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Antecedents and Consequences of Student-Athletes' Identity Profiles in Upper Secondary School

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Abstract

The present study examined the identity profiles that upper-secondary-school Finnish student-athletes show, and the extent to which these profiles were associated with their athletic and academic achievements and withdrawal from sports and school. A total of 391 adolescent athletes (51% females) completed assessments of student and athletic identity four times during their time in upper secondary school. Using growth mixture modeling, three groups were identified: (a) *dual identity* (77%), (b) *changing identity* (5%), and (c) *athletic identity* (18%). The higher the academic achievement was at Time 1, the more likely the athletes were to show *dual identity* than *athletic identity* profile. Similarly, athletes with *dual identity* showed higher subsequent academic achievement at Time 4 than those with an *athletic identity* profile. Finally, athletes with *dual identity* were more likely and athletes with *athletic identity* less likely to withdraw from sport activities during upper secondary school than expected by chance.

Keywords: achievement, dropout, dual career, growth mixture modeling, longitudinal study

Antecedents and Consequences of Student-Athletes' Identity Profiles in Upper Secondary School

Student-athletes are a special population whose simultaneous involvement in academic and athletic roles expose these individuals to different demands, challenges, and goals (for a review, see Stambulova & Wylleman, 2019). This, in turn, can form their identity over time (Brewer, Van Raalte, & Linder, 1993; Yukhymenko-Lescroart, 2014). When student-athletes confront the challenges of combining both athletic and student roles, the athletic roles and goals related to the sports domain are often prioritized (Brewer & Petitpas, 2017; Cosh & Tully, 2014). However, because only a few student-athletes will become professional sports players, exploring different roles during adolescence is important for preventing too exclusive and one-sided identity development (Brewer & Petitpas, 2017; Snyder & Spreitzer, 1992). Thus far, research on student-athletes' identities has mainly focused on athletic identity (Yukhymenko-Lescroart, 2014). However, in the last decade, research on student-athletes' identity has begun to consider the concurrent existence of student and athletic identities in this population (Sturm, Feltz & Gilson, 2011; Yukhymenko-Lescroart, 2018). Yet no longitudinal studies have empirically compared within-individual differences in student and athletic identity and the role that different identity profiles play in academic and sports outcomes. Hence, the present study aimed to examine student-athletes' identity in the upper secondary school context, where student-athletes are faced with academic and athletic experiences and expectations that may affect the development of their student and athletic identities. Using a longitudinal person-centered approach, the present study identified latent identity profiles based on both academic and athletic identities and investigated the antecedents and outcomes associated with these developmental trajectories in the school and sports contexts.

Student-Athletes' Identity

According to Erikson (1968), a person's identity is the organizational process that connects how individuals act and behave to their social world. Further research has extended this concept by suggesting that individuals are composed of multidimensional identities (e.g., an athlete, a student, a friend, or a son/daughter) that are formed around the key roles they fulfill, directing them to how they see themselves in relation to different situations (Shavelson & Bolus, 1982; Van Rens, Ashley, & Steele, 2019). Based on the situation, individuals may change identities in relative salience over time in response to role and task demands, as well as determine how they should feel or behave in a given situation (Armitage & Conner, 1999; Benson, Evans, Surya, Martin, & Eys, 2015; Van Rens et al., 2019). Grounded on these propositions, Jones and McEwen (2000) developed the model of multiple dimensions of identity (MMDI), which offers a framework for studying the identity of dual career athletes from a multidimensional perspective. According to this model, any dimension of identity needs to be examined in relation to other dimensions of identity; this model represents identity dimensions as interconnecting rings, indicating how "no one dimension may be understood singularly; it can be understood only in relation to other dimensions" (pp. 409–410). A core sense of self, comprised of "valued personal attributes and characteristics" (Jones, 1997, p. 383), is surrounded by the context in which individuals experience their lives. The salience of each identity dimension is fluid and depends on contextual influences (Jones & McEwen, 2000; see also Abes & Jones, 2004).

Based on Erikson's theory (1968), student-athletes' identities can be assumed to be shaped and developed by the roles student-athletes enact in their two important and dominant social contexts: academics and athletics. However, much of the research on student-athletes' identities has analyzed athletic identity (Yukhymenko-Lescroart, 2014), perhaps because athletic

identity has been associated with a commitment to sports (Harrison, Sailes, Rotich, & Bimper Jr., 2013) and was found to be positively related to a successful transition from junior to senior competition levels (Franck, Stambulova, & Weibull, 2016). Athletic identity refers to the extent to which the individual identifies herself or himself with athlete roles (Brewer et al., 1993). Here, especially relevant for the current context, previous literature has shown that student-athletes who focus on becoming elite athletes might be less motivated toward academic roles (Bimper, 2014; McQuown-Linnemeyer & Brown, 2010; Osborne & Jones, 2011; Yopyk & Prentice, 2005).

Whereas athletic identity refers to identification with the athletic role, student identity refers to identification with the student role (i.e., the individual sees her- or himself as a student, and she or he also experiences that others see him or her as a student; Stambulova, Engström, Franck, Linnér, & Lindahl, 2015). A strong student identity is evident as a commitment to one's studies and related goals. The studies on student identity among university and collegiate student-athletes have demonstrated that a strong student identity does not necessarily mean weak athletic identity – rather, commitment to both roles at the same time is possible (Brown, Glastetter-Fender, & Shelton, 2000; Snyder & Spreitzer 1992; Stambulova et al., 2015). Nevertheless, some opposite results have also been reported. For example, Sturm et al. (2011) found a negative association between athletic and student identity among college student-athletes; that is, having a high identity in one domain means a lower identity in the other domain.

Although there is research on the development of athletic identity and some research on the development of student identity among student-athletes, the limitation of previous research is that no longitudinal studies have empirically examined student and athletic identity development concurrently. As suggested by the MMDI (Jones & McEwen, 2000), to understand athletic or

student identity development, these identity dimensions should be examined in relation to each

other rather than singularly. Another limitation of previous research on the topic is that it has

generally been limited to college students (e.g., Lally, 2007; Melendez, 2009; Sturm et al., 2011),

even though the adolescent years are particularly important from an identity development point

of view (Erikson, 1968). Among student-athletes, the upper-secondary-school context (15–18

years old) is a crucial period in terms of identity development because this period consists of a

transition from junior to senior athletes that involves the challenge of combining sports with

other roles in life (Stambulova et al., 2015). This period also involves preparation for

transitioning from high school to college. Finally, identity development has been mainly

examined using a variable-oriented approach, which assumes that the population is homogeneous

with respect to the studied phenomenon. In contrast to this approach, the present study aimed to

examine the developmental identity profiles typical for student-athletes during their high school

years. In the present study, identity development was approached by incorporating a person-

oriented approach to a variable-oriented approach, making it possible to reveal not only

developmental trends in student-athletes' identity development, but also heterogeneity in the

identity profiles, that is, different developmental trajectories. It has been suggested that to

understand development, it may be necessary to identify heterogeneity in individuals'

developmental trajectories rather than examining the development purely on a sample level

(Bergman, Magnusson, & El-Khouri, 2003; B. Muthén & Muthén, 2000; Nagin, 1999): different

subgroups of students may follow different developmental trajectories.

