THE TEACHER EDUCATION AND SUSTAINABLE DEVELOPMENT GOALS AS IT LINKS TO GENDER AND ACADEMIC PERFORMANCE OF SENIOR SECONDARY SCHOOL STUDENTS IN YOBE STATE AND NIGERIA AT LARGE

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Abstract

Considering the multi-dimensional framework and using over three hundred students' academic self-concept, gender and academic relationships were explored in order to provide cross cultural evidences. Using data obtained from two instruments of academic performance ASDQ and SEDP, the finding revealed that male subjects had higher and significant academic self-concepts and academic performance in Technical Academic subjects compared to females. On the other hand, female subjects had higher and significant academic self-concept and academic performance in arts than their male counterparts. However, in science subjects no significant gender difference in academic S1lf-concept and academic performance self-concept obtained. The findings translated in terms of gender stereotype that produce variations in attitudes and beliefs which affect students choices and their placement in various areas of studies.

Self-concept has been for long time, considered as educationally significant variable. Positive self-concept for example is valued as a goal of education and socialization and is frequently regarded as potential faci1itator of motivations and desired outcome, such as academic performance. This is because self-concept has been the focus of countless empirical studies within western and non-western educational social settings.

Many self concept researchers both in western and non western setting (Schierer and Kracit 1979; Winne et al., 1977; Whylie, 1974; Purkey, 1970; Bello, 1991; Biao, 1990; Ezeilo, 1988; Adeniran, 1985; Oluwa, 1985, all cited in Yakasai, 2000) focused on general or global self concept and its relationship with other variables such as academic performance. These studies treated the construct as a one-dimensional concept. That is, having only one ... Despite their significance, these studies on self - concept were characterized by lack elaborate theoretical models and inadequate measurement instrument (Byrne and worth Gavin 1996).

Other researches on self - concept, Shavelsor~.claL 1976; Shavelson and Bolus, 1982; Marsh and 1976; Shavelson, 1985 cites in Byrne and worth Gavin 1996) on the other hand, emphasizes the self concept. Shavelson et al., (1976) defined self - concept as a person's perceptions of him 6r herself. Trimed largely thoroughly his or her experiences of the environment.

The perception and interpretation of the environment are influenced especially by re enforcement evaluations by significant others and one's attributions for one's own behavior.

Shavelson et al (1976) posited that an individual perception of himself is structured. This implied that self concept is a hierarhically ordered with (i.e. general global) perception of the self concept as a person at the apex and specific behavior at the base. And is one mark from the apex to the bottom of the hierarchy. The structure becomes increasingly differentiated.

The general self concept is divided into two facets: Academic and Non-academic, physical, social and emotional self concepts. Furthermore, these facets are in turn divided into separate and more specific facets (e.g. maths self-concept, physical appearance self concept etc) Shave1son et al., 1976) gave up to seven features of self concept structure that are critical to the construct's definition that is self concept may be described as organized, hierarchical stable, developmental, evaluative, and differentiable.

Self concept as organized implied that individuals categorise the vast amount of information they have about themselves and relate them (i.e. the categories) to one another. That is in an effort to perceive himself, an individual amused and records great diversity of experiences (e.g. from family, school and community) into simpler forms or categories (i.e. facets). The facets, thus represent a way of organizing experience and given meaning. Multifaceted self concept implies that particular facets reflects the category system adopted by a particular person and shared by groups such category system appears to be academic, physical, social or emotional.

The hierarchical nature of self-concept implies that facts of self concept formed a hierarchy from an individual's experiences in specific stratums at the base of the hierarchy to general self-concept at the next. Self-concept as stable implies that general self-concept is stable, but as one descends the hierarchy, self-concept becomes increasingly situation specific and as a consequence less stable. The developmental aspects of self-concept imply that self-concept becomes increasingly multifaceted as the individual develops from infancy to adulthood. Self-concept as evaluative, means that it has both descriptive 'and evaluative dimension in such a way that an individual described himself (e.g. I am happy) an evaluate himself (e.g. I do well in school).

