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Toward adjustment profiles for lower secondary student-athletes in the Finnish dual career context: A mixed-methods approach

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ABSTRACT

Engagement, burnout, and experiences are central concepts for understanding student-athlete adjustment in a dual career (DC) environment. As part of a larger 3-year, lower secondary sports schools pilot project, the aim of this study was to examine student-athletes' DC adjustment in Finnish lower secondary sports schools at the end of the second academic year. By combining quantitative and qualitative methods, we sought to (a) identify adjustment profiles among student-athletes based on measures of engagement and burnout in school and sport and (b) to extract experiences that describe the distribution of student-athletes in the profiles. A latent profile analysis using questionnaire data from a sample of 217 lower secondary student-athletes ($M = 14$ years, $SD = 0.4$ years) revealed three distinct profiles: *well-adjusted* ($n = 122$), *reasonably functioning* ($n = 73$), and *struggling* ($n = 22$). Follow-up interviews with a subsample of 19 student-athletes revealed that occasional physical exhaustion and school-related stress were common adjustment issues for student-athletes in all three profiles. Student-athletes showing the well-adjusted profile reported advanced DC management skills that enabled them to maintain low levels of burnout while engaging extensively in school and sport. Adolescents in the reasonably functioning profile reported difficulties in portioning time and thoughts between school and sport, which caused physical and mental DC taxation. To compensate for insufficient time management strategies, adolescents belonging to the struggling profile had to emancipate time for schoolwork by lowering their sports engagement at the cost of heightened school and sport burnout.

The European region encompasses eight types of purposefully established dual career (DC) development environments that provide student-athletes structural support and opportunities to combine elite sports with education (Morris et al., 2021). The Finnish DC policy can be described as state-sponsored (Aquilina & Henry, 2010), including a centralized network of upper-secondary-level (ages 16–19 years) and tertiary-level (i.e., higher education) educational institutions that enable athletes to acquire a degree while competing in sports (Finnish Olympic Committee, 2020). The absence of national standards has hindered the provision of optimal developmental grounds for talented young athletes in lower secondary education (Nikander et al., 2021). Consequently, the Finnish Olympic Committee (2020) introduced a Lower Secondary Sports Schools Pilot Project (LSSSP) on a trial basis in 19 public lower secondary schools (ages 13–15 years) in 2017 and expanded in 2020 as a nationwide model open to all interested schools across the country. The national project aimed to find solutions that allowed student-athletes the opportunity to practice their sports 6–10

h/week during school time in Grades 7–9 and to teach them the skills and strategies needed to combine sports with education during later stages of their athletic careers (Finnish Olympic Committee, 2020).

In this study, we utilized data collected in conjunction with the LSSSP as part of a larger longitudinal mixed-methods research project that examined individual and environmental factors underpinning DC development and the well-being of lower secondary school student-athletes in Finland ((Kuokkanen et al., 2020), submitted). Rooted in pragmatism (Giacobbi et al., 2005), the present study represents an attempt to provide solutions to existing problems experienced by student-athletes and central stakeholders within Finnish DC context. An eminent problem relates to students' maladjustment in terms of waning school engagement and growing levels of burnout typical for lower secondary school (Salmela-Aro & Upadyaya, 2014; Wang & Eccles, 2012), which has negative consequences for individuals (Virtanen, Lerkkanen, et al., 2018) and society as a whole (Fredricks et al., 2004). Research advocates that student-athlete adjustment is an individual

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process (Sorkkila, Aunola, & Ryba, 2017) that is affected by related experiences (Sorkkila et al., 2020). Thus, responding to the Finnish Olympic Committee's need to evaluate the developing lower secondary sports schools to further improve DC support programs at these institutions, we examined student-athletes' DC adjustment by focusing on burnout, engagement, and experiences using a two-phase mixed-methods approach (Creswell et al., 2003).

