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Associations between reasons to attend and late-high school dropout

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Abstract

This study addressed (1) whether there were unique profiles of student self-reported reasons for attending school among 10th graders, (2) whether these profiles were differentially associated with late high-school dropout, and (3) whether parent characteristics differed across profiles. Using data from the Educational Longitudinal Study of 2002 ($N = 15,362$), five latent classes were found. The first class (49%) reported *intrinsic, identified/introjected, and external* motivations for attending school. The second class (32%) attended for *identified/introjected and external* reasons, while the third class (11%) reported *intrinsic and identified/introjected* reasons. The final two classes reported only *identified/introjected* (5%) or *external* (4%) motivations. Individuals in the *identified/introjected* and *external* classes were at greatest risk of dropping out between 10th and 12th grade. A host of parenting characteristics differed across class, with students in the *intrinsic-identified/introjected-external* class displaying the most favorable pattern of results. Implications for dropout prevention and academic promotion programs are discussed.

Keywords

high school dropout; reasons; parents; latent class analysis

1. Introduction

High school dropout is associated with many negative outcomes for youth including high unemployment, crime, and substance use (Stanard, 2003; Townsend, Flisher, & King, 2007; U.S Census Bureau, 2009). Depending on the index, U.S. high school dropout estimates range from 10% to 4%. The higher value, or *status* rate (Laird, DeBell, Kienzl, & Chapman, 2007), represents the percentage of non-institutionalized individuals 16–24 years who are not enrolled in high school and have not received a high school diploma or equivalency

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certificate (U.S. Census Bureau, 2008). The lower value, or *event* rate (Laird, DeBell, Kienzl, & Chapman, 2007, 2008), represents the percentage of students who leave school between two specific time points without earning a degree or equivalency certificate. The current study used the event rate between 10th and 12th grade, and adopted the term “late high school dropout” used by Dalton, Glennie, and Ingels (2009) because this interval only encompasses the final three years of secondary education.

A few recent studies have explored retrospective reasons for dropping out of school (Dalton et al., 2009; Stearns & Glennie, 2006). The majority of students provided attendance-related reasons (e.g., missing too many days to pass) for dropout, while others reported disciplinary or employment reasons (Stearns & Glennie, 2006). Nearly half of high school dropouts reported a lack of interest in their classes, and 69% stated they were not motivated or inspired to work hard academically (Bridgeland, DiIulio, & Morison, 2006). Although these studies are valuable, their implications designing retention and promotion programs are somewhat limited by the post-hoc nature of the stated reasons. More studies are needed that identify patterns of reasons to attend school associated with *later* negative outcomes. Examination of reasons 10th grade students attend school may be particularly important, as the typical age of 10th graders (16 years) is also the age over 50% of states in the U.S. allow students to legally leave high school. Self-determination theory (SDT; Deci & Ryan, 2000; Deci, Vallerand, Pelletier, & Ryan, 1991; Ryan & Deci, 2000) posits that student reasons for engaging in a behavior like late high-school dropout can be categorized into three overarching types of motivations: intrinsic motivation, extrinsic motivation, and amotivation.

Intrinsically motivated behaviors stem from a personal interest in or enjoyment of the activity (Ryan & Deci, 2000). Amotivation represents a general lack of interest in engaging in an activity. Extrinsic motivation spans the gap between intrinsic motivation and amotivation, and involves the engagement in a behavior in order to attain a separate contingent outcome. A corollary framework to SDT, Organismic Integration Theory (OIT; Deci & Ryan, 1985) parsed extrinsic motivation into four sub-types based on the individual’s perceptions of autonomy: (1) external regulation involves engaging in behaviors to satisfy an external demand, (2) introjected regulation involves engaging in a behavior to avoid negative effects on ego (e.g., shame) or to enhance ego (e.g., gain pride), (3) identified regulation involves engaging in behaviors out of an understanding of the importance of the activity, and (4) integrated regulation involves engaging in behaviors because they are fully in line with the values of the individual (Ryan & Deci, 2000). The current study applies the SDT and OIT descriptions of motivational types to student self-reported reasons for attending high school.