Antecedents of Athletic and Student Identity

Previous literature on the antecedents of identity development among student-athletes has

indicated that various background variables, such as gender and sport and school achievement,

play a role in identity formation. For example, research has shown that college female student-athletes, when compared with males, are highly motivated academically (Sturm et al., 2011), spend more time with students than teammates (Gayles & Hu, 2009), and are more capable of balancing academic, athletic, and social roles (Gayles & Hu, 2009; Marx, Huffmon & Doyle, 2008; Zajacova, Lynch, & Espenshade, 2005), which can then lead to developing a strong academic identity (Marx et al., 2008; Snyder & Spreitzer, 1992). In Sturm et al.'s (2011) study, male athletes, in turn, reported a somewhat stronger athletic identity than female athletes did. In contrast, some research has reported the opposite results among college male student-athletes (for a review, see Marx et al., 2008) or nonexistent gender differences in athletic identity at any level of competition (Beron & Piquero, 2016). Although gender can be viewed as an identity in and of itself (O'Neil, Egan, Owen, & Murry, 1993), in the present study, and according to the MMDI (Jones & McEwen, 2000), gender is viewed as a significant influencer on identity formation by providing a salient context in which individuals experience their roles.

Similarly, the existing literature on the role of student-athletes' sports success on identity development is mixed. For example, Yukhymenko-Lescroart (2014) found that among university athletes, athletic identity was stronger and student identity weaker among those competing at higher levels than those competing at lower levels. Sturm et al. (2011), in turn, did not find any association between sports achievement and the magnitude of athletic identity among college student-athletes. The findings concerning the relation of academic achievement and academic identity have been more consistent. In general, success in studies have been related with commitment on student role and clarity of identity (Fadjukoff, Kokko, & Pulkkinen, 2007; Pop, Negru-Subtirica, Crocetti, Opre, & Meeus, 2016), whereas a lack of commitment to the student role has been associated with poorer academic success (Snyder & Spreitzer, 1992). Moreover,

research has found a positive relationship between student identity and grade point average (GPA) among college student-athletes (Knott, 2016) and a negative relationship between athletic identity and GPA (Miller, Melnick, Barnes, Farrell, & Sabo 2005).

Finally, the type of sport may play a role in identity development (Chen, Snyder, & Magner, 2010; Lupo et al., 2017; Visek, Watson, Hurst, Maxwell, & Harris, 2010; Yukhymenko-Lescroart, 2014). For example, it has been suggested that athletes in team sports are more prone to the influences of teammates and sports culture than those in individual sports, which motivates them to develop as an athlete (Cheng, Tracy, & Henrich, 2010). Student-athletes in individual sports may, in turn, be freer to explore and adopt roles other than athletic ones because there is no pressure from teammates (Chen et al., 2010). However, it needs to be noted that individual sports are often executed in a team context, especially in a sport that is school based. Thus far, little empirical research has been carried out on the topic; thus, the role of the type of sport in identity development is still unclear. In the present study, we examined how gender, type of sport, and sports and school achievement are associated with different identity profiles among Finnish upper-secondary-school student-athletes.

The Role of Identity Development in Sports and School Achievements and Dropout

It has been suggested that a multidimensional identity is healthy, while an exclusive, one-dimensional identity can have negative consequences (Brewer & Petitpas, 2017; Miller & Hoffman, 2009). In line with this, a strong simultaneous commitment to both student and athletic roles has been shown to be positively associated with an adjustment to the challenges confronted when aiming to successfully combine education and sports at the college level (Killeya-Jones, 2005). Studies have demonstrated the positive role of participating in sports on academic achievements, such as graduation rates, GPA, educational goals, and motivation (e.g., Dyer,

Kristjansson, Mann, Smith, & Allegrante 2017; Hwang, Feltz, & Kietzmann., 2013; Lumpkin & Favor, 2012). For example, in a longitudinal study on a sample of upper-secondary-school students, Dyer et al. (2017) found a positive connection between supervised sports participation and academic achievement. In a longitudinal study on a large sample of upper-secondary-school student-athletes, Hwang et al. (2013) also found that participating in athletics was positively connected to the development of both an athletic and academic identity, which was associated with an increase in graduation rates through heightened levels of educational achievement. In another study, by comparing upper secondary school student-athletes to nonathletes, Lumpkin and Favor (2012) showed that student-athletes earned higher grades, graduated at a higher rate, and dropped out of school less frequently than nonathletes did.

There are, however, studies that have demonstrated that student-athletes with a strong and exclusive athletic identity have difficulties combing studies and sports, which may be detrimental to academic outcomes (e.g., Bimper, 2014; Christensen & Sørensen, 2009; Sandstedt et al., 2004). For example, in a cross-sectional study on male college student-athletes, Bimper (2014) showed that student-athletes with a strong athletic identity tended to have lower GPAs. These findings may be, however, at least partially explained by the fact that student-athletes with a strong athletic identity may select less vigorous courses and majors. Furthermore, there are also studies that have found no relationship between athletic identity and academic outcomes (e.g., Beron & Piquero, 2016). Because of these mixed findings, more longitudinal investigations are required.

To the best of our knowledge, the association between identity development and the school and sports achievements of student-athletes has not been studied longitudinally. Furthermore, the role of identity development in dropping out from sports and school has not

been examined although it can be assumed that student-athletes who have a strong identity in one domain (e.g., sports) may be more likely to drop out from the other domain (e.g., school) than student-athletes with a balanced identity. A recent longitudinal study in Finland showed that burned-out student-athletes were more likely to quit sports than school (Sorkkila, Tolvanen, Aunola, & Ryba, 2019). However, it is unknown how their identity was formed and whether, for example, the dropped-out student-athletes were particularly self-identified as students. Learning more about the identity of student-athletes in a more holistic way can help us better understand the potential complexities of these relations and find a means to prevent student-athletes from dropping out (Ryba et al., 2016).

The Present Study

The present study sought to examine three primary research questions within a sample of Finnish student-athletes: (a) What kind of identity profiles can be identified among student-athletes during upper secondary school based on the levels and rate of change in athletic and student identities over time? How typical are the different profiles among student-athletes? (b) Are gender, type of sport, school achievement in terms of GPA, and sport achievement at Time 1 associated with the student-athletes' identity profiles? (c) To what extent are the student-athletes' identity profiles associated with their subsequent school and sports achievement and dropout?

Methods

Participants and Procedure

The current study is part of the Longitudinal Finnish Dual Careers project (see Authors, 2016), an ongoing database initiated with the aim of examining the risk and resilience factors underpinning the dual career pathways of youth athletes attending elite sport schools in Finland. Ethical permission for the study was obtained from the relevant university. The participants ($N =$

391, M_{age} at T1 = 16 years; SD_{age} = 0.17; 51% females) were student-athletes from six Finnish

upper secondary sport schools who filled in questionnaires four times: at the beginning of upper

secondary school (T1), at the end of the first school year (T2), at the end of the second school

year (T3), and, finally, at the beginning of the third school year (T4). The participating schools

were contacted through the national Olympic Committee, and the data were collected during

school hours after the participants had agreed to participate by signing an informed consent form.

Although the data set has been used in several recent publications, including a cross-sectional

study of student-athletes' identities at T1 (Authors, 2018), the present study is original regarding

its longitudinal design, variables, and research questions.

In the Finnish educational system, students complete 9 years of basic education at the age

of 15–16, after which they can decide whether they wish to continue to a secondary education.

Secondary education comprises upper secondary or vocational education, with upper secondary

school functioning as a bridge to higher education (e.g., university). Currently, there are 15 upper

secondary sport schools in Finland that provide talented athletes structural support for combining

high-level sports with education. Admission to upper secondary sport schools is competitive, and

student-athletes must demonstrate high grades in the secondary school report, as well as a high

potential in their sport. Out of the participating student-athletes, 50% played individual sports

(e.g., swimming or athletics) and 50% team sports (e.g., ice hockey or football) at many levels

(i.e., regional, national, and international).

Measures

Sports achievement. Sports achievement was assessed by asking the participants to rate

their participation in different competitions, ranging from the highest competition level (i.e.,

Olympics) to the lowest competition level (i.e., regional-level competitions) on a 4-point Likert

scale (1 = "I have not participated"; 2 = "I have participated in, but I not ranked among the best 8"; 3 = "I have participated and ranked among the best 8 (team)"; 4 = "I have participated and ranked among the top 3 (team)"). The participants rated a total of 15 different competition levels. We hold the assumption that the competition level is the same for individual and team sports (for instance, the option "I have ranked among the best 8 (team)" has the same meaning for a student in a team sport that her team ranked among the first eight teams). In addition, we considered the fact that attending different levels of competition at the same time point is possible, and it might not follow a path toward the highest level. For example, someone who was at the national level in T1 might attend the regional level (lower level) at the next time point. Therefore, the options of each item (competition level) were recorded in a way that the lower levels received smaller scores and higher levels bigger scores. For example, the options of item 15 (O: Region / District Championships / Matches) were recorded as 0 (1), 2, 3, and 4. The options of item 14 (N: National Competitions / Matches) were recorded as 0 (1), 5 (2), 6 (3), 7 (4). The first option for all items was recorded as zero because it conveys no achievements. In this way, those who achieved at a higher level of competition or participated in several competitions scored higher than others did. Then, a summary score for the sports achievement at each time point and in total was calculated.

School achievement. GPA was derived from self-reports of the most recently earned overall grade. In Finland, the GPA varies from 4 (poorest) to 10 (highest).

Athletic identity. The Athletic Identity Measurement Scale (AIMS), developed by Brewer et al. (1993), was used to evaluate the level of athletic identity. It is composed of 10 items (e.g., "*Sport is the most important part of my life*"), rated on a 7-point Likert scale (1 = "*strongly*

disagree"; 7 = "*strongly agree*"). The Cronbach's alphas for AIMS were .76 at T1, .77 at T2, .79 at T3, and .81 at T4.

Student identity. The AIMS (Brewer et al., 1993) was modified to an academic context to evaluate the level of student identity (10 items; e.g., *"Most of my friends are students"*). A similar procedure was applied in the study of Swedish high school athletes by Stambulova et al. (2015). The Cronbach's alphas for student identity were .84 at T1, .86 at T2, .86 at T3, and .87 at T4.

Analytic Plan

The statistical analyses were performed in five steps. First, latent growth curve (LGC) modeling was used to investigate the growth rate of athletic and student identities and the associations between their levels and the developmental trends across time (Muthén & Khoo, 1998). Second, growth mixture modeling (GMM; Muthén & Muthén, 2000) was applied to examine the extent to which heterogeneity existed in developmental trajectories, that is, whether there were naturally occurring homogeneous groups of students that differed according to their levels and growth rates of their athletic and student identities. The fit of the model was evaluated by the Akaike information criteria (AIC), the Bayesian information criteria (BIC), and sample-adjusted BIC (the lower the value, the better the model). In addition, the Vuong-Lo-Mendell-Rubin ratio test of fit (VLMR), Lo-Mendell-Rubin ratio test of fit (LMR) and bootstrapped likelihood ratio test of fit (BLRT) were used to compare solutions with different numbers of classes; a low [< .05] p value indicates that the k-1 class model has to be rejected in favor of a model with at least k classes. The classification quality was determined by examining the posterior probabilities and entropy values (entropy values can range from zero to one, with values close to one indicating a clear classification). Along with the abovementioned criteria, the

usefulness and interpretativeness of the latent classes in practice (e.g., the number of individuals in each class, the number of estimated parameters) were also taken into account (Muthén & Muthén, 2000). Third, the associations of background variables (gender, type of sport, school achievement in terms of GPA, and sports achievement at T1) with the identity profile were examined using multinomial regression analyses. In this, the background variables assessed at T1 were used as predictors of class membership (all predictor variables were entered simultaneously into the regression model). Fourth, the outcomes associated with different identity profiles in terms of school and sports achievement at T4 were examined using ANCOVA by predicting these outcome variables with class membership after controlling for the previous levels at T1 of the dependent variable. Finally, the role of identity profiles in school and sports dropout was investigated by cross-tabulating the identity class membership with school and sports dropout variables.

The LGC and GMM analyses were performed in the Mplus statistical package (Version 8; L. K. Muthén & Muthén, 1998 –2017). Multinomial regression analyses, ANCOVAs, and cross-tabulations were carried out using SPSS version 24 (IBM, 2016).

A missing data analysis showed that the response rate varied from 67% to 100%, depending on the variable and measurement point. A total of 61% ($n = 238$) of student-athletes participated in all four measurement points, whereas 0.8% ($n = 3$) athletes participated only at T1. Athletes who filled out the identity questionnaires at all measurement points had a higher GPA at 1 ($M = 8.90$, $SD = 0.59$) than those who did not fill out the questionnaires at all measurement points ($M = 8.75$, SD $= 0.66$; t (386) $= 2.32$, $p = 0.02$). Athletes with team sports were over-represented (adj. res $= 2.5$) among those who did not participate for all measurement

points ($\chi 2$ (1) = 6.28, *p* = .01). Missing data were not related to gender or athletic or student

identity.

      The descriptive statistics and correlations between all of the study variables are presented

in Table 1.

----------------Insert Table 1 about here--------------

Results

Latent Growth Curve Modeling

      To investigate the growth dynamics of identity and the strength of any association between

the level of identity and its developmental trend, we created a latent growth curve model

separately at first for both athletic and student identity measurements across T1 to T4. First, a

model for athletic identity with two growth factor components, that is, (a) the intercept growth

factor (level) and (b) the linear growth rate (slope), was estimated. The model was constructed by

fixing the loadings of the observed athletic identity variables across T1 to T4 to 1 on the intercept

factor (level) and in line with the time periods between the measurement points to 0, 1, 3, and 4

on the slope factor. By setting the first loading on the slope factor at 0 and the second loading at

1, the slope was defined as describing a 6-month period (i.e., the change between the first and the

second time points was 6 months). Thus, the selected slope factor loadings reflect that the change

between the first and second time point was 6 months; the change between the second and third

time point was 12 months; and the change between the third and fourth time points again was 6

months. The residual variances of the observed athletic identity variables were estimated as equal

across time.

The fit of the model was χ^2 (5, $N = 391$) = 22.08, $p < 0.001$, RMSEA = 0.09, CFI = 0.90, TLI = 0.88, SRMR = 0.09. An inspection of the modification indices suggested that the estimated residual terms between the measurements at T2 and T4 should be allowed to correlate. After this specification, the fit of the model was good, χ^2 (4, $N = 391$) = 7.56, $p = 0.10$, RMSEA = 0.04, CFI = 0.98, TLI = 0.97, SRMR = 0.05.

The mean of the level of athletic identity at the initial level (T1) was positive and statistically significant ($M = 5.20$, $SE = 0.03$, $p < .001$). The mean of the slope (average rate of growth) was negative and statistically significant ($M = -0.03$, $SE = 0.01$, $p < .001$), suggesting that on average, the participants' athletic identity showed a decline across the school years. The results revealed that the variance of level (estimate = 0.37 $SE = .04$, $p < .001$) and the variance of the slope (estimate = 0.02, $SE = .00$, $p < .001$) were both statistically significant, indicating that there were significant individual differences in these two growth components. The covariance between the latent level and slope of athletic identity was negative and statistically significant (estimate = -0.01, $SE = 0.01$, $p = .03$).

Second, a latent growth curve model was estimated for student identity, where the loadings of the observed student identity variables across T1 to T4 were fixed to 1 on the intercept factor (level) and to 0, 1, 3, and 4 on the slope factor. The fit of the model was good, χ^2 (5, $N = 391$) = 11.19, $p = .05$, RMSEA = 0.05, CFI = 0.98, TLI = 0.98, SRMR = 0.04. The mean of the level of student identity at the initial level (T1) was positive and statistically significant ($M = 3.93$, $SE = 0.04$, $p < .001$), and the mean of the slope (average rate of growth) was positive and statistically significant ($M = 0.04$, $SE = 0.01$, $p < .001$), suggesting that on average, the participants' student identity strengthened across the school years. The variance of level (estimate = 0.72, $SE = .06$, $p < .001$) and that of the slope (estimate = 0.02, $SE = .00$, $p < .001$)

were both statistically significant, indicating that there were significant individual differences in these two growth components. The covariance between the latent level and slope of student identity was not statistically significant (estimate = -0.02, *SE* = 0.01, *p* = .19).

Next, the two growth models were combined. The results of this multivariate growth model (MGM) are shown in Figure 1. The results of the MGM (Figure 1) demonstrated that the level and slope of athletic identity were not statistically and significantly associated with the level and slope of student identity, suggesting that on the level of the whole sample, athletic and student identities and their developmental trajectories were unrelated.

------Insert Figure 1 about here-----

Growth Mixture Modeling

To determine whether the development of student-athletes' athletic and student identity would show heterogeneity, GMM was carried out. The analyses were started by conducting unconditional GMMs on athletic and student identities for one to six latent classes. The BIC index was smallest for the two-class solution, but the AIC and ABIC indices became smaller with an increasing number of latent groups (see Table 1). The four-, five-, and six-group models yielded one small group of individuals (1% of the total sample size). Although the two-group model had the best entropy value, indicating greater confidence in the classification, the LMR, VLMR, and BLRT suggested that compared with the two-class model, the three-class model better described the data (*p* values < .05). Moreover, whereas a two-class solution yielded one small group with only 17 individuals, with all the other student-athletes (*n* = 374) being in the other group, in the three-class solution, the sample sizes of the classes were more reasonable (class sizes 303, 19, and 69, respectively). Because the three-class solution was further found

interpretable from a content point of view, this solution was selected for further analyses. The

solution is shown in Figure 2 and Table 2.

----------------Insert Figure 2 about here-------------

----------------Insert Table 2 about here--------------

The largest group (77%) showed stable levels of both athletic and student identities across time.

In this group, the levels of athletic and student identities were closest to each other throughout

the study period. This group was labeled the *dual identity* group. The second largest group (18%)

demonstrated stable athletic and student identities across time, with student identity being on

lower level than athletic identity throughout the study period and becoming the lowest compared

with the other two groups at Time 4. This group was labeled the *athletic identity* group. The

smallest group (5%) showed the highest athletic identity and lowest student identity at the

beginning (T1) but a statistically significant decrease in athletic identity and increase in student

identity across time. At T4, the participants in this group showed the lowest level of athletic

identity. Consequently, this group was labeled *changing identity*. The classification posterior

probabilities for the three groups were .875, .862, and .727, respectively. The means and

standard errors of the initial levels and slopes of each profile are presented in Table 3.

----------------Insert Table 3 about here--------------

To examine the associations of the background variables, that is, gender, GPA, type of

sport, and sport achievement at T1, with the identified identity profiles, a multinomial logistic

regression analysis was carried out. In this analysis, the identity class membership (*dual identity*

group as a reference group) was predicted by the four background variables (all four predictor

variables entered simultaneously). The results of these multinomial logistic regressions are

shown in Table 4.

--------------Insert Table 4 about here--------------

The results showed that from the predictor variables, GPA at T1 predicted class membership (χ^2 (2) = 13.95, p < .001): the higher the GPA, the more likely the student-athletes showed a *dual identity* profile rather than an *athletic identity* profile. Furthermore, gender was found to be associated with class membership (χ^2 (2) = 6.89, p = .03): females were more likely to have a *dual identity* than *changing identity* compared with males. Finally, the results revealed that the type of sport or sports achievement in T1 were not significant predictors of class membership.

When using the *athletic identity profile* as the reference group instead of the *dual identity* profile, the results showed that compared with males, females were less likely to show a *changing identity* than *athletic identity* (b = -1.33, s.e. = .65, Wald χ^2 (1) = 4.21, p = .04, OR = .26). No other statistically significant differences were found between the *athletic identity* and *changing identity* profiles.

Outcomes Associated with the Profiles

Finally, we investigated the role of identity profiles in school and sports achievement and dropout rates at T4. To examine this, a covariance analysis (ANCOVA) was first conducted to determine statistically significant class differences in GPA and sports achievement at T4, after controlling for the dependent variable at T1 (school or sports achievement, respectively).

The results showed that class membership had a significant effect on students' GPA at T4 (F (2, 295) = 6.95, p < .001) after controlling for GPA at T1. Examination of the post-hoc analysis (Bonferroni) demonstrated that student-athletes in the *dual identity* group had a significantly higher GPA (adjusted mean = 8.15, s.e. = 0.04) at T4 than the *athletic identity* group (adjusted mean = 7.78, s.e. = 0.09), after controlling for the previous level of GPA at T1. Second,

a similar analysis was conducted for sports achievement at T4. The results showed no significant association between class membership and sports achievement after controlling for the sports achievement at T1 (F (2, 258) = 0.73, p = .46).

Finally, a chi-square statistic test was conducted to examine the difference in identity groups on sports dropout at T4. As presented in Table 5, the results showed statistically significant group differences in the frequency of sports dropouts, χ^2 (2, N = 310) = 9.66, p = .01. Here, those with a *dual identity* were more likely to drop out from sports than expected by chance, whereas those with an *athletic identity* were more likely to continue playing sports than expected by chance (the adjusted residuals in both cases were above 1.96).

Because only three students (one with a *dual identity* and two with an *athletic identity*) dropped out from school between T1–T4, it was not possible to reliably investigate the association between the class membership and dropout rate from school.

---- Insert Table 5 about here---

Discussion

This was the first study that executed a person-oriented approach on student-athletes' identity development from a longitudinal perspective. The key aim was to identify the identity profiles student-athletes show in upper secondary school and to examine whether different background factors would be associated with these profiles, on the one hand, and the outcomes associated with each identity profile, on the other hand. Three distinct identity profiles, *dual identity, athletic identity,* and *changing identity,* were identified. Student-athletes with a *dual identity* showed a high GPA but, on the other hand, demonstrated a higher rate of sports dropout during their upper secondary years compared with those with an *athletic identity* profile.

The results of our study demonstrated that on average (at the level of the whole sample), athletic identity decreased while student identity increased across the study period. However, the person-centered approach revealed that this was not the case for all student-athletes because different developmental trajectories in their identities were detected. The most common profile (typical for 77% of student-athletes) was a *dual identity*, that is, student-athletes who reported strong identification with both athlete and student roles. This finding indicates that the sports upper secondary school system in Finland may provide adequate support for student-athletes to pursue both careers without sacrificing one at the expense of the other. This has also been named as one of the goals by the EU guidelines (European Commission, 2012). However, this study did not assess pursuit of careers, only identification with student and athlete roles, and, consequently, more investigation in this regard is needed.

The results further showed that the second most common profile of student-athletes (18%) demonstrated an *athletic identity,* which is characterized by strong identification with the athlete role across time with a relatively low student identity. This finding was in line with previous studies (Kimball & Freysinger, 2003; Dunstan-Lewis & McKenna, 2004) suggesting that some adolescents may develop stronger identification as athletes during school years and prioritize their athletic identity and goals over academic success.

The least common profile, consisting of 5% of the student-athletes, was the *changing identity* profile. Student-athletes with this profile identified themselves highly with an athletic role at the beginning of upper secondary school but started focusing more on student roles toward the end. These findings may be viewed through the lenses of the MMDI (Jones & McEwen, 2000), which suggests that the salience of domain-specific identities will change over time in response to role demands and the relative performance in each domain (Van Rens et al.,

2019). However, it needs to be noted that relatively few student-athletes showed this profile, and the circumstances underlying the shift were not identified. An alternative explanation might be that some other aspects of sports beyond the individual versus team sports may have influenced the student-athletes' decisions to construct their identities. For example, athletes in nonrevenue-generating sports or those not included in the Olympic program have fewer opportunities to obtain financial support from various sports stakeholders and, therefore, may feel more compelled to concentrate on education.

According to the MMDI (Jones & McEwen, 2000), individuals actively construct their identities, but the possibilities for their identity trajectories to take shape are influenced by contextual factors such as the sociocultural environment in which they live. As the results showed, student identity, on average, strengthened throughout the study, while athletic identity declined, which might imply the role of social expectations and cultural norms of a certain society (Ryba, Stambulova, Ronkainen, Bundgaard, & Selänne, 2015). It seems that the dynamic of identity development in the period of adolescence cannot be fully understood without considering the sociocultural factors that frame Finnish student-athletes' values and beliefs about achievement-related choices (Ryba et al., 2016). The result may reflect the reality that the sport career is likely to have less longevity, whereas the academic career may translate into something more enduring. Further work should investigate the interaction between the antecedents included in the current study and other relevant situational factors, such as parental expectations and coaching styles, because they contribute to identity development.