1. Person–environment fit perspective on dual career burnout, engagement, and experiences

The person–environment fit theory (Eccles & Roeser, 2011) suggests that an adolescent's behavior and well-being are shaped in a reciprocal interaction between personal characteristics and the environment. The perceived fit or mismatch of organizational and interpersonal features of the school context and the attributes of the person (e.g., needs, abilities, and values) predict positive or negative changes in well-being and behavior (Van Vianen, 2018). Furthermore, the fit is dependent on an individual's developmental stage and the surrounding environment. Adolescence is a time of major physical, psychological, and socioemotional growth and developmental changes (Jackson & Goossens, 2020). Lower secondary sports schools represent multilevel developmental environments encompassing symbiotic contexts stretching from macro (e.g., national policies) to micro (e.g., educational tasks) environments (Eccles & Roeser, 2011).

The person–environment fit denotes that congruence (or a lack thereof) in one environment is associated with functioning in another environment (Holmbeck et al., 2008). Student-athletes' symptoms of school and sports burnout tend to increase over the years in general (Aunola et al., 2018); however, they possess individual resources and strategies to tackle increasing training loads and competitive pressure aligning with growing school demands (Gustafsson et al., 2011; Ryba et al., 2016). Well-adjusted student-athletes are able to maintain high engagement with sports and school simultaneously (Ryba et al., 2017). Moreover, subjective experiences of the socialization context, socializing agents in school (Eccles & Roeser, 2011), and personal resources (Stambulova et al., 2015) such as DC competencies (De Brandt et al., 2017) smooth the adjustment process for adolescent athletes. Consequently, unidimensional domain-focused experiences (Eccles & Roeser, 2011) and engagement with the athlete role in the absence of exploring other alternatives facilitates the development of burnout and dropout from sports (Moazami-Goodarzi et al., 2020; Torregrosa et al., 2015).

Although the consistency in the ways schools structure sets of experiences differs in relation to individual students (Eccles et al., 1993), a well-functioning DC development environment has been established as key in facilitating student-athletes' well-being at the micro and macro levels in the domains of sports, studies, and private life (Linnér et al., 2020; Morris et al., 2021). The lower secondary phase is characterized by declining closeness of teacher–student contacts and proclaimed social comparison and competition in classrooms (Eccles et al., 1993). Consequently, students' perceptions of care and support from their teachers facilitate engagement (Wang & Eccles, 2012) and protect against school burnout (Virtanen, Lerkkanen, et al., 2018). Applying the person–environment fit theory (Eccles & Roeser, 2011), we assumed that an optimal match between individuals and the sports school environment maximizes the students' school engagement and minimizes burnout.

2. Burnout, engagement, and experiences in the dual career context

Salmela-Aro et al. (2008) described school burnout as students' maladjustment to school-related stressors stemming from the student–school relationship. Although the sports context differs from the school context in numerous ways, many stressors related to athlete burnout appear to be similar to school-related stressors (Gustafsson et al., 2011,

2018). Consequently, sports and school burnout can be defined as two distinct but related context-specific multidimensional psychological syndromes, including the dimensions of exhaustion, cynicism, and inadequacy as a student or athlete (Salmela-Aro et al., 2009; Sorkkila, Ryba, et al., 2017). School-related exhaustion has been shown to possibly spill over into the sports context over time, whereas cynicism and inadequacy are stable and separate dimensions in school and sports (Sorkkila et al., 2018).

Engagement is characterized as an enduring experience related to the positive affect, attitudes, and cognitions that absorb an individual in an activity (Bartko, 2005; Salmela-Aro, 2017); thus, school and sports engagement can be conceptualized according to three interrelated subtypes: behavioral, affective, and cognitive (Appleton et al., 2006; Fredricks et al., 2004; Hastie et al., 2020). Behavioral engagement refers to effort, persistence, and on-task behavior in learning, and affective or psychological engagement denotes feelings of belonging, valuing learning, and reactions to school, teachers, peers, and family. The cognitive subtype of engagement concerns self-regulation and investment in learning (for a review, see Fredricks et al., 2004). The three dimensions of engagement are independently and separately associated with athletic and academic outcomes (Appleton et al., 2006; Hastie et al., 2020). Engagement is not merely an attribute of the individual but rather mirrors the fit between the individual and the environment (Reschly & Christenson, 2012).