This study fills an important gap in the literature by prospectively examining how student reasons to attend school in the 10th grade relate to late high school dropout and achievement among a large, nationally representative sample of youth, with the ultimate goal of illustrating potential motivational targets for later prevention work. Achievement was also included as an outcome in order to examine the potential importance of reasons for attending among students who stay in school. In addition to its prospective nature, this study expands upon previous research by identifying parent characteristics that might serve as targets for fostering differential types of reasons to attend and, subsequently, enhancing academic outcomes. Parenting characteristics, like parent-teen communication, parental involvement, and parental knowledge of peer groups, have been shown predictive of positive academic outcomes (e.g., Gonzalez-DeHass, Willems, & Holbein, 2005; Sharp, Caldwell, Graham, & Ridenour, 2006; Strom & Boster, 2007).

The present study is relatively novel in that we examined student reasons for attending school using a person-centered approach (i.e., latent class analysis) that seeks to classify 10th-grade students into distinct groups based on a relatively broad set of reasons. This approach corresponds to findings from a review by the National Dropout Prevention Center demonstrating that high school dropouts constitute a highly heterogeneous population, such that many subgroups can be identified based on individual characteristics (Hammond, Linton, Smink, & Drew, 2007). In the majority of research on student reasons for high school attendance, reasons have been examined univariately or in small numbers (Ratelle et al., 2007), with lower order interactions rarely examined, much less the potential for higher order interactions that stems from the use of a person-centered approach (Lanza et al., 2010; Muthén & Muthén, 2000). For example, the current approach allows for the evaluation of a specific reason for attending school (e.g., intrinsic motivations) when in the context of high or low levels of other motivations (e.g., external regulation, integrated regulation).

1.1 Research Questions

We explored three research questions: (1) *What patterns of reasons for attending school exist among 10th grade students in the U.S.?* (2) *To what extent are these patterns differentially associated with late high school dropout and standardized achievement?* (3) *To what extent are relevant parent characteristics associated with these patterns?*

2. Method

2.1 Participants

Data from the baseline and first follow-up of the Educational Longitudinal Study of 2002 were used for the current study (see NCES, 2004; Ingels et al., 2004, 2005 for greater detail on the ELS 2002). Baseline data, consisting of 15,362 sophomore students within 752 schools, were collected in the spring term of the 2001/02 year. A two-stage sampling process was used. First, schools were selected with probability proportional to size, with the aim of representing of all schools with a sophomore population in the U.S. Second, approximately 26 students per school were selected. Follow-up was in the spring of the 2003/04 year.

2.2 Measures

Data came from three baseline year questionnaires and two waves of achievement tests (reading in 2002 and mathematics in 2002 and 2004). The student questionnaire was self-administered. A parent questionnaire was completed by the parent/guardian most familiar with the student's school experience. School administrators completed a survey regarding general school characteristics. The current study uses data from the 14,240 students who responded to all seven reasons for attending school items (see Figure 1).

2.2.1 Demographics—The current sample included 7159 female students (50%). Race-ethnicity was a five-category variable: a) Non-Hispanic White (NH White; 57%; used as the reference group), b) Black (13%), c) Asian, Hawaiian or other Pacific Islander (10%), d) Hispanic (14%), and e) other (Multiracial, American Indian, or Alaska Native; 6%). A total of 2403 (17%) students reported that English was not their native language.

