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# Students' Motivational Profiles Changes in an Academic Setting: a Longitudinal Study

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**Abstract**

The purpose of the present study was to examine, longitudinally, the number and structure of motivational profiles in a sample of students at the beginning and the end of the academic year. A total of 141 undergraduate students of Azerbaijan University of Tarbiat Moallem were randomly selected to participate in this longitudinal survey. The subjects answered to the Motivation Types in the Classroom Questionnaire in the first days of entering the university and at the end of the first academic year. Motivational profiles were formed by using K-means clustering procedure. The results showed that two motivational clusters emerged at the beginning and the end of academic year. The first cluster represented a constructive motivational profile and the second one showed a negative motivational state. Furthermore, the frequency of students in the first cluster reduced significantly at the end of the academic year compared to the beginning of the academic year ($P < 0.05$).
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*Keywords*: Self-determination theory; Motivational profile; Cluster analysis; Longitudinal study

## 1. Introduction

Although cognitive psychology has dominated learning research, a substantial number of studies have also examined the role of motivation in school performance and academic achievement (Murphy & Alexander, 2000). The importance of motivation in education is unquestionable. As decades of research in educational settings have stressed, motivation is a consistent and significant contributor to students' functioning and performance (Good & Brophy, 2000). However, throughout the past 20 years, research using the framework of Self-Determination Theory (SDT; Deci & Ryan, 1985, 2000; Vallerand, 1997) has shown that individuals in general, and students in particular, differ considerably in the ways that they could be motivated toward an activity. Motivation is defined by SDT as the reasons underlying behavior. SDT posits that there are different types of motivation that differ according to their level of self-determination (i.e., the degree to which a behavior is freely endorsed by persons), which reflects the aspect of quality of motivation. First, intrinsic motivation entails performing a behavior for reasons inherent to it, such as pleasure and satisfaction. Second, extrinsic motivation refers to doing something for reasons that are external to the activity itself. Extrinsic motivation actually refers to a family of motivations that vary in their level of autonomy. There are behaviors whose underlying motivations have not been internalized by the person but rather are different. This type of extrinsic motivation is labelled external regulation and is evidenced when individuals'

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behavior is motivated by the desire to achieve a reward or to avoid punishment. A second type of extrinsic motivation, introjected regulation, refers to behaviors that are performed on account of internal pressures such as commitment and guilt. The reasons for doing something are somewhat endorsed by the person but in a controlled fashion. A third type of extrinsic motivation is identified regulation, whereby individuals identify with the reasons for performing a behavior. This is an autonomous type of extrinsic motivation, as individuals engage in a behavior because they personally find it important. A fourth type of extrinsic motivation is integrated regulation, and this occurs when identified regulations are harmonious with other values and needs. Finally, amotivation refers to the lack or absence of motivation and is observed when individuals do not recognize the contingencies between their behaviors and their consequences.

The difference between motivation that is intrinsic (i.e., inherent to the self or the task) and extrinsic (i.e., originating from outside of the self or the task) is of longstanding interest in education. Despite the fact that an remarkable amount of research in the educational context has been conducted on intrinsic and extrinsic motivation, little research has focused on changes in these motivations across the academic years. Identifying such naturally-occurring combinations of intrinsic and extrinsic motivations changes in two time's period, however, requires a shift from traditional variable-centered approaches to person-centered approaches – which are rare in motivation research and psychology as a whole (Bergman & El-Khouri, 1999; Roeser & Galloway, 2002). So the present study focuses on changes in students' motivation profiles during the academic years.

For inclusive investigation of changing; we examined motivation according to the self-determination theory's (SDT; Deci & Ryan, 1985) multidimensional perspective of motivation; because this multidimensional approach based on a person-centered analysis. Researchers have suggested that questions concerning individual development over time are best addressed through a person-centered approach such as cluster analysis (Magnusson ,1998; Magnusson & Stattin, 1998).

## 2. Methods

### 2.1 Participants

The study samples consist of 141 first year undergraduate students in Azerbaijan University of Tarbiat Moallem that were selected by random sampling method.

### 2.2 Procedure

This research was conducted through a longitudinal survey. The subjects answered to the Motivation Types in the Classroom Questionnaires at the first days of entering the university and at the end of the first academic year. Motivational profiles or clusters were formed by the k-means clustering procedure. The aim of the cluster analysis was to identify the homogeneous groups or clusters based on the characteristics of participants possessed. The potential cluster solution was extracted (two-, three-, four-, and five-cluster solutions), then for choosing appropriate number of clusters through MANOVA; we looked for significant differences among these clusters with respect to clustering variables. In this way the instability of motivational profiles was explored by examining shifts between clusters over the course of an academic year.

### 2.3 Instrument

The different motivational types in academic courses were measured with Motivation Types in the Classroom Questionnaires (Ryan and Connell ,1989). This instrument has four subscales for measuring intrinsic motivation, identified regulation, introjected regulation, and external regulation. Also the amotivation subscale was adapted of the Academic Motivation Scale (Vallerand, Fortier and Guay, 1993). Each subscale had four items measured with 7-point scales. Cronbach's alphas coefficients were calculated in this research .87, .89, .87, .92, and .89 for intrinsic motivation, identified regulation, introjected regulation, externic regulation, and amotivation scales, respectively. The questionnaire was administrated to the participants in the form of groups at the end of courses.

## 3. Results

According to both cluster analyses, two motivational profiles were found out. The cluster sizes, means and standard deviations are demonstrated in Table 1 and Figure 1. The first cluster was a self-determinant motivational profile in which students has high levels of identified regulation and intrinsic motivation and low levels of external motivation, introjected regulation, and amotivation. The second motivational profile included students with high levels of amotivation and external regulation and low levels of internal motivation, introjected regulation, and identified regulation. Furthermore, the results showed that at the first academic year, 101 and 40 students located in the first and second clusters, respectively. Whereas, the number of students was not considerably different in two clusters (72 and 69 cases in the first and second clusters, respectively). In fact, students' ratio in the first profile was 0.72 at the beginning compared to 0.51 at the end of the academic year. The difference between these ratios was examined by using the test of proportions difference (Z=3/27, P<0/01).

Table 1. Means and standard deviations of the variables in each cluster at two times

| Motivational source | Beginning of academic year | | | | End of academic year | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Cluster 1 ($N$=101) | | Cluster 2 ($N$=40) | | Cluster 1 ($N$=72) | | Cluster 2 ($N$=69) | |
| | M | SD | M | SD | M | SD | M | SD |
| *External regulation* | 8.52 | 2.84 | 9.55 | 3.15 | 8.29 | 3.04 | 10.09 | 2.45 |
| *Introjected regulation* | 6.35 | 3.15 | 2.88 | 2.87 | 5.43 | 3.20 | 3.57 | 3.12 |
| *Identified regulation* | 13.02 | 2.55 | 5.63 | 3.73 | 11.65 | 3.38 | 5.06 | 3.57 |
| *Intrinsic motivation* | 10.21 | 3.06 | 3.12 | 2.54 | 9.72 | 2.70 | 3.32 | 2.79 |
| *Amotivation* | 5.30 | 3.32 | 11.33 | 4.04 | 5.79 | 3.18 | 12.07 | 3.34 |



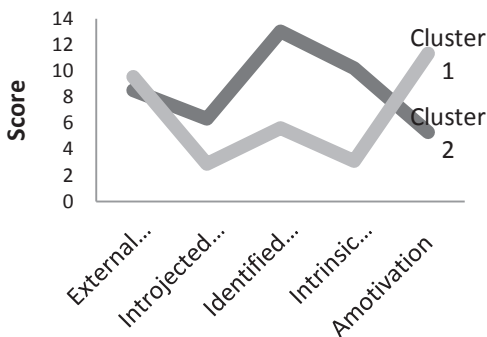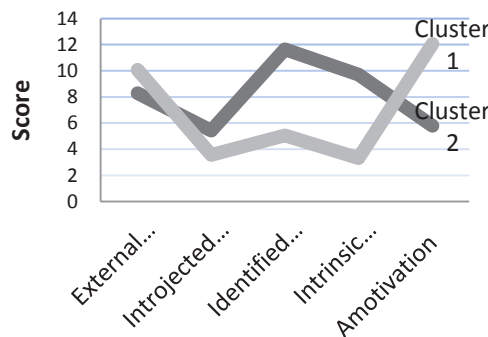Figure 1. Motivational profiles at the beginning of academic year



Figure 2. Motivational profiles at the end of academic year

## 4. Discussion

The purpose of the present study was to investigate the number and structure of motivational clusters in a sample of Iranian students at the beginning and the end of the academic year. Two motivational clusters emerged at the beginning and the end of academic year. The first cluster represented a constructive motivational profile and the second cluster showed a negative motivational state. Also, the results displayed that the frequency of the first cluster students at the end of academic year significantly reduced compared with the beginning of academic year. This finding is consistent with expectancy-value framework showing general decline in adaptive motivation over time

(Pintrich & Schunk, 2002; WigWeld & Eccles, 2000). We hypothesized that change in student profiles would explain such a general decline, with the majority of students moving into clusters characterized by less adaptive motivational beliefs. On the other hand, another reason for the reduction in achievement motivation can be related to educational conditions in Iran. Since the request to enter the university is very high among Iranian high school students, they might have a high level of motivation after success in a highly competitive examination. This may explain the high levels of motivation in the first days of starting education. After one year, they might realize the difficulties of studying hard and the problems of residing, independently, in dormitories. These conditions would reduce their motivation. There are several theories that have been proposed to explain the declining in academic motivation. Drawing on cumulative stress theory, Simmons and Blyth (1987) argued that the presence of multiple life changes during adolescence contributes to this decline. Entering to university is hypothesized to be a stressful situation because students must cope with major transitions about life style, relationship with classmates and study methods. Subsequently, for some students, these novel and complex situations are difficult to handle and thus have a negative impact on the students' motivational beliefs. Further research is necessary to investigate other aspects of motivation reduction among students.

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