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The structural validity of the perceived traits of the "ideal student" multi-faceted theory among education students

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ABSTRACT

The article presents a multi-faceted theory of "ideal high school student" traits. The trait system, as defined by several theories, is a translation of the teachers' belief system into educational objectives. The study focused on Bloom's taxonomies and the structural validity of its principles, using Similarity Structure Analysis. Aware of the criticism of the taxonomies, the study examines and confirms several principles underlying the taxonomies, while others are still open to reexamination.

The purpose of the present article is to validate several principles of Bloom's taxonomy of educational objectives through an inventory for measuring the perception of ideal student traits. In the taxonomies of Bloom and his colleagues (Bloom, Krathwohl, & Masia, 1956; Krathwohl, Bloom, & Masia, 1964), Andrich (2002) identified five educational objectives—Level 1: cognitive, affective and psychomotor domains; Level 2: hierarchy of the cognitive domain; Level 3: the level of analysis; Level 4: the subcomponents of the analysis of organizational principles; Level 5: specific verbs of behavior. The suggested inventory incorporates Levels 1, 2 and 5 of this taxonomy. In addition, the article encompasses the affective domain and relates to the multidimensionality of the educational and psychological theories underlying the construct of its structure. Similarity Structure Analysis (SSA—also known as Smallest Space Analysis) will be employed to confirm the validity of the above taxonomy.

Background

Belief system

The perception of "ideal student" traits is an abstraction and conceptualization of the students' traits as perceived by teachers and prospective teachers that represents the teachers' belief system (Maslovaty, 2002). Teachers translate their "pedagogical theory" based on their psychological and socio-cultural knowledge and ideas integrated with their experience about educational processes and products as students and or teachers, into practice: first, into educational objectives, then into teaching strategies, and finally into assessment and test questions. This study examines university students' perception of the educational objectives but not their implementation in the classroom.

In recent years, the definition of teachers' beliefs with regard to pedagogical concepts has constituted a subject of worldwide research as part of an attempt to understand teachers' professional development. Richardson (1996) views beliefs as part of a group of constructs that define and describe the structure and content of mental states believed to drive one's actions. She differentiates among the conceptions held by students, prospective students and teachers. Benyamini and Limor (1995) analyzed the students' traits using SSA and confirmed their hypothesized Implicit Role Theory. The assumption underlying the present study is that the "ideal student" trait system, as perceived by prospective teachers, undergraduate education students, and practicing teachers is an operational definition of their educational goals (Maslovaty & Iram, 1997). This perception is influenced by their personal, professional and social belief system (Maslovaty, 2002).

Multi-faceted theory

To construct a theory of ideal student traits, we chose to apply Guttman's definition of theory (Gratch, 1973, p. 35). Guttman defined a theory as "an hypothesis of a correspondence between a definitional system for a universe of observations, and an aspect of the empirical structure of those observations, together with a rationale for such an hypothesis". A multi-faceted theory was hypothesized, based on five theoretical approaches.

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Bloom's taxonomies

The taxonomies of Bloom and his colleagues (Bloom et al., 1956; Krathwohl et al., 1964) have been the basis for curricula in the world for nearly half a century. Over 50 years, scholars have questioned the structure and content of the taxonomies from different points of view. In his article, "Integration of Test Design and Analysis: Status in 1979," Guttman (1980) challenged educational scientists to attempt to cope with theory construction for Bloom's taxonomy. Guttman (1980) suggested that it would be interesting to try to restate Bloom's rich taxonomy of educational objectives into more complete facet terms and into a form that would help generate empirical hypotheses. Guttman (1980, p. 25) claimed that, in the facet approach, a taxonomy referred only to the definitional part of a theory; it was not a theory in itself.

More than 20 years later, Shulman (2002) asked what motivated Bloom and his colleagues to create taxonomies in the first place. He argues that in the late 1940s, educators needed a new language, to connect and align teaching and assessment. But the taxonomies moved from being a scoring rubric and vehicle for communicating about test items, to being a heuristic for instructional design. They become ideologies, a form of collective conscience. Shulman claims that the implication of sequence and hierarchy within taxonomies obscures their true value, because taxonomies are not, and should not be treated as, theories. They are *certainly* not grand theories but "theories of the middle range."

This paper will try to confirm the structural validity of Bloom's theory by using the perceptions of the "ideal high school student traits" of prospective and practicing teachers. These perceptions are built on the internalization of knowledge together with educational experience, as teachers and students, of the sample examined. The emphasis in this study is on the structural validity of the perception system, the rationale for this structure and its consistency over samples.