Burnout and engagement have important and independent associations with student adjustment and well-being (Salmela-Aro & Read, 2017; Salmela-Aro & Upadyaya, 2020; Virtanen, Lerkkanen, et al., 2018). In the school context, students have been profiled based on combinations of engagement and burnout at various educational levels, including lower secondary school (Virtanen, Lerkkanen, et al., 2018), upper secondary school (Salmela-Aro & Upadaya, 2020), and tertiary education (Salmela-Aro & Read, 2017). These findings suggest that adolescence is not an identical time for school engagement or burnout (Tuominen-Soini & Salmela-Aro, 2014), because researchers have identified subgroups of students showing, for instance, a combination of high engagement and high burnout. A growing number of studies have explored the incidence and development of school and sports burnout among student-athletes in upper secondary schools (Sorkkila, Aunola, & Ryba, 2017; Sorkkila et al., 2020); however, to our best knowledge, engagement has not been linked with burnout to identify adjustment profiles among student-athletes in the DC environment.

This rapidly growing field of research continues to inform researchers of the importance of alignment between dual environments and the incorporation of positive and negative experiences for understanding student-athlete adjustment and well-being in DC contexts (Stambulova & Wylleman, 2019). In general, student-athletes' DC experiences differ during distinct stages of their careers, with the tendency to have more positive experiences during the initial phase of the DC path and problems adapting to a new lifestyle further along the path (Li & Sum, 2017). Both personal and environmental experiences affect student-athlete adjustment through different stages of the DC development (Guidotti et al., 2015; Stambulova et al., 2015). Satisfaction (e.g., enjoyment and fun), motivation (e.g., personal goals), personal competence, and resources (e.g., self-discipline) together with contextual support are experiences that facilitate well-being (Brown et al., 2015; Graczyk et al., 2017; Stambulova et al., 2015). A lack of flexibility and professional support in sports and educational environments as well as inflexible school schedules are examples of negative contextual experiences (De Subijana et al., 2015; Fuchs et al., 2016; Geranosova & Ronkainen, 2015). A limited social life, insufficient coping strategies, and excessive workload in two arenas are typical negative personal experiences (Kristiansen, 2017; Li & Sum, 2017; Ronkainen & Ryba, 2018).

3. The present study

The aim of this study was to examine student-athletes' DC adjustment in Finnish lower secondary sports schools at the end of the second academic year. Therefore, the following research questions guided the study:

1. What kind of adjustment profiles can be identified among student-athletes based on measures of burnout and engagement in school and sports?
2. What and how can experiences describe the distribution of student-athletes in the adjustment profiles?

This study is part of the previously described longitudinal mixed-methods research project, which assumes the philosophical position of pragmatism (Authors, submitted). The present study relies on the ontological assumption that there is a continuum between objective external and subjective internal reality. In terms of epistemology, pragmatism assumes that knowledge is fallible and based on social experiences (Giacobbi et al., 2005). Aligning with the person–environment fit theory (Eccles et al., 1993), individuals create knowledge to better manage their existence in an environment (Goldkuhl, 2012). Following from the ontological and epistemological premises, this study adopted an explanatory sequential mixed-methods approach (Creswell et al., 2003) in which an initial quantitative phase was followed by a qualitative phase. The quantitative phase allowed us to involve many participants and detect individual trends in student-athletes' adjustment in lower secondary sports schools, while the qualitative phase provided interpretive and comprehensive evidence of experiences underpinning student-athletes' burnout and engagement.

4. Method

4.1. Design and procedure

Longitudinal data was collected at four time points (Time 1, fall 2017; Time 2, spring 2018; Time 3, spring 2019; and Time 4, spring 2020) as part of the longitudinal mixed-methods research project. The research protocol was approved by the [blinded] University prior to recruitment of the study participants in 2017. All 19 lower secondary schools enrolled in the LSSPP were contacted in spring 2017, prior to the start of the project, and offered an opportunity to participate in the research project. As a result of the inquiry, 16 of these 19 schools accepted the invitation. These 16 schools sent out an invitation letter explaining the purpose of the study and a consent form to roughly 400 student-athletes who had been accepted to the schools' sports programs. Participation in the study was voluntary, and written informed consent was obtained from 350 student-athletes and their parents. These students were assigned personal identification numbers that they entered when filling out self-report questionnaires at the different time points of data collection. The ID numbers were used to merge quantitative and qualitative data sets. This study utilized quantitative and qualitative data from Time 3, when the student-athletes were in Grade 8.