2.2.2 Reasons for attending school—The latent classes were determined by seven indicators describing reasons why students report staying in school. The seven items had a 4-point scale (strongly agree to strongly disagree) which was recoded as binary (0 = disagree, 1 = agree). The stem for this measure was, “I attend school because...”, and the actual items are: (1) classes are interesting and challenging, (2) I'm satisfied by doing what I'm supposed to do in class, (3) education is important for getting a job later on, (4) I'm

learning skills that I will need for a job, (5) it's a place to meet friends, (6) I play on a team or belong to a club, and (7) I have nothing to do. Using the SDT and OIT framework (Ryan & Deci, 2000), items 1 and 2 represented intrinsic motivations, items 3 and 4 represented identified/integrated regulation, items 5 and 6 represented external regulation, and item 7 represented amotivation.

2.2.3 Academic variables—The 10th grade standardized test composite score was the average of 10th grade math and reading standardized scores ($M_{\text{Composite}} = 50.76$, $SD = 10.00$). If students only had a math or a reading score, that score represented their composite. In 12th grade, only math scores ($M = 50.84$, $SD = 10.01$) were available.

2.2.4 Late High School Dropout—Late high school dropout was operationalized as students who were enrolled in 2002 and had dropped out and not returned to school in 2004 ($n = 694$; 4.9%). Students who dropped out but later earned a GED ($n = 113$), dropped out post-baseline but were enrolled in 2004 ($n = 178$), or were not in the country, deceased, or otherwise unreachable ($n = 89$) were not included.

2.2.5 Parent variables—*Parental educational level* was the highest level of education either they or their partners obtained (8-point scale; 1= did not finish high-school, 8= Completed PhD, MD or other advanced degree). *Parental involvement* was the average of 12-items ($\alpha = 0.81$; 4-point scale; never = 1, always = 4) on how often parents spent time with their 10th grader doing various activities (see Appendix A). *Parent's knowledge of their child's friends* was the average of 9-items ($\alpha = 0.72$) where parents selected up to 3 of their child's friends and indicated if they knew that friend and his/her parents (Yes = 1, No = 0). *Parent-child communication about school* was the average of 7 items ($\alpha = .80$; 3-point scale; never = 1, often = 3) on how often students discussed academic issues with their parents.

2.2.6 School variables—*School resources* was 10 items ($\alpha = 0.90$; 4-point scale; 1 = not at all, 4 = a lot) asking administrators to rate the degree to which student learning was hindered by certain adverse conditions (see Appendix A). *School safety* was a single item asking the degree to which 10th graders' learning was hindered by a lack of discipline and safety (same 4-point scale). *Urbanicity* was determined from source data used for sampling (1= Urban, 2 = Suburban, 3 =Rural).

2.3 Plan of analysis

We performed an unconditional latent class analysis (LCA) on the 7 binary indicators of student reasons to attend school. ELS 2002 sampling weights were included to account for the unequal probability of student selection for the larger study. The unconditional model was substantively interpreted, following suggestions from Lanza, Collins, Lemmon, and Schafer (2007) and Clark and Muthén (under review). To more completely explore the resulting class structure, we next performed a conditional LCA with individual (level 1 covariates) and school level characteristics (level 2 covariates) predicting class membership. Output from this model included posterior probabilities of membership in each class for each individual. Using these probabilities, we then compared classes on late high school dropout and standardized math achievement. To account for the uncertainty associated with classifying individuals based on their highest posterior probability (Clogg, 1995), we randomly drew class membership ten times using the posterior probabilities of membership. Tenth grade standardized achievement was included in the model to control for the impact of previous success on later dropout. We averaged the results across the ten draws to reduce the likelihood of Type I errors. Finally, we examined whether classes differed on parenting characteristics using the auxiliary function in Mplus (1998–2007).

3. Results

3.1 Preliminary Analysis

Before performing the LCA, we examined the sample level reasons for attending school (Figure 1). On average, students endorsed identified/introjected regulated reasons and externally regulated reasons relating to friends more frequently than intrinsic motivations and amotivation.

3.2 Unconditional Latent Class Analysis

According to the Bayesian Information Criteria (BIC; Schwartz, 1978) and the Lo-Mendell-Rubin likelihood ratio test (aLRT; Lo, Mendell, & Rubin, 2001), the five class solution fit best (Table 1). Although the Akaike Information Criteria (AIC; Akaike, 1987) continues to decrease beyond five classes, the additional classes were very small and minimally distinguished from those in the five class solution.

