to allow for meaningful prediction of behaviour. Schrougher & Schoeneman (1979), Shavelson & Bolus (1982) and Simpson & Beyle (1975) have also found, in their respective studies, that self concept was a multidimensional construct, therefore, global estimates of general self concept/self esteem could not predict performance in specific situations whereas more situation specific measures did. For instance, Marsh, Relich & Smith (1983) in a study of pre-adolescent students showed that mathematics achievement was substantially correlated with

The author wishes to thank Dr. Z.A. Ansari for his most helpful comments on an earlier version of this manuscript. The development of the scale was supported by Test Development project of National Institute of Psychology, Islamabad.

mathematics self concept and less correlated with academic (overall educational) self concept. Bachman (1970) also reported that academic self concept correlated — .46 with IQ test but only .14 with general self concept as measured by Rosenberg Self Esteem Scale.

Studies of self concept in academic settings have been undertaken in several dimensions under the head of academic self concept. The rationale in this respect has been that children's feelings and attitudes about themselves are closely related to school settings and reinforcement received on the performance made in schools. These variables affect student's perception of his own position in academics and thus interactively affect his performance in the school. This facet of self concept has been called academic self concept. It is considered as a function of the student's attitude and feelings with regards to his abilities and academic potential. Bloom (1976) regards academic self concept as a crucial variable which influences motivation and perseverance on school tasks. It means where students have confidence in their academic abilities, they tend to invest more effort in completing tasks. But those who see themselves as having inadequate abilities tend to show little patience or perseverance when difficulties are encountered. Academic self concept, therefore, acts as a functionally limiting factor in their cases and thus probably serves to restrict the extent to which academic achievement may vary. Considering the above, it is concluded thus that achievement scores may be influenced by students' cognitive abilities, as well as by their perception of those abilities.

The fact that affective factors associated with self concept bear on school achievement has led to an interest in cultivation of favourable academic self concept and its measurement. Such devices which tap affective development and measure academic self concept have been made a part of the educational assessment programme. Many more researches are underway to ascertain whether or not high/low level of school attainment contributes to the development of comparatively strong/weak self concept as hypothesized by Calsyn & Kenny (1977). In many studies, attempts have been made to draw inferences about the relationship between academic self concept and scholastic achievement. Studies to investigate causal predominance between academic self concept score and school grades suggest that both of these variables reciprocally interact with each other rather than any of them being predominantly causal over the other. Unfortunately, it is difficult to examine how self definitions interact and affect school learning. Owen (1983) has recently shown that the grades of freshmen could probably be higher. These speculations have created considerable concern among educators to improve upon both cognitive abilities and affective academic self concept. In a recent study, Lehn, Vladovic & Michael (1980), enhanced interest in the educational implications of self concept tremendously in saying that academic self concept scale and ability test demonstrated better academic prediction together than any of these measures alone could.

Considering the import of this area of study in the domain of educational psychology, this investigator became interested in exploring this area of research in Pakistan. Obviously the development of a valid and reliable academic self concept measure would be the first effort to be made in this regard. This paper describes the development and validation of measures intended to tap academic self concept in high school pupils and assess its psychometric characteristics. By means of academic self concept scale several psychological avenues can be explored in the service of education. For instance, both current and future academic performance can be predicted from self concept point of view; the effect of expectation and motivational level of the students on the school achievement can be ascertained and possibly manipulated, and students can be assessed with regards to their learning and behaviour problems in the counselling settings. Also, it can be used as a screening device for identifying possible high risk students having very low ASCS score. Besides, it can be used as one of the measures to assess the affective objectives of education with regards to the student's self concept development and his perception of his educational potential and efficiency.

METHOD

Sample

For the purpose of development, the ASCS was administered to 63 students of class 10 of a Government high school in Islamabad. At the time of testing, they were in the third month of their 10th academic year preparing for matriculation examination. Their most recent previous (annual, class 9) school examination showed the class to have marks with a mean of 390, SD 72 and range 111–537.

Procedure

Testing was conducted during the school hours. Subjects were told that testing was being held for purely research purposes. It was emphasized that the questionnaire was not a 'test' and that there were no right or wrong answers to it. A strong emphasis was put on the need for honest responses. Students were asked to rate each item of ASCS on a five point scale showing how accurately each statement described them. They were told that the questionnaire was designed to know about students' feeling about themselves and their studies. Students' Problem Checklist (SPCL 1985) was the other instrument administered. Problems about studies, teachers, parents, and lack of adequate school facilities, etc., were listed in SPCL. Scores on SPCL had been hypothesized to be negatively correlated with school marks.

SCALE DEVELOPMENT

Item Writing

In conformance with the rationale and definition of the academic self concept, as described in the previous section, initially 80 items were written for the scale. Most of the items were reports of typical school behaviour and customary feelings, academic interests and opinions, and attitude towards school in general. These items were worded in evaluative tone so that they could be rated on Likert type 5 place, strongly agree (5), to strongly disagree (1), scale format. After having done this, a substantive scrutiny of the items was made and doing away the overlapping items, 60 items were selected for the try-out of the scale.

