Project: Motivation in Mathematics

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Project: How to Motivated American Students?

Brazil has a mixed system of public and private funded universities. The public universities are funded entirely by the government and offer the highest quality education. Once a student is accepted at any publicly funded university (PFU), he/she is guaranteed a college education at no cost. In order to enter these PFU, students are required to pass a rigorous set of tests called the "Vestibular Examination" (VE). On average, less than 5% of all high school graduates are accepted in a PFU in Brazil. The students accepted by a PFU normally come from prestigious private high schools or from expensive preparatory schools that provide one year of intensive remedial courses after high school, covering the subject areas of the VE. Generally, students from low-income families have weak backgrounds and they aren't motivated in math for PFU schools. I started a facility called "PATRICK CHEVALIER ENSINO CLUBE DO ESTUDANTE S/C LTDA" (Patrick Chevalier's Student Learning Club, Ltd). My tutoring center provided private classes and remedial courses in mathematics, for students who wanted to improve their backgrounds, and pass the VE. My mission was to motivate low-income students from the slums of Sao Paulo to study math to pass the VE and gain acceptance at these PFU in Brazil. To motivate low-income students from Brazil Slums to study math, I provided some Lectures for Food every Tuesday and Thursday evening. This activity attracted the attention of the Rede Globo, the most prestigious and highly regarded TV Station/News gathering Agency/Production Company in Brazil. I was asked to participate in the national TV program called PEGN - Pequenas Empresas, Grandes Negocios (Small Enterprises, Big Business). During the telecast I

explained this kind of “Motivation Project” even low-income students could be motivated and accepted in Brazilian PFU.

I chose the topic “Motivation in Math” to better understand how to motivate American students to study math in U.S. In fact, SAT and other acceptance exams have had relatively easy math questions, and other factors such as reference letters, statement of purpose, and interviews have been negative motivation factor to study math to be accepted by American universities. As three years as TA and instructor from the math department from UH, I have seen students with a lack of motivation to study remedial and college math courses in the university. Expensive tuition and weak math background are the main reason for dismissal from the American universities programs. The presented literature review was very important to me to understand the factors that contribute to motivate American and other students to study math.. For instance, different cultural groups have distinctive sets of beliefs, values, and attitudes have influenced mathematics motivation. They also learned that student's motivation to study hard math were to gain more knowledge, to get good grades, to go to college, to please parents, to please teachers, to get a better job in the future, and because they set high standards for themselves to achieve success. I was impressed that an important motivation variable in accounting for the overall difference between Asian-American and Caucasian-American students in mathematics achievement is the larger number of Asian-American students who were enrolled in the advanced mathematics classes. Furthermore, Chinese, and Japanese students follow a national curriculum and have no choice in the level of the course in which they are enrolled. My school in U.S. can use some motivation factors as homework, math activities, math anxiety and self-efficacy, affect from parents and teachers, avoiding stereotypes, math involvement, moderate challenge math

questions, confidence, interest, and family's and teacher’s supports. Finally, I really believe that every subject including math has important knowledge and creativity to power human motivation and self-confidence.

References

Carmichael, C., & Taylor, J. A.(2005). Analysis of student beliefs in a tertiary preparatory mathematics course. International Journal of Mathematical Education in Science & Technology, 36 (7), 713-719.

Chen, C., & Stevenson, H. W. (1995). Motivation and mathematics achievement: A comparative study of Asian-American, Caucasian-American, and East Asian high school students. *Academic Journal Child Development, 66* (4), 1215-1234.

Gottfried, A. E., Marcoulides, G. A., Gottfried, A. W., Oliver, & Pamella H.A. (2009). Latent curve model of parental motivational practices and developmental decline in math and science academic intrinsic motivation. *Journal of Educational Psychology, 101* (3), 729-739.

Dettmers, S., Trautwein, U., Lüdtke, O., Kunter, M., & Baumert, J. (2010). Homework works if homework quality is high: Using multilevel modeling to predict the development of achievement in mathematics. *Journal of Educational Psychology, 102* (2), 467-482.

Jones, M. H., Audley-Piotrowski, S. R., & Kiefer, S. M. (2012). Relationships among adolescents' perceptions of friends' behaviors, academic self-concept, and math performance. *Journal of Educational Psychology, 104* (1), 19-31.

Rowan-Kenyon, H. T., Swan, A. K., & Creager, M. F. (2012). Social cognitive factors, support, and engagement: Early adolescents' math interests as precursors to choice of career. *Career Development Quarterly, 60 (1), 2-15.*

Şahin K., & Ahmet E. (2010). Mathematics anxiety according to middle school students' achievement motivation and social comparison. *Academic Journal Education, 131* (1), 54-63.

Schweinle, A., Meyer, D. K., & Turner, J. C. (2006). Striking the right balance: students' motivation and affect in elementary mathematics. *Journal of Educational Research, 99* (5), 271-293.

Seokhee C, & Chia-Yi L. 92011). Influence of family processes, motivation, and beliefs about intelligence on creative problem solving of scientifically talented individuals. *Roeper Review, 33* (1), 46-58.

Smith, J. L., Sansone, C., & White, P.l H.(2007). The stereotyped task engagement process: The role of interest and achievement motivation. *Journal of Educational Psychology, 99* (1), 99-114.

Stevens, T., Olivarez Jr., A., Lan, W. Y., & Tallent-Runnels, M. K. (2004). Role of mathematics self-efficacy and motivation in mathematics performance across ethnicity. Journal of Educational Research, 97 (4), 208-221.

Teoh S. H., Koo A. C, & Singh P. (2010). Extracting factors for students' motivation in studying mathematics. *International Journal of Mathematical Education in Science & Technology. 41* (6,), 711-724.

Turner, J. C.;, & Meyer, D. K. A. (2004). Classroom perspective on the principle of moderate challenge in mathematics. *Journal of Educational Research, 97* (6), 311-318.