The first class was the *intrinsic-identified/introjected-external* class and made up 49% of the sample (Figure 1). These students reported attending school for a combination of intrinsic and identified/introjected reasons, as well for externally regulated reasons regarding social activities. The second class was the *identified/introjected-external* class (32%), having attended school for the internalized future value of education and the external motivation to spend time with friends. The third class was the *intrinsic-identified/introjected* class (11%), as they were similar to the first class with the exception of lacking an externally regulated social reason to attend. The final two classes (5% and 4% respectively) were labeled the *identified/introjected* class and the *external* class.

3.3 Conditional LCA with Multi-level Covariates

In order to better describe the classes, we examined the five class solution using individual- and school-level covariates. Sex, race-ethnicity, and ESL status were included as individual level covariates. At the school level, school resources, school safety, and urbanicity were included, and the *intrinsic-identified/introjected-external* class served as the reference category.

Females were more likely than males to be members of the *intrinsic-identified/introjected-external* (53%) over the *identified/introjected-external* (45%), *identified/introjected* (38%), and *external* (27%) classes (p 's < .01). Black students were more likely to be in the *intrinsic-identified/introjected* (31%) and *identified/introjected* (18%) classes over the *identified/introjected-external* (11%) class than NH White Students (p 's < .01). Black students were also less likely to be in the *identified/introjected-external* (6%) and *external* (5%) classes over the *intrinsic-identified/introjected-external* class than NH White students (p 's < .01). Hispanic students were more likely than NH White students to be in the *intrinsic-identified/introjected* (19%) class over the *intrinsic-identified/introjected-external* (14%) class (p < .01). Asian students were less likely than NH White students to be in the *identified/introjected-external* (7%) and *external* classes (3%) over the *intrinsic-identified/introjected-external* class (11%; p 's < .01). Students for whom English was their second language were more likely than first-language English speakers to be in the *identified/introjected-external* (22%) class over the *intrinsic-identified/introjected-external* class (18%; p < .01). None of the school-level covariates were significant.

3.4 Predicting Late High School Outcomes

Using the ten randomly drawn datasets, we then regressed late high school dropout status and 12th grade math achievement onto class membership and 10th grade standardized achievement. The *intrinsic-identified/introjected-external* class was the reference group, and

all statistics represent averages across the ten random draws. As expected, 10th grade achievement was strongly predictive of late high school dropout, $\beta = -.09$, Wald $Z = 309.21$, $p < .001$. For every unit increase in 10th grade achievement, the odds of dropping out decreased by a factor of .92. Class membership was also a significant predictor of late high school dropout, with individuals in the *intrinsic-identified/introjected-external* class being least likely to drop out of high school (3.40% dropout rate; Table 2). When the effect of 10th grade achievement was accounted for, relative to the *intrinsic-identified/introjected-external* class, the odds of dropping out were 2.91 greater for the *external* class ($\beta = 1.07$, Wald $Z = 34.75$, $p < .001$), 2.38 greater for the *identified/introjected* class ($\beta = .86$, Wald $Z = 23.46$, $p < .001$), and 1.46 greater the *identified/introjected-external* class ($\beta = .38$, Wald $Z = 11.92$, $p < .01$). The odds of dropping out were 1.26 greater for the *intrinsic-identified/introjected* class, but this difference was not significant ($\beta = .23$, Wald $Z = 2.38$, $p > .01$). For individuals who did not drop out, when previous achievement was accounted for, the *intrinsic-identified/introjected-external* class exhibited the highest scores across classes ($\Delta F_{4, 9673} = 2.92$, $p < .05$).