Bloom et al. (1956, 1964) identified three domains of educational objectives: cognitive, affective, and psychomotor. Each scheme is hierarchical (levels increase in difficulty or sophistication) and cumulative (each level builds on and subsumes the ones below). In addition to clarifying instructional objectives, the categories may be used to provide a basis for questions to ensure that students progress to the highest levels of thinking, feeling and acting.

The cognitive domain

The cognitive domain involves knowledge and the development of intellectual skills. It includes six major categories, from the simplest behavior to the most complex. The categories can be viewed as degrees of difficulty; that is, the first level must be mastered before the next can be attempted. The categories are as follows: (1) knowledge, (2) comprehension, (3) application, (4) analysis, (5) synthesis, and (6) evaluation.

Armstrong (1998) suggests that Bloom's taxonomy may be the basis for much of the instructional enterprise. Knowledge, comprehension and application activities are said to be convergent. Those in the higher categories – analysis, synthesis and evaluation – are divergent. Anderson and Krathwohl (2001) revised the taxonomy with a view to examining the relevance of the taxonomy to learning in the 21st century. Some of the more significant changes included changes in terminology, structure and emphasis. Based on the structure of educational objectives, on advances in cognitive psychology, and on other attempts to classify educational objectives that were made since the publication of Bloom's taxonomy, they produced a two-dimensional table: the horizontal dimension was a modification of Bloom's taxonomy, with verb forms replacing the noun forms of the original category labels: Remember, Understand, Apply, Analyze, Evaluate, and Create. The vertical dimension consisted of four types of knowledge: Factual Knowledge, Conceptual Knowledge, Procedural Knowledge, and Metacognitive Knowledge (Anderson, 2005).

The affective domain

The affective domain (Krathwohl et al., 1964) includes the manner in which we deal with things emotionally: feelings, appreciation, enthusiasm, motivation and attitudes. While the structural principles that underlie the cognitive hierarchy of the taxonomy are complexity and consciousness, the structural principles that underlie the affective hierarchy are the internalization and developmental stages, from passive and dependent to active and autonomous. The categories and subcategories of the affective taxonomy are as follows: (1) receiving (attending), (2) responding, (3) valuing, (4) organization, and (5) characterization.

The psychomotor domain

In the psychomotor domain, performance may take the place of questioning strategies in many cases. The committee did not produce a compilation for the psychomotor domain model, but others have. There are three versions: Simpson (1972), for example, suggested seven major categories listed in order—(1) perception; (2) set: readiness to act; (3) guided response; (4) mechanism; (5) complex overt response; (6) adaptation; (7) origination.

Maslovaty et al.'s content areas of educational goals

The aims of education in Israel were defined along the 60 years of its existence through pedagogical, ideological and political negotiations. The Education Law of 1953 defined the goal of national education as follows: to base education in the state on the values of the culture of Israel and the achievements of the science, on love of the homeland and loyalty to the state and the people of Israel, on belief in agricultural work and craftsmanship, on pioneering training and the aspiration for a society founded on freedom, equality, tolerance, mutual help and love of people. The Law was updated and expanded in 2000 to include a special clause on equality and distinctiveness for the Arab population and other unique population groups in the state of Israel.

The Curricular Division of the Ministry of Education began to operate in 1966, and worked in collaboration with Bloom and his colleagues at the University of Chicago (Lewy & Miron, 2002). Through the curricula, the division defined the goals of education in three domains: cognitive, affective and psychomotor. In recent years, teacher colleges continue to teach the taxonomies, along with an emphasis on constructivist learning theories.

In keeping with the Law of Education, the goals of education vary according to discipline, sub-population and grade level. These are influenced by the priorities of educational theories on one hand, and the vision of the Ministry of Education on the other. Eight studies conducted by Maslovaty and Iram (1997), Maslovaty and Sitton (1999), Maslovaty (2002), and Maslovaty and Zuckerman (2003) on different samples of education students in universities and colleges, prospective teachers and teachers in elementary and high schools, secular and religious, showed consistency in attitudinal structure toward the following content areas: interpersonal relations; religiosity; society and nation; learning skills; higher order thinking; and personality.

Levy and Guttman's orientations

Levy and Guttman (1985) claim that examination of the contents of fundamental value items reveals that they are oriented to at least three different kinds of recipients—one's self (the