Considering the background variables, the results showed that early sports achievement and sport type were not related to identity development. In turn, school achievement at the beginning of upper secondary school was associated with the identity profile: the higher the

school achievement in comprehensive school, the more likely the student-athlete self-identified as both a student and an athlete throughout the study period. One explanation for this result is that athletes showing a high level of school performance have formed a strong multidimensional identity consisting of both student and athletic roles before upper secondary school, so their success in studies sustained their commitment to the student role throughout upper secondary school (Fadjukoff et al., 2007; Pop et al., 2016; Snyder & Spreitzer, 1992). Besides school achievement, one gender difference was also found: compared with males, females were more likely to show a *dual identity* than *changing identity*. This result suggests that female athletes may be more able to form a *dual identity* than male athletes, which is in line with previous findings that have shown that female student-athletes may be more capable of balancing academic, athletic, and social roles (Gayles & Hu, 2009; Marx et al., 2008; Ronkainen & Ryba, 2019; Zajacova et al., 2005). It is also possible, that there are greater professional opportunities for male athletes than for female athletes (for a review, see Chalabaev, Sarrazin, Fontayne, Boiché, & Clément-Guillotin, 2013), and therefore it may be beneficial for females to form identities in both sport and school.

The results further showed that only three students dropped out from school during the study. The fact that on the level of the whole sample the student identity became stronger across time is in line with this result. In contrast, 46 students dropped out of sports. Those with a *dual identity* were more likely to drop out from sports than expected by chance, whereas those with an *athletic identity* were more likely to continue with their sports than expected by chance. This result can be considered to be worrisome from a dual career point of view because athletes with a *dual identity* seem to drop out from sports more frequently than those with a one-sided *athletic identity*. Qualitative research on the reasons behind sports dropout among those with a *dual*

identity could provide further insights into the phenomenon and how to support athletes with a *dual identity* to successfully manage a dual career as they transition to higher education and elite sports.

Overall, the results of the present study advance the theoretical understanding of identity development among student-athletes. Our findings show that academic and athletic identities can be combined within individuals, and they can change over time. These findings are in line with the MMDI framework and suggest that identifications are not exclusionary categories; instead, it is possible to sustain a high level of identification with the athlete and the student roles simultaneously. By using a combination of the variable-oriented and person-oriented approaches, we were able to provide novel insights into the indicators of sports and education achievements in early upper secondary school that might contribute to different patterns of identity acquisition. Furthermore, studying the outcomes associated with each pattern of identity provided us with knowledge about the personal and contextual factors that influence the stability or change in identity at particular periods of time and circumstances. For example, regarding the enriching effects of dual identities, it may be beneficial to educate athletes, parents, and educating coaches about potential change events (e.g., changing competition level, injury, starting a family, migration) and offer effective coping strategies that could prevent students-athletes from dropping out from either of their identity roles (Wylleman, Alfermann, & Lavallee, 2004; Samuel & Tenenbaum, 2011). However, it should be acknowledged that although student-athletes with dual identities have a strong identification with both of their roles, they tended to withdraw from their sports role over time. This may reflect a frustration about managing the responsibilities of both of their roles, comprising studying and completing homework and training and competing

in their sport. These student-athletes would perhaps benefit from additional athletic resources and support (Lu, Heinze, & Soderstorm, 2018).

The present study had limitations that need to be taken into account when interpreting the findings. First, the sample was limited to only upper secondary sport schools in which student-athletes were already in high-achieving roles. Hence, studies of athletes attending regular upper secondary school and vocational school could be fruitful. Second, the third group of student-athletes, *changing identity*, was small (only 5%), which raises a question about the representativeness of this finding. Because the entropy value of the selected three-class classification was not ideal either (indicating that the student-athletes were not classified with an ideal high degree of accuracy), there is an evident need to replicate the findings in other samples before any generalizations can be made. Third, we used an adapted student identity scale. Although we used the same procedure as in the published study of Swedish adolescent student-athletes (Stambulova et al., 2015), the psychometric properties of the scale have not yet been investigated, which needs to be acknowledged when interpreting the findings. Furthermore, although the sports achievement scale has been used in the past by ERASMUS+ sports projects funded by the European Commission (e.g., Gold in Education and Elite Sport [GEES], 2016) the method of calculating achievement scores has been developed in the present study. Consequently, the psychometric properties of this scale need further investigation. Fourth, although in the present study the sample size was over 400 student-athletes, larger samples are needed to ensure an adequate statistical power that would be optimal for mixture modeling (Tein, Coxe, & Cham, 2013). Finally, the possibility of an impact of the sociocultural context in which the present study was conducted may limit the generalizability of the study findings. The current study was conducted in Finland, a country known for its high-quality education relative to many

other countries. In some other sociocultural contexts, in turn, education may be devalued, and therefore, academic identity may be incompatible with being an athlete. For example, in a study of Miller et al. (2005), it was shown that adolescent black males who identified themselves as jocks (a subcategory of athletic identification) were poor students. Therefore, it would be beneficial to replicate the current study in other cultural, educational, and sporting systems.

In conclusion, the current study sheds light on different trajectories of identity development in a sample of upper-secondary-school athletes. Based on our findings that were interpreted within the MMDI framework, we suggest that future studies should consider developmental stages in which identity acquires meaning and sociocultural contexts, including the influence of structures (e.g., practices, rules, and policies). The results indicate that academically strong student-athletes tend to form a dual identity through upper secondary school. However, the student-athletes with a dual identity were at a disadvantage in terms of higher rates of sport dropout compared with those who identified themselves more exclusively with the athlete role. School and sport institutions should offer student-athletes a manageable workload, as well as a curriculum that is adaptable to their sports schedules. Further, to cope with the demands of a dual career, the student-athletes' entourage (e.g., coach, family, and peers) should support the different shifts in prioritizing between sports and studies that are required by student-athletes (de Subijana, Barriopedro, & Conde, 2015). Furthermore, the institutional system should also consider and understand school culture and its role in students' representation and development of multiple identities (Abes, Jones, & McEwen, 2007).