3.5 Parent Predictors of Class Membership

We examined parent characteristics using the auxiliary variable function of Mplus 5.21 for two reasons. Parental educational level significantly differed across class, such that individuals in the *intrinsic-identified/introjected-external* class had the most educated parents (pairwise χ^2 's $p < .05$; Table 3). Parents of students in the *intrinsic-identified/introjected-external* class also reported the greatest involvement in their children's lives, with parents in the *external* class reporting the least (pairwise χ^2 's $p < .001$). In regard to knowledge of their children's friends, parents in the *intrinsic-identified/introjected-external* class and the *identified/introjected-external* class reported the greatest knowledge (pairwise χ^2 's $p < .05$). Finally, parent-child communication about school differed across classes, with the most communication seen in the *intrinsic-identified/introjected-external* and *intrinsic-identified/introjected* classes, respectively (pairwise χ^2 's $p < .001$).

4. Discussion

This study illustrated subgroups of students with differential reasons for attending school, the extent to which these reasons were associated with late high school dropout and achievement, and the ways in which parenting characteristics were predictive of sub-group membership using a large, nationally representative sample of students. Results indicated significant heterogeneity in the reasons 10th graders report. At the population level, identified/introjected and externally regulated reasons were most frequently endorsed, with students frequently reporting attendance due to the future value of education to them and the external reward of spending time with friends. Similar results were seen at the class level, such that four of the five latent classes reported identified/introjected motivations and three reported externally regulated reasons.

The largest latent class, representing nearly half of all students, was also the most optimal. These individuals report a diverse set of motivations for attending school that incorporates an intrinsic enjoyment of the academic challenges and the external rewards for socializing with peers in high school, as well an understanding of the importance of education for future career success. Students in the *intrinsic-identified/introjected-external* class displayed the highest high-school retention rate and had the best standardized math scores in 12th grade, which implies the potential importance diverse reasons to attend school both for preventing dropout and enhancing achievement.

The second largest class (*identified/introjected-external* class) exhibited the second most optimal 12th grade academic outcomes. These positive results were achieved despite

students in the *identified/introjected-external* latent class reporting very little intrinsic motivation relating to academic work. In contrast, students in the *intrinsic-identified/introjected* class exhibited a greater dropout rate than the *identified/introjected-external* class and the lowest 12th grade math scores. These results correspond with previous research showing that intrinsic reasons are not the sole relevant motivational factors associated with dropout and achievement (e.g., Ratelle et al., 2007; Vallerand, Fortier, & Guay, 1997), but they imply that externally regulated motivations might potentially serve a protective purpose regarding late high school dropout when in the context of more autonomous types of motivations.

The final two groups (*identified/introjected* and *external*) exhibited the least optimal outcomes. While it may not be surprising students that only report attending school for purely external reasons are at a heightened risk for retention and achievement-related outcomes, individuals that only endorse identified and/or introjected motivations had a dropout rate more than 50% above the sample average. It appears that solely fostering an appreciation for the tangible career-related benefits of school might not be enough to reduce the risk for late high school dropout. Fostering a more multifaceted set of motivations for attending school might be most optimal for preventing dropout risk.

To better understand potential ways in which more protective patterns of reasons are fostered, we examined class differences on parent-reported characteristics. Individuals in the *intrinsic-identified/introjected-external* class had parents who were the most involved, most knowledgeable, and had the most frequent conversations with their children about school-related issues. The most striking difference was on communication, with the classes experiencing the best academic outcomes having parents who talk with their children about school more often. These findings correspond well with previous research showing a consistent relationship between parental involvement and child academic motivation (for a review, see Gonzalez-DeHass et al., 2005).