Item Analysis

Data were transferred to computer medium for statistical analysis. Data tabulation out-put showed that responses to eight items heavily concentrated in the neutral (middle) category of the scale, hence they were discarded as being non-discriminating items. Item-analysis was carried out for the rest of the items. As the primary requirement for this univariate instrument is to identify a set of homogeneous items, therefore, a sequential item selection strategy was followed. The iterative procedure of item-total score correlation was used to accelerate the internal consistency of the scale. A computer programme was written which calculated all 52 item-total Product Moment Correlation Co-efficient (with correction). For 52 items, the median item-total correlation was .251, which was raised to .318 for a 40-item balanced scale of equal number of positive and negative statements, the weak items having been eliminated thus.

To see how much the finalized scale got reduced from the original form that was believed to have covered the affective domain of academic self concept, the correlation co-efficient between the scores of the two forms was obtained as .81 ($P < .001$) which shows that not much had been lost in the process of item selection and that the finalized scale still sufficiently covered the construct underlying the original form.

Further, the data was evaluated exclusively to appraise the psychometric properties of the ASCS as follows:

Reliability

Co-efficient alpha estimate of ASCS was .89 ($P < .001$) which is a satisfactory index for this affective, medium-length scale.

Validity

Students' success/failure in academics develops positive/negative self perception about their ability. The data presents the following findings about the relationship between ASCS scores and school achievement with regards to validity of the scale.

Concurrent Validity

The overall relationship between ASCS scores and school achievement (marks) were computed, by Pearson Product Moment Method as .379 ($P < .01$). This statistic is indicative of moderate positive relationship between ASCS and school achievement and was thus in line with our expectation. This index can also be interpreted as external validity of the scale, thus reflecting favourably on the theoretical significance of the construct of academic self concept underlying the scale, in relation to the criterion of school achievement. Next, on the basis of marks obtained in the previous (class 9) examination, subjects were classified into high, medium and low achievement-level students and the differences between the mean scores of these groups on ASCS were computed, which were found statistically significant (see Table 1).

Table 1

School marks of high, medium and low achievers
in relation to scores on ASCS

Achievement Level	School Marks			ASCS	
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
High	318.61	49.64	21	116.38	20.49
Medium	385.52	20.30	21	130.23	15.99
Low	465.85	40.09	20	142.75	15.64
All	389.90	71.81	62	129.58	20.54

Difference between mean ASCS scores of high and medium (school marks) achievers was (t 3.268, df 40, $P < .01$ and between medium and low achievers (t 4.328, df 39, $P < .001$).

Predictive Validity

In order to obtain estimates of predictive validity of the scale, results of class-10 (Matriculation) examination was collected 10 months later. It was confirmed that scores on ASCS were related to marks on matriculation examination (.396 $P < .01$) as much as it did to the previous class-9 annual awards.

Construct Validity

In the review of self concept studies it has been recorded that poor construct outlay was one of the major weaknesses of most of such devices (Wylie, 1974). This had to be, thus, very carefully ascertained in this study. Both convergent and discriminant validities were investigated. The concurrent validity of ASCS with grade 9 school marks, as mentioned above, could also be theoretically interpreted as convergent validity of the scale. The discriminant validity of the ASCS was explored by correlating its scores with that of SPCL as shown in table 2. The five component scores of SPCL pertaining to the five areas of problems presented the following statistics with ASCS.

Table 2

Correlation between ASCS and SPCL

1. Educational problems	-.540***
2. Problems with teachers	-.302*
3. Problems about school facilities	-.271*
4. Personal problems	-.329**
5. Problems with parents and others	-.282
SPCL	-.049***

*** $P < .001$, ** $P < .01$, * $P < .02$

Negative correlation between ASCS and all the problem areas of SPCL is a reasonably strong evidence of the discriminant validity of ASCS. The hierarchy of the set of correlations between ASCS and different areas of SPCL, specially with educational problem area as strongly negative, records credibility for both the devices.

With balanced scales such as ASCS, another useful index of the construct validity of the scale could be estimated by the index of co-efficient between two supposedly opposite halves of the scale. In this instance, the

value of coefficient obtained between the scores on negatively worded half with that of the positive half was $-.377$ ($P < .01$) which, though modest, is in the expected direction.

CONCLUSIONS

The academic self concept was developed in response to a need for reliable and valid instrument to measure academic self concept in junior high schools. The analysis of the data indicates that ASCS promises satisfactory psychometric characteristics. The validity data suggested that ASCS measures a facet of self concept specific to academic self attitude. But this is only a preliminary statement warranted only by this small sample.

The magnitude of the long term reliability should also be estimated. The scale can also be used by observers/school counsellors for their appraisal of the child in school counselling setting. Also studies can be undertaken on the learning of the disabled and educable mentally retarded children to explore the scale's diagnostic value in clinical and remedial programmes and measure affective changes that might take place as a function of special class placement.

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