

Elements of success in mathematics among students of Ethiopian origin

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There are many studies focusing on the poor economical, social and educational predicaments encountered by Ethiopian Jews since their immigration to Israel started in the early 1980's. Furthermore, the overall persistent academic underachievement, the high drop out rates and poor representation of students of Ethiopian origin (SEO) in the advanced mathematics and science classes have been highlighted in many reports. Yet, studies that focus on the differential academic achievements and successes within SEO are scarce. This study explores by using qualitative methodologies, the success phenomenon among resilient and successful SEO - who against the odds, succeed academically with advanced level mathematics for matriculation exams ("Bagrut").

Aim: The aim is to identify the factors (both perceived and enacted) which play prominent roles contributing to the students' achievements and enable them to maintain success in mathematics.

Methodology: The participants constitute a sample of twenty-four (ages 16-19) resilient and successful SEO from eight different high schools (from five cities) and from a special pre-academic program in a prestigious university. A collective case study design was implemented to examine and analyze the students' perceptions of and enacted learning practices in different mathematical contexts. Data were collected through semi-structured interviews, classroom observations and through assigning mathematical tasks.

Findings from the interviews: The perceived factors identified as influential to the achievements of SEO, organized under three categories that are closely interrelated and act synergistically are, Personal variables: a positive mathematics identity, malleable attribution beliefs, academic self efficacy and personal agency, resiliency, academic goals, a strong ethnic identity and a determination to promote social goals associated with a high sense of responsibility to the ethnic community.

Strategies and enacted behavior: Students' fostered uses of cognitive, behavioral and environmental self-regulation strategies (e.g., rehearsing, persisting, and 'solo-learning').

Environmental factors: the immediate environmental factors, specifically the mathematics teaching and learning goal orientations as experienced in the classroom, the teachers the parents and the societal challenges shaping the students academic identities, personal motivational beliefs and the strategies.