4.1 Implications for Prevention

The results of the current study support the idea that programs targeting reasons for attending school might have a beneficial effect on a large proportion of 10th grade student population. Dynarksi and colleagues (2002) pointed out that the vast majority of existing dropout prevention programs involve a counseling component which might be modified to take into account the results of the current study. Specifically, a counselor focus on fostering a more multi-faceted motivational profile regarding attending school, including intrinsic enjoyment of classes as well as understanding of the tangible extrinsic incentives for graduation, might help reduce the risk of late high school dropout. The potential efficacy of this type of program is highlighted by previous research showing that high school engagement, as defined by a multi-dimensional combination of behaviors promoting adjustment and academic achievement, affective feelings toward school, cognitive investment in learning, and academic self-regulation, is associated with a decreased risk for dropout (Archambault, Janosz, Fallu, & Pagani, 2009). Among those students who do not dropout, our results imply this same multi-faceted motivational profile regarding school is associated with greater academic achievement, as membership in the *intrinsic-identified/introjected-external* class was predictive of later math scores even after accounting for previous academic achievement.

4.2 Limitations

There are several limitations of the current study. First, the measures of reasons for attending high school were self-reported, single-items from the ELS 2002 student survey. These reasons were conceptually mapped onto the intrinsic/extrinsic/amotivation continuum

associated with Self-Determination Theory (Deci & Ryan, 2000, Ryan & Deci, 2000) and Organismic Integration Theory (Deci & Ryan, 1985). Additional research should examine associations between self-reported reasons for attending school and more established, global indices of student motivations in order to formalize their potential correspondence. In addition, it is possible there are relevant reasons for attending that were not tapped in this survey, such that additional mixed-methods research might be useful for deriving a more exhaustive set of reasons for attending high school. Second, only two time points of data were available for the current study. Future longitudinal research should seek to more explicitly determine the lead-lag relationship between parenting behaviors and the reasons students endorse. In addition, future research should determine the extent to which earlier academic achievement is predictive of 10th grade latent class membership. Third, findings were correlational, such that there are potential alternative explanations for the association between reasons and 12th grade outcomes. Although controlling for previous academic achievement when predicting outcomes helped strengthen interpretations made, additional experimental or quasi-experimental research using propensity score matching (Peikes, Moreno, & Orzol, 2008) is required to better describe the directionality of effects. Finally, academic outcomes in 12th grade were limited to math achievement. Future research should examine the prospective influence of reasons to attend high school on standardized verbal achievement, as well as overall grade point average.

5. Conclusions

Despite limitations, the current study uses a large, nationally representative sample of students to provide a degree of evidence for the importance of reasons for attending school in whether or not students choose to dropout between 10th and 12th grade, as well as how well they perform if they choose to stay in school. Understanding why an individual makes a contemporaneous decision (i.e., why I attend school) can help prevention scientists understand who will be most likely to make a related subsequent decision (i.e., whether I stay in school).

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Appendix A – Covariate and Auxiliary Composite Variable Items

Parental Involvement – from the Parent Questionnaire – “Looking back over the past year, how frequently did you and your tenth grader participate in the following activities together?”

- a. Attending school activities (sports, plays, concerts, etc.)
- b. Working on homework or school projects
- c. Attending concerts, plays, or movies outside of school
- d. Attending sporting events outside of school
- e. Attending religious services
- f. Attending family social functions (party, wedding)
- g. Taking day trips or vacations
- h. Working on a hobby or playing sports

- i. Going shopping
- j. Going to restaurants/eating out
- k. Spending time just talking together
- l. Doing something else fun together

Parent's Knowledge of their Child's Friends – from the Parent Questionnaire – “For up to 3 of your tenth grader’s close friends, please indicate the following:”

- a. Do you know this friend?
- b. Do you know this friend’s mother?
- c. Do you know this friend’s father?

Parent-Child Communication about School – from the Student Questionnaire – “In the first semester or term or this school year, how often have you discussed the following with either or both of your parents or guardians?”

- a. Selecting courses or programs at school
- b. School activities or events of particular interest to you
- c. Things you’ve studied in class
- d. Your grades
- e. Transferring to another school
- f. Plans and preparation for ACT or SAT tests
- g. Going to college

School Resources – from the Administrator Questionnaire - “In your school, how much is the learning of 10th graders hindered by...”

- a. Poor condition of buildings?
- b. Poor heating, cooling, and/or lighting systems?
- c. Inadequate science laboratory equipment?
- d. Inadequate facilities for fine arts?
- e. Lack of instructional space (e.g., classrooms)?
- f. Lack of instructional material in the library?
- g. Lack of text books and basic supplies?
- h. Not enough computers for instruction?
- i. Lack of multi-media resources for instruction?
- j. Inadequate or outdated vocational-technical education equipment or facilities?

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Highlights

- Found five distinct latent classes of reasons for attending high school
- Latent class was significantly associated with late high school dropout
- A wealth of parenting characteristics differed across class membership
- Implications for retention program and parent-based intervention were discussed

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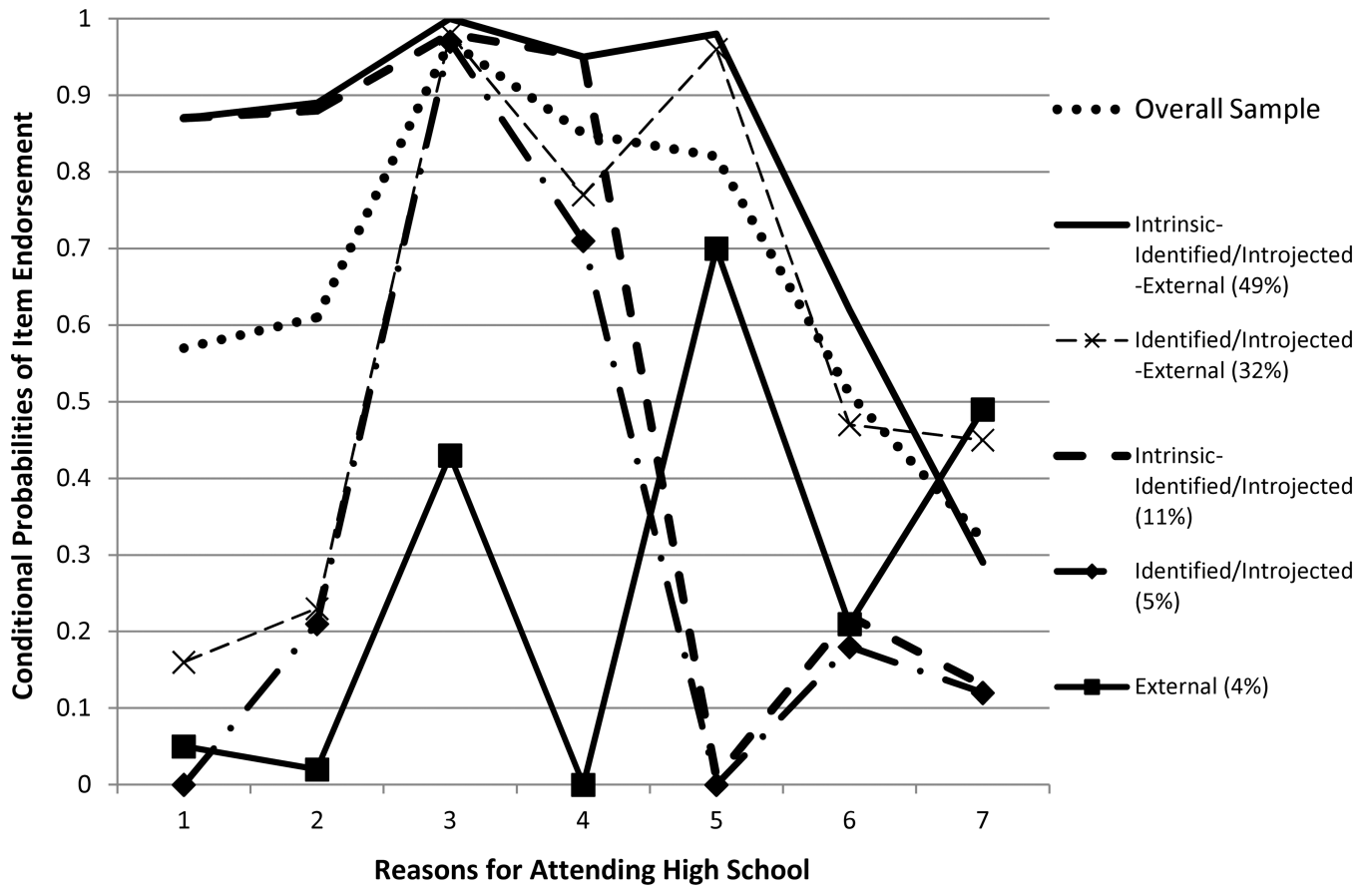


