Profiles of Intrinsic and Extrinsic Motivations: A Person-Centered Approach to Motivation and Achievement in Middle School

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Abstract

Early adolescents' intrinsic and extrinsic motivations were assessed independently and subjected to cluster analysis, which revealed five distinct motivational profiles. Students with relatively high levels of intrinsic motivation and low levels of extrinsic motivation earned higher classroom grades than their peers in other clusters. Over the course of an academic year, students in all clusters exhibited motivational decreases, and the cluster with high levels of both intrinsic and extrinsic motivations had the lowest stability.

Introduction

• The distinction 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. Although often conceived as polar opposites (e.g., Boggiano, 1998; Harter, 1981; Meece, Blumenfeld & Hoyle, 1988), recent work has shown that intrinsic and extrinsic motivations may in fact coexist (Corpus, McClintic-Gilbert & Hayenga, 2009; Lepper, Corpus & Iyengar, 2005). This raises the question of precisely how these types of motivation tend to co-occur within individual students in real classrooms.

• Identifying such naturally-occurring combinations of intrinsic and extrinsic motivations, 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). The few person-centered studies that do exist, moreover, are limited by the use of artificial median- or tertile-splits to form groups (see Maxwell & Delaney, 1993). The present analysis differs in that *cluster analysis* was used to establish the profiles.

• In order to understand the psychological implications of the motivational profiles, we collected students' classroom grades and compared average performance among the different clusters. Finally, the stability of motivational profiles was explored by examining shifts between clusters over the course of an academic year.

Method

In both the fall and the spring of a single academic year, 388 6th, 7th- and 8th-grade students from a traditional public middle school completed a survey that assessed their levels of motivation. Intrinsic motivation was captured with three dimensions: curiosity-driven engagement (n = 6), a preference for challenging work (n = 6), and the desire to master schoolwork independently (n = 5). Extrinsic motivation was composed of three subscales: doing schoolwork to please teachers and parents (n = 6), a preference for easy work (n = 5), and dependence on the teacher (n = 5; see Lepper et al. 2005 for survey items). GPAs for each semester were later collected from school records.

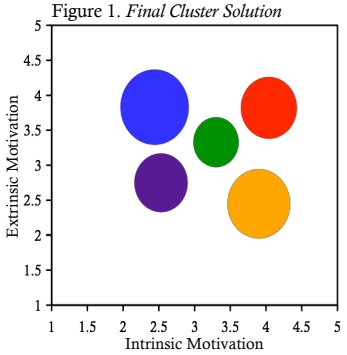
Results

Forming Profiles. Motivational profiles were formed in an I-States as Objects Analysis using Ward's method followed by k-means clustering.

A final solution of five distinct motivational profiles was chosen, which explained 72% of the variance in intrinsic and extrinsic motivations (see Figure 1).

The cluster radii in Figure 1 represent the amount of variance in the motivational profiles, and were formed by adding the standard deviations for intrinsic and extrinsic motivations for each cluster. Cluster labels and their centroids are reported in Table 1.

Figure 1. *Final Cluster Solution*



Achievement Correlates. As expected, there was a significant difference among motivational profiles in GPA. In both the fall and spring, students with high intrinsic motivation and low extrinsic motivation performed significantly better than their peers in the other four clusters, which did not differ from one another. See Table 1.

Table 1. *Cluster Centroids and GPAs in the Fall and Spring*

	Cluster				
	High IM High EM	High IM Low EM	Med. IM Med. EM	Low IM High EM	Low IM Low EM
Variable					
Fall	n = 63	n = 67	n = 104	n = 54	n = 55
IM	4.07 (.35)	3.92 (.44)	3.10 (.25)	2.52 (.43)	2.54 (.30)
EM	3.82 (.38)	2.49 (.37)	3.33 (.33)	3.85 (.42)	2.71 (.37)
GPA*	2.82 (1.05)$_a$	3.49 (.77)$_b$	2.88 (.94)$_a$	2.78 (1.06)$_a$	2.84 (1.08)$_a$
Spring	n = 36	n = 58	n = 93	n = 68	n = 88
IM	4.01 (.37)	3.88 (.44)	3.28 (.24)	2.36 (.48)	2.53 (.39)
EM	3.82 (.33)	2.39 (.36)	3.32 (.33)	3.82 (.42)	2.78 (.31)
GPA*	2.84 (1.02)$_a$	3.39 (.89)$_b$	2.72 (1.24)$_a$	2.52 (1.18)$_a$	2.76 (1.24)$_a$

Note: Cell values are means with standard deviations in parentheses. IM = intrinsic motivation; EM = extrinsic motivation.

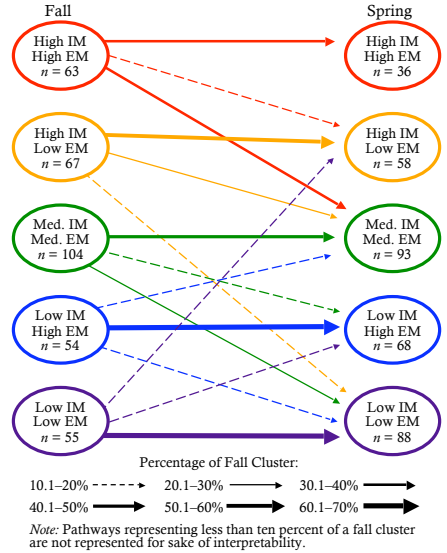
Fall GPA: One-way ANOVA comparing the five clusters: $F(4, 290) = 5.31$, $p < .01$, $\eta_p^2 = .07$.

Spring GPA: One-way ANOVA comparing the five clusters: $F(4, 290) = 4.31$, $p < .01$, $\eta_p^2 = .06$.

*Means in the same row not sharing a subscript are significantly different by Student-Newman-Keuls at the .05 level.

Stability of Profiles. Clusters were moderately stable while still showing variability; 51.3% of the sample was classified in the same cluster at both time points. The least stability was observed among the cluster representing high levels of both types of motivation, suggesting that it may be difficult to maintain this profile. The greatest stability was observed among the cluster representing low levels of both types of motivation, consistent with the trend in research on academic motivation showing a general decline over time. See Figure 2.

Figure 2. *Fall to Spring Shifts in Cluster Membership*



Note: Pathways representing less than ten percent of a fall cluster are not represented for sake of interpretability.

Conclusion

• Students with high intrinsic and low extrinsic motivations outperformed their peers. The academic adaptiveness of this profile is consistent with the benefits of intrinsic motivation – and detriments of extrinsic motivation – that researchers have described for decades.

• Profile changes supported the predicted and discouraging trend toward less motivation of both types, but the variety of inter-cluster movement may signify amenability to intervention efforts.

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