Finally self-concept is differentiable in the sense that it can be differentiated from other constructs with which it is theoretically related. These included constructs without the structure (e.g. Academic performance).

Shavel et al, (1976:415) expounded on this: The more closely self-concept is linked with specific situation; the closer is the relationship between self-concept and behavior in that situation. If one were to focus on the academic side of the hierarchy one could be hypothesized that (I) self-concept of mental ability should be more clearly related to academic performance; that to ability in social and physical situation and (II) self-concept of academic ability in science should be more closely related to performance in science that performance in Hausa or English or overall grade percentage.

This study is therefore, concerned with those constructs outside the self-concept structure, which are academic performance and gender.

Review of Related Literature

Studies that explore the relationship between self-concept and academic performance are of two folds: these that employed one-dimensional self-concept approach as framework and those that use modern self-concept theories as frame of references.

Studies which use modern self-concept theories are frame of references, reveal different and interesting funding; that is general self-concept and academic self-concept can be measured independently from academic performance; and the subject area specific self-concept (e.g. mathematics, science and reading ability can also be distinguished from academic performance. As part of these finding, Marx and Winne (1980) explored the relationship between academic (social and physical dimensions of self-concept. The result of the study reveal that academic self-concept was positively related to academic performance, but the non academic self-concept facets (social and physical dimension) were inversely related to academic performance. In her review of studies which related general self-concept with academic performance, Byrne 1984 cited some studies that reported positive, but low correlation between self-concept and academic performance. For instance Pier and Harris (1984) reported a positive but low correlational between self-concept and academic performance. Result from similar studies (C.O.O. Persmith 1967; Butcher, 1968; Mintz and Mulleri, 1977) concurred with Piers and Harris (1964) findings. These researchers intimated that the selection land use of inappropriate and inadequate instrument might have led to spuriously! low correlation between self-concept and academic performance. Similar studies Shavelson and Bolus, 1982; Marsh Parker and Smith 1983; Marsh, Smith, Barnes and Butler, 1983 cited in Byrnes, 1984) reported more elaborate findings, Byrne 1984: 450) reported that these studies showed academic achievement to be highly correlated with the specific academic dimension of self-concept, most closely linked with a particular academic ability, moderately correlated with overall academic self-concept and uncorrelated with the non academic facets of self-concept. The finding further underscored the correlation that the relationship between self-concept and academic performance including other variables mutually related to the construct could not be adequately explored, the construct is

ignored.

Adediran (1985 cited in Yakasai 2000) in his attempt to explore whether self-concept has paramount influence on students' academic performance in Yobe State and Nigeria at large, reported low negative and non significant correlations between total self-concept and academic performance of male, urban and rural subjects. However, for the girls, the correlation between total. self-concept and academic performance was significant, but negative. This low and negative correlation of self-concept and academic performance as revealed in Adeniran's (1985) study could be attributed to problem earlier raised. That is inadequate conceptual framework and inadequate measuring instruments.

In another study Abdullahi (1997) conflicting trend in the relationship between self-concept and academic performance was revealed. The result of the study revealed that self-concept and academic ability were negatively skewed and that self-concept has significant, but negative relationship with academic performance in mathematics. From the findings of the studies reviewed, it can be justified that academic self-concept is more likely to correlate highly with academic performance and often academic behaviours than is general self-concept.

Sex or rather gender differences in self-concept structure have been another line of study in the self-concept. Review of research conducted prior to 1977 by Whylie (1979 as cited in Marsh 1989) showed that there was no evidence for gender differences in overall self-concept at any age level. Whylie (1979), therefore suggested that differences in specific component of self-concept might be lost when responses to items are summed to obtain a total score. However, review of research on self-concept after 1980 suggests gender differences in general self-concept. For example, the studies of Marsh (1989), Skaalvik (1986 as cited in Skaalvik, 1990) suggested that boys have slightly higher general self-concept esteem than girls as measured by complex free instruments such as that of Rosenberg self-esteem scale. However, the result of the findings are less convincing when self-esteem is measured by instruments summing self-description in different areas, for instance, the Coppersmith self-esteem inventory. Skaalvik (1986) contended that when one studies gender differences in self-concept, the results may be dependent on the instruments used by the researcher.

With regards to sex differences in specific area of self-concept, there appeared to be a counterbalancing sex differences, which are consistent with gender stereotypes. Dusek and Flahertly (1981 as cited in Marsh, (1989) reported that boys had higher self-concept in masculinity and performance leadership and lower self-concept in congeniality sociability. The study (Marsh, 1984; Marsh, Smith and Barnes, 1985). Using SDQ found gender differences favouring bois in physical ability self-concept, and favouring girls in reading self-concept among the pre-adolescents and adolescents samples. These studies have further revealed gender differences favouring boys in mathematic self-concept. Several studies revealed by Marsh (1989), revealed higher verbal and reading of self-concept for girls than boys. The study of Marsh, Smith and

Barnes (1983) also showed that girls had significant higher self-concept in reading but had lower math self-concept than did 'boys.

The study of Skaalvik and Rankin (1990) using path analysis examined among other things, sex differences in the structure of academic self-concept. The study reported that the structure of self-concept differed for boys and girls. That is verbal self-concept had a significant and relatively strong direct effect in general academic self-concept for girls and had no significant effect for boys. For math self-concept, a direct and positive effect appeared for boys whereas a negative effect appeared for girls. Furthermore, Skaalvik and Rankim (1990) observed that verbal performance did not have any significant effect on general academic self-concept for girls, whereas mathematic performance did. On the other hand the opposite pattern emerged for boys. Thus, the researchers claimed that sex stereotypes were the cause of this apparent sex differences and suggested that boys have better maths abilities than girls and that math is .more throughout for boys, whereas girls are said to have better verbal ability than boys. In another study (Skaalvik, 1990), using the cognitive dimension measured of academic self-concept reported that girls had a substantially higher level of performance and higher success expectation than their male counterparts in Norwegian and English Language tasks, whereas there were no sex differences in performance and success expectation in math or in general academic self-esteem.

Most of the studies examined sex differences in self-concept with general academic self-concept. Since most of the studies reviewed, interpreted the apparent sex differences in terms of gender stereotypes, a replication of the results with dimensions of academic self-concept (e.g. Science, Arts and Technical self-concept) it is pertinent before any firm conclusion can be drawn. In view of the background given then it is pertinent to ask to whether the academic self-concept, academic performance across dimension of sex. Thus it is assumed as follows: that there are no significant interrelationships between gender; academic self-concept measures academic performance measures.

Methodology

The subject of this study consisted of three hundred (197 male and 120 female students randomly drawn from six senior secondary schools from Zone 'A' senatorial district, zone 'B' senatorial district and zone 'C' senatorial district of Yobe State. Only senior secondary schools offering Sciences, Arts and technical subjects were selected. The schools are senior girls' science secondary school Dapchi, and Government Technical Science Secondary! School Damaturu from Zone 'A', Senior Science Secondary School Potiskum and Government Science and Technical College Damagum From zone 'B' and Government Comprehensive Science Secondary School Gashua and Government Secondary Technical School Jakusko from zone 'C'.

Instrument

For the purpose of this research, two types of academic self-concept measures were employed in this study. There are the evaluative dimension measure and the cognitive dimension measure. The academic self description questionnaire (ASDQ) of Marsh (1990a) formed the evaluative dimension measure of students' academic self-concepts. The ASDQ corresponded to school subject's activity taken by the students. It comprised a six items, self-concept scale for each of the school subjects. The cognitive dimension of the students' self-concept was measured using the success expectations on defined problems i.e. tasks in different academic areas (subjects), which required the students to think and respond to whether they will be able to solve the given problems (Yakasai 2005) for full details of the two scales. The SEDP was used to assess the students' academic performance. That was after the students have been asked to indicate their ability on the SEDP, they were then required to solve the problems. One point was given for each item answered correctly and zero point for incorrect answer.

Data Analysis Procedure

In order to analyse the data and test the hypothesis of the 'study, subjects responses to items in the ASDQ and SEDP were summed up to obtained a total score for each scale. For instance, items measuring academic self-concept in English Language in both ASDQ and SEDP were summed up to obtain a total score of each scale. In like manner items measuring general school conception ASDQ and academic self-esteem of SEDP were summed up to obtained a total score for each scale. There and then, intercorrelations of the total score on each scale were sought.

Results

In order to test the hypothesis, there are no significant relationships between academic self-concept, sex and academic performance measures, correlation analysis was employed. The correlation between academic self-concept, sex and academic performance appeared in table 1 below:

Table 1: Correlation between Academic self-concept, sex and Academic Performances

ASDP							
GENDER	**AACH**	**GENDER**	**SELF-CON.**	**SEX**	**AACH**	**GENDER**	
ASAGR	-08	AGR	-02	SEAGR	-04	AGR	02
ASAUT	-15*	AUT	-25*	SEAUT	-19*	AUT	-25**
ASBIO	11*	BIO	14*	SEBIO	08	BIO	14*
ASCHE	04	CHE	07	SECHE	05	CHE	07
ASCOM	10*	COM	12*	SEECOM	09	COM	12*
ASECO	08	ECO	13*	SEECO	08	ECO	13*
ASELA	15*	ELA	10*	SEELA	12*	ELA	10*
ASELE	-23*	ELE	-25*	SEELE	-23*	ELE	-25*
ASELT	11*	ELT	15*	SEELT	16*	ELT	15*
ASGEN	01	GEN	04	SEGEN	01	GEN	04
ASGEO	06	GEO	13*	SEGEO	07	GEO	13*
ASGOV	06	GOV	09	SEGOV	16*	GOV	13*
ASHAU	17*	HAU	13*	SEHAU	14*	HAU	13*
ASHIS	14*	HIS	13*	SEHIS	17*	HIS	13*
ASMATH	-08	MAT	-04	SEMATH	-08	MAT	-04
ASMET	26*						

In the analysis, male was coded 1 and female 2. Therefore, positive correlation indicated higher self-concept scores for girls than for boys.

Inspection of table 2 suggests that girls had higher, but non-significant academic self-concept and academic performance or, achievement in science academic subject, than boys. However, girls had higher and significant P< 0,05 academic self-concept and academic performance or achievement in arts academic subjects than boys, On the other hand, boys had higher and significant (P<O.05, P.<0.0l) academic self-concept and academic achievement or performance in technical academic subjects than girls. These findings suggest that the parameter estimated in the self-concept structure are in variance for boys and girls in science academic self-concept structure are invariant for boys and girls in science academic self-concepts and variance in arts academic and technical academic self-concepts.

Discussion

With regards to gender differences in general and specific areas of academic self-concept, this finding reported a counterbalancing of results which in consistent with gender stereotype. On the structure of academic self-concepts, this finding revealed that male subjects had higher and significant academic self-concept and academic performance in technical academic subjects than their male counterparts. Whereas in science subjects, no significant gender differences on academic self-concept and academic performance was obtained. These findings were consistent with the findings of Dusek and Flaherty (1981) Marsh, 1984, 1909); Marsh Smith and Barnes (1985) who reported sex differences in self-concept and performance in masculine academic

subject/abilities for boys and verbal academic subject/abilities for girls.

The gender differences in academic self-concept and academic performance in technical academic and arts academic subjects, revealed in the investigation can be interpreted in terms of gender stereotype that produce variations in attitudes and beliefs which affect students choices and their placement in certain course studies. Therefore, girls for example may have negative preferences for technical academic subject/course, because these are masculine. As such they may opt for science or arts academic subjects. This gender stereotype in technical subjects has wide social implications in Yobe State to the extent that very few girls are placed in technical course.

The lack of gender differences in academic self-concept and academic performance in science academic subjects would attribute to the emphasis on science course for both genders by the state and federal governments. This emphasis in science led to the proliferation of science secondary schools courses for both gender in the state and northern state in particular.

With regards to academic self-concept in specific subject areas, the finding of this study revealed that the female subjects had significant and higher academic self-concept in English language, Hausa and History. This finding is consistent with findings of Skaalvik (1990) and Skaalvik and Rankins (1990) which reported that girls had significantly higher level of academic self-concept and academic performance in Local Norwegian and English Language than their boys counterparts. This gender differences in self-concept could be attributed to the superiority of girls over boys in verbal related skills.

Furthermore, this study is not consistent with the finding of Marsh (1989) and Skaalvik (1986a), which reported significant gender differences in favour of boys in mathematics self-concept and general self-concept (self-esteem). This finding on the other hand, reported lack of significant gender difference in mathematics self-concept, general self-concept and general academic performance can be interpreted in terms of the difference in measuring instrument used. The finding of Marsh (1989) and Skaalvik (1986a) measured self-concept using Roseberg self-esteem scale and instrument that measured self-concept in different areas - but as one-dimensional constructs. On this Skaalvik (1990) contended that when other dimension measures of academic self-concept are used as the cognitive and evaluative, different findings may be revealed. The present investigation, using both dimension measures confirms Skaalvik (1990) contention.

A possible interpretation of the lack of apparent sex differences in mathematics self-concept, general academic self-concept and performance can be stated in terms of fading away of some aspects of gender stereotype in Hausa and other local tribe in the society. The emphasis in equal educational (Science Education inclusive) opportunities for both gender and the proliferation of women in key sector of the nation's economic, political and social sectors. These factors may devalue gender stereotype suggesting that boys have better mathematics abilities and receive higher in overall school work than

girls.

Another important finding of this study, which can be explained in terms of fading away of the gender stereotyping, is the gender academic self-concept and performance relations. It was revealed in this study that boys have higher, but non-significant academic self-concept and performance in agricultural science. On both ASDQ and SEDP) than girls. On the other hand, girls had higher and significant academic self-concept and performance in biology and commerce in both SADG and SEDP than boys.

A plausible interpretation of this finding centers on the emphasis given to agricultural science and commerce in both genders in secondary school as well as the campaigns within the Hausa and other tribes in Yobe State for women's welfare and liberation, The activities of women commission as in the family support programme (FSP) and women farmers association of Nigeria (WOPAN) may be among the factors responsible for the lack of disparity in academic self-concept and performance in agricultural sciences and commerce. The supremacy of female subjects in academic self-concept and performance in Biology than their male counterparts could be interpreted from the nature of Biology as a course. Girls than boy may be favour Biology, being a paramedical (such as nursing, physiotherapy, etc) course as well as some topic such as reproduction, which has significant bearing on females as mothers. This may predict the girls to have higher academic self-concept and performance than the boys.

Implications and Recommendations

This study has further shown that the parameter estimate in the academic self-concept structure are in variance for boys and girls in science academic self-concept factor and at the same time remain in arts academic and technical academic self-concept factors. The medical implication of this is that the superiority of boys over girls in technical related academic subjects can be equated by enhancing the girls' self-concept in technical subjects. However, this is only possible when more emphasis is given to technical education for girls. As more technical school for girls are established in Yobe State and the north at large there will be need for research to investigate gender differences in technical self-concept. This will provide basis for self-concept enhancement in technical self-concept of girls in order to equate the existing gender disparity in self-concept and performance in technical education.

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