

Empirical Analyses of Students' Self-Concepts and Their Mathematics Achievements

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Abstract : The study examined the students' self-concepts and mathematics achievement viz-a-viz the existing three theoretical models: Humanist self-concept (M1), Contemporary self-concept (M2) and Skills development self-concept (M3). As a qualitative research study, it comprised of one research question, which was transformed into hypothesis viz-a-viz the existing theoretical models. Sample to the study comprised of twelve public secondary schools from which twenty-five mathematics teachers, twelve counselling officers and one thousand students of Upper Basic II were selected based on intact class as school administrations and system did not allow for randomization. Two instruments namely 10 items 'Achievement test in Mathematics' ($r_1=0.81$) and 10 items Student's self-concept questionnaire ($r_2=0.75$) were adapted, validated and used for the study. Data were analysed through descriptive, one way ANOVA, t-test and correlation statistics at 5% level of significance. Finding revealed mean and standard deviation of pre-achievement test scores of (51.322, 16.10), (54.461, 17.85) and (56.451, 18.22) for the Humanist Self-Concept, Contemporary Self-Concept and Skill Development Self-Concept respectively. Apart from that study showed that there was significant different in the academic performance of students along the existing models ($F_{cal} > F_{value}$, $df = (2, 997)$; $P < 0.05$). Furthermore, study revealed students' achievement in mathematics and self-concept questionnaire with the mean and standard deviation of (57.4, 11.35) and (81.6, 16.49) respectively. Result confirmed an affirmative relationship with the Contemporary Self-Concept model that expressed an individual subject and specific self-concept as the primary determinants of higher academic achievement in the subject as there is a statistical correlation between students' self-concept and mathematics achievement viz-a-viz the existing three theoretical models of Contemporary (M2) with $-Z_{cal} < -Z_{val}$, $df=998$; $P < 0.05^*$. The implication of the study was discussed with recommendations and suggestion for further studies proffered.

Keywords : contemporary, humanists, self-concepts, skill development

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