Figure 1. Probabilities of endorsing reasons: Sample level and latent class estimates
Reasons

1. Classes are interesting and challenging. (Intrinsic Motivations)
2. I'm satisfied by doing what I'm supposed to do in class. (Intrinsic Motivations)
3. Education is important for getting a job later on. (Identified/Introjected Regulation)
4. I'm learning skills that I will need for a job. (Identified/Introjected Regulation)
5. It's a place to meet friends. (External Regulation)
6. I play on a team or belong to a club. (External Regulation)
7. I have nothing better to do. (Amotivation)

Table 1

Latent class analysis fit statistics

	Total Free Parameters	-2LL	AIC	BIC	LMR-LRT	Smallest Class %
1 Class	7	-53095	106205	106258	---	---
2 Class	15	-49928	99887	100000	$p < 0.001$	34%
3 Class	23	-49418	98883	99057	$p < 0.001$	11%
4 Class	31	-49111	98284	98518	$p < 0.001$	4%
5 Class	39	-48961	98000	98295	$p < 0.001$	4%
6 Class	47	-48925	97945	98300	$p = 0.31$	1%

Table 2

Dropout rates and 12 grade math achievement by latent class

	Latent Class 12 th Grade Outcomes			
	Intrinsic- Identified/ Introjected- External	Identified/ Introjected- External	Intrinsic- Identified/ Introjected	Identified/ Introjected External
Late High School Dropout rate ^a	3.40%	4.76%	6.24%	10.94%
Mean 12 th Grade Standardized Math Achievement (Standard Deviation) ^b	51.79 (10.01)	51.60 (9.35)	46.77 (10.21)	49.94 (9.86)

^aClass membership was predictive of student dropout, even after taking into account 10th grade standardized achievement, Ave Wald = 51.53, p < .001.

^bClass membership was predictive of 12th grade standardized math achievement, even after taking into account 10th grade standardized achievement, Ave ΔF = 2.92, p < .05.

Table 3

Parenting characteristics means and standard errors by latent class

	Overall Sample	Intrinsic-Identified/Introjected-External	Identified/Introjected-External	Intrinsic-Identified/Introjected	Identified/Introjected	External
Educational Level $\chi^2(4) = 82.07, p < .001$	3.90 (1.89)	3.99 (1.90)	3.96 (1.84)	3.35 (1.85)	3.84 (1.88)	3.75 (1.86)
Involvement $\chi^2(4) = 64.18, p < .001$	3.12 (.50)	3.17 (.50)	3.08 (.50)	3.12 (.53)	3.03 (.49)	2.98 (.51)
Knowledge of Friends $\chi^2(4) = 14.36, p < .01$.80 (.22)	.81 (.22)	.80 (.22)	.77 (.24)	.79 (.22)	.78 (.22)
Parent-Child Communication About School $\chi^2(4) = 511.39, p < .001$	2.10 (.50)	2.22 (.47)	1.97 (.47)	2.18 (.51)	1.93 (.48)	1.60 (.47)

Note: The χ^2 values in the first column represent the significance of the omnibus test of equal means across classes for the associated parenting characteristic.