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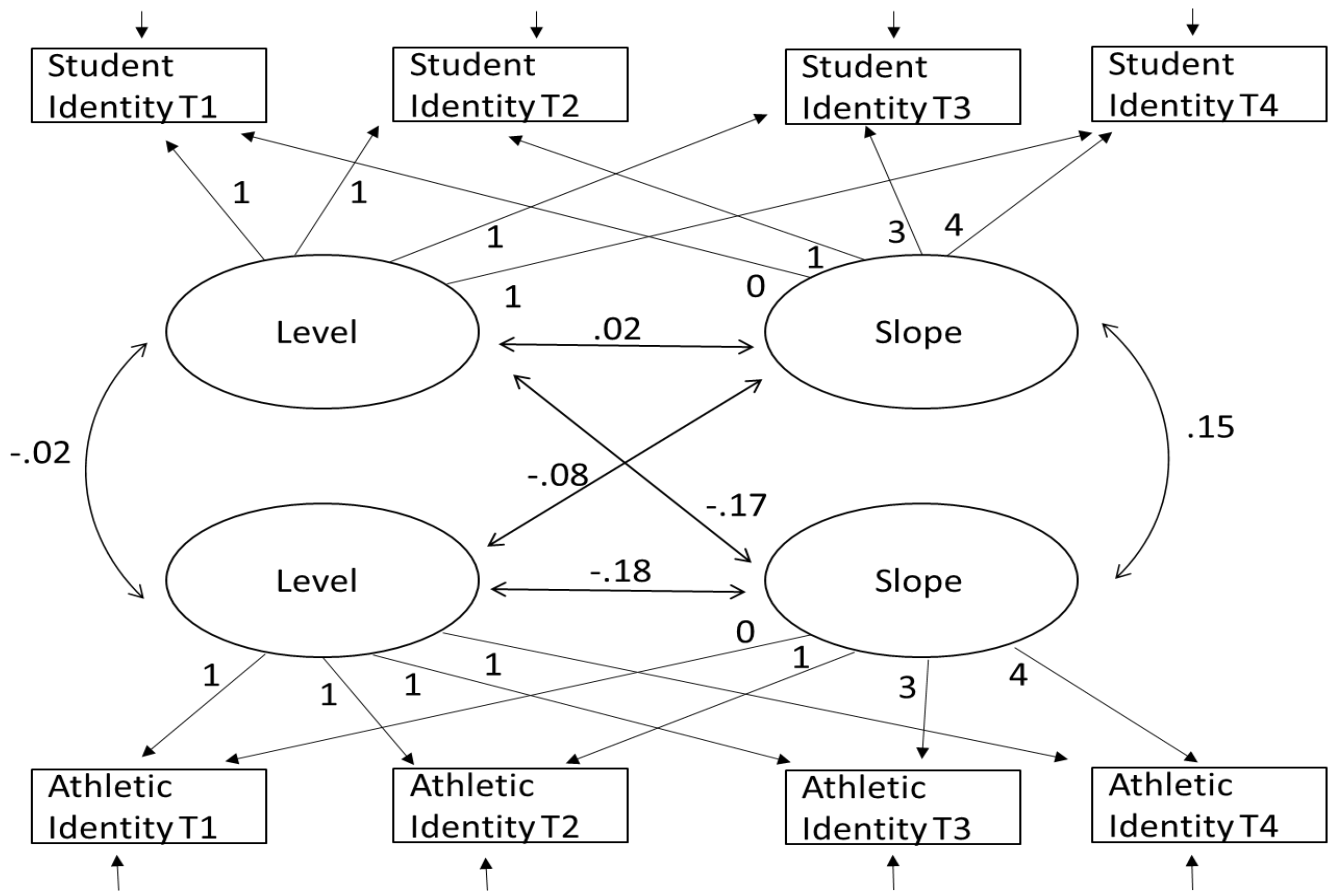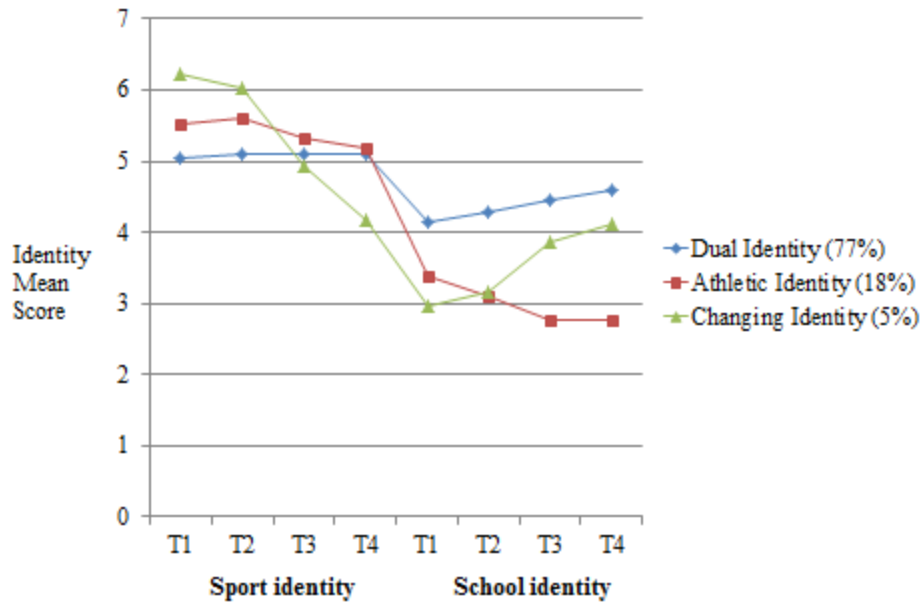
Figure 1. Multivariate Growth Model (MGM) of Student Identity and Athletic Identity across

T1-T4

Note. T1 = measuring time 1; T2 = measuring time 2; T3 = measuring time 3; T4 = measuring time 4

Figure 2. Identity profiles of student-athletes based on a growth mixture analysis

Table 1

Means (M), Standard Deviations (SD), and Correlations of the Study Variables (Cronbach Alpha Reliabilities for Identity Variables in

Parentheses).

Variables	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender [a]	1.49	0.50														
2. Type of sport_T1 [b]	1.50	0.50	*.10*													
3. Athletic identity T1	5.17	0.77	-.06	.01	(.76)											
4. Athletic identity T2	5.22	0.77	.03	.01	**.60**	(.77)										
5. Athletic identity T3	5.06	0.82	-.02	-.01	**.45**	**.60**	(.79)									
6. Athletic identity T4	5.04	0.85	-.06	.06	**.36**	**.37**	**.65**	(.81)								
7. Student identity T1	3.95	0.97	**-.24**	.01	-.02	.01	-.05	-.10	(.84)							
8. Student identity T2	4.02	1.07	**-.17**	.05	-.02	.01	-.08	-.06	**.68**	(.86)						
9. Student identity T3	4.14	1.05	**-.19**	-.04	-.06	-.01	-.01	-.09	**.59**	**.67**	(.86)					
10. Student identity T4	4.26	1.05	**-.21**	.05	-.03	-.07	-.02	-.04	**.60**	**.63**	**.82**	(.87)				
11. GPA T1	8.85	0.62	**-.23**	-.06	-.02	-.02	-.02	*-.12*	**.34**	**.25**	**.40**	**.36**				
12. GPA T4	8.07	0.91	-.07	-.08	-.07	-.03	.01	*-.15*	**.23**	**.24**	**.39**	**.36**	**.72**			
13. Sport achievement T1	28.56	22.42	**-.17**	**-.26**	.04	-.03	-.10	-.11	-.04	-.01	-.01	-.10	-.03	-.10		
14. Sport achievement T4	38.50	32.43	**-.19**	**-.20**	.02	.07	-.03	.02	.06	.01	-.00	-.05	.08	.09	**.60**	
15. Sport dropout T4 [c]	1.15	0.36	**-.19**	.05	**-.21**	**-.28**	*-.15*	-	*.12*	.04	**.17**	**.16**	.09	.02	-.05	-
16. School dropout T4 [d]	1.01	0.10	.05	.04	.06	.08	.05	.09	-.04	-.02	-.09	-	-.07	*-.11*	-.08	-.03

Note 1. [a] female = 1, male = 2; [b] individual = 0, team = 1; [c] Are you still in elite sports? no = 0, yes = 1; [d] Are you still in upper secondary school? no = 0, yes =1.

Note 2. Correlation coefficients with Italic font are significant at the level *p* < 0.05; correlation coefficients with bold font are significant at the level *p* < .01.

Table 2.

Model Fit Indices for Different Numbers of Latent Classes (N = 391)

	Log-likelihood	df	scaling	AIC	BIC	ABIC	Entropy	LMR/*p*	VLMR/*p*	BLRT / *p*		class numeration %
1 Profile	-3048.93	17	1.34	6138.08	6199.333	6145.393						1.00
2 Profile	-3041.46	18	1.59	6118.931	6190.368	6133.255	0.850	0.528	0.518	-3054.19	0.000	.04, .96
3 Profile	**-3029.86**	**23**	**1.27**	**6105.731**	**6197.012**	**6124.034**	**0.667**	**0.033**	**0.031**	**-3041.46**	**0.013**	**.77, .05, .18**
4 Profile	-3021.91	28	1.25	6099.838	6210.962	6122.119	0.750	0.411	0.403	-3029.86	0.133	.04, .01, .76, .19
5 Profile	-3015.37	30	1.37	6090.742	6209.803	6114.615	0.653	0.427	0.420	-3029.04	0.000	.17, .05, .01, .16, .61
6 Profile	-3007.10	35	1.24	6084.212	6223.117	6112.064	0.614	0.101	0.096	-3015.37	0.090	.01, .17, .14, .19, .05, .44

Note: Log L = Log-likelihood value; AIC = Akaike's information criterion; BIC = Bayesian information criterion; ABIC = Sample size adjusted Bayesian information criterion; LMR/*p* = *p* value for Lo-Mendell-Rubin adjusted likelihood test; VLMR/*p* = *p* value for Vuong-Lo-Mendell-Rubin likelihood ratio test; BLRT = Bootstrapped likelihood ratio test.

Table 3.

Means and Standard Errors (SE) of Initial Level and Slope in Latent Profiles

Dual identity		Mean	SE (s.e)	*p* value
	Level of athletic identity	5.047	0.053	< .001
	Slope of athletic identity	0.003	0.021	.880
	Level of student identity	4.133	0.092	< .001
	Slope of student identity	0.105	0.021	< .001
Changing identity				
	Level of athletic identity	6.274	0.156	< .001
	Slope of athletic identity	-0.459	0.057	< .001
	Level of student identity	3.040	0.258	< .001
	Slope of student identity	0.260	0.080	.001
Athletic identity				
	Level of athletic identity	5.466	0.147	< .001
	Slope of athletic identity	-0.076	0.043	.073
	Level of student identity	3.518	0.244	< .001
	Slope of student identity	-0.116	0.063	.067

Table 4.

Background Variables as Predictors of Identity Class Membership: Results of Multinomial Logistic Regression

	Predictor Variable	b (SE)	p	Wald χ^2 (df = 1)	OR
Identity Class Membership					
Changing Identity[a]	GPA T1	-0.48 (0.39)	.212	1.56	0.62
	Sport achievement T1	0.02 (0.01)	.129	2.30	1.02
	Gender[b]	-1.46 (0.61)*	.017	5.72	0.23
	Type of sport[c]	-0.38 (0.52)	.461	0.54	0.68
Athletic Identity[a]	GPA T1	-0.82 (0.23)***	< .001	12.81	0.44
	Sport achievement T1	0.01 (0.01)	.052	3.79	1.01
	Gender[b]	-0.13 (0.29)	.665	0.19	0.88
	Type of sport[c]	0.05 (0.29)	.860	0.03	1.05

[a] Reference group dual identity group

[b] Female vs. male

[c] Individual vs. team sports

Table 5. *The Association of Identity Profiles with Dropout Rate from Sport (Cross-tabulation)*

| | Are you still involved in elite sport? (T4) | | |
	Yes	No	Total
Dual identity			
Count	199	44	243
% within profiles	81.90 %	18.10 %	100.00 %
% within dropouts	75.40 %	95.70 %	78.40 %
% of Total	64.20 %	14.20 %	78.40 %
Adjusted Residual	**-3.1**	**3.1**	
Changing Identity			
Count	17	0	17
% within profiles	100.00 %	0.00 %	100.00 %
% within dropouts	6.40 %	0.00 %	5.50 %
% of Total	5.50 %	0.00 %	5.50 %
Adjusted Residual	1.8	-1.8	
Athletic identity			
Count	48	2	50
% within profiles	96.00 %	4.00 %	100.00 %
% within dropouts	18.20 %	4.30 %	16.10 %
% of Total	15.50 %	0.60 %	16.10 %
Adjusted Residual	**2.4**	**-2.4**	
Total			
Count	264	46	310
% within profiles	85.20 %	14.80 %	100.00 %
% within dropouts	100.00 %	100.00 %	100.00 %
% of Total	85.20 %	14.80 %	100.00 %