4.2. Participants

The quantitative sample consisted of 217 (48.9% girls) student-athletes aged 13–14 years ($M = 14$, $SD = 0.4$) from 13 of the 16 lower secondary sports schools. Three schools were not eligible for quantitative data collection at Time 3. Thus, the response rate from the 13 schools was 81.2%. The participants completed a questionnaire composed of items relevant to this study at the end of eighth grade in March–May 2019. The participants practiced individual sports (35%; e.g., swimming, track and field) and team sports (65%; e.g., ice hockey, football) at the regional (35%) or national (65%) level.

For the qualitative phase, the principals and teachers of five sports

schools recruited 30 student-athletes who agreed to participate in interviews on a voluntary basis in conjunction with the quantitative data collection at the end of the academic year in May 2019. Using the personal identification numbers, the whole interview sample ($N = 30$) was compared against the quantitative sample ($N = 217$) to pinpoint student-athletes appearing in both data sets. As a result, a qualitative sample comprising 19 (10 girls) student-athletes from five sports schools who competed at the regional ($n = 7$) or national ($n = 12$) level were extracted for this study. The interviewees practiced ice hockey/figure skating ($n = 4$), football ($n = 7$), floorball ($n = 1$), basketball ($n = 1$), gymnastics ($n = 2$), swimming ($n = 2$), track and field ($n = 1$), and motocross ($n = 1$).

4.3. Measures

In the quantitative part of the study two instruments with parallel-worded items for school and sports were used to answer research question one.

4.3.1. School and sport burnout

School burnout was measured using the School Burnout Inventory (Salmela-Aro et al., 2009), and sport burnout was measured using the Sport Burnout Inventory—Dual Career Form (Sorkkila, Ryba, et al., 2017). The Sport Burnout Inventory—Dual Career Form (Sorkkila, Ryba, et al., 2017) was developed and adapted to the sport context based on the School Burnout Inventory (Salmela-Aro et al., 2009). Both inventories consist of 10 items covering three dimensions of context-specific (i.e., school and sport) burnout: exhaustion (four items; e.g., “I feel overwhelmed by my schoolwork/sport”), cynicism (three items; e.g., “I feel that I am losing interest in my schoolwork/sport”), and inadequacy (three items; e.g., “I often have feelings that I am not doing well in my schoolwork/sport”). All items were rated on a 6-point Likert scale (1 = *completely disagree* to 6 = *completely agree*). The overall School Burnout Inventory and Sport Burnout Inventory—Dual Career Form scores were used as indicators of burnout. The Cronbach's alpha reliability coefficients were 0.95 for the sport burnout scale and 0.92 for the school burnout scale. Previous studies have verified good validity and reliability properties for the school (Salmela-Aro et al., 2009) and sport (Sorkkila, Ryba, et al., 2017) burnout scales.

4.3.2. School and sport engagement

School and sport engagement were measured using the cognitive dimension of the Student Engagement Instrument Brief Version (Virtanen, Moreira, et al., 2018) and the Sport Engagement Instrument (Kuokkanen et al., 2021), respectively. The Sport Engagement Instrument was developed for examining sport engagement with items that correspond to the school context, allowing for equal measurements in both contexts. We chose to measure engagement through the cognitive dimension because it highlights the role of students as active agents with the capacity to handle, cope, and participate in school activities successfully (Wang & Eccles, 2012). The cognitive dimension encompasses two subscales with three items each that measure future aspirations and goals in sport/school (e.g., “I am hopeful about my future”) and control and relevance of sport/school (e.g., “Learning/sport is fun because I get better at something”). All items were rated on a 5-point Likert scale (1 = *completely disagree* to 5 = *completely agree*). The Cronbach's alpha reliabilities for the future aspirations and goals in sport and control and relevance of sport subscales were 0.90 and 0.72, respectively. The Cronbach's alpha reliabilities for the future aspirations and goals in school and the control and relevance of school subscales were 0.81 and 0.76, respectively. These subscales have previously displayed good reliability and satisfactory validity properties in the contexts of sport (Kuokkanen et al., 2021) and school (Virtanen, Moreira, et al., 2018).

4.3.3. Interview protocol

Shortly after completing the questionnaire, student-athletes

participated in semistructured one-on-one interviews with three members of the research team. The semistructured interview format not only allows interviewers to ask essential predetermined questions and probe key areas of interest but also gives researchers the flexibility to address unexpected issues that arise in more detail with further questions (Leech, 2002). The interview guide was created to illuminate personal-, interpersonal-, and institutional-level features related to lower secondary school student-athletes' perceptions of the DC phenomena. For this study, we used the personal-level questions. The interviews were initiated with a warm-up question asking the participants about their positive and negative experiences in relation to the LSSSP over the past academic year. Subsequent questions such as "How important is school/sport for you personally?", "How much and in what ways do school/sport strain or stress you?", and "How have you managed to combine school and sports so far?" aimed to explore further the first-person perceptions of participants' attitudes toward sports and school, future aspirations and satisfaction with sport and school, and past and current ability to combine school with sports. The interviews lasted 16–31 min. We conducted the interviews in Finnish and translated them into English later. Data from the interviews were used to answer research question two.

4.4. Data analysis

Prior to the quantitative analysis, a missing-value analysis was conducted on the data. The proportion of missing data points in the study variables varied from 0.9% to 11.5%. Little's test (1989) (Little, 1988) displayed a nonsignificant value, $\chi^2(978) = 1012.39; p = 0.217$, which implies that the data was missing in a completely random pattern. Consequently, the missing values were imputed using the expectation maximization algorithm (Dempster et al., 1977). Second, we assessed the fit of the six latent variables (i.e., future aspirations and goals in sport/school, control and relevance of sport/school, and sport/school burnout) in the measurement model. After fixing the residual variances for the school and sport inadequacy subscales to 0, the factors were found to provide sufficient fit: $\chi^2(386) = 716.97; p < 0.01$; CFI = 0.904; TLI = 0.892; RMSEA = 0.063 (0.056–0.070). The factor scores were saved and used as indicators for the latent profiles.

A latent profile analysis (LPA) with the maximum-likelihood robust estimation method in MPlus Version 8.3 (Muthén & Muthén, 2013) was used to identify adjustment profiles among student-athletes based on measures of future aspirations and goals, control and relevance, and burnout in the sport and school contexts. LPA is a probabilistic technique for identifying subgroups (i.e., profiles) sharing similar properties among the latent variables within a larger heterogeneous population (Magidson & Vermunt, 2002). In a stepwise process, one profile is added in each step until the number of profiles with the best fit to the data is detected. We compared models including one to five profiles using the Bayesian information criterion, the Vuong-Lo-Mendell-Rubin likelihood ratio test, and the entropy value as statistical criteria. A decrease in the Bayesian information criterion and a significant p value for the Vuong-Lo-Mendell-Rubin suggests rejecting the model with one less class in favor of the estimated model (Lo et al., 2001). Entropy provides an estimate of the accuracy with which the cases are classified into different subgroups, assuming values in the interval between 0 and 1. Larger values close to 1 are preferable, indicating less classification error in the model (Celeux & Soromenho, 1996). In addition to interpreting the statistics, we considered theoretical meaningfulness and class sizes when choosing the final class solution.

Next, we compared the extracted adjustment profiles for mean score differences in the six latent factors used in the LPA using the two-way analysis of covariance (ANCOVA) in IBM SPSS Statistics (Version 26). We calculated partial eta-squared (η^2_p) effect sizes to assess the magnitude of each factor, whereas Cohen's d effect sizes were calculated to compare mean differences between the profiles in all of the measures. Providing two effect sizes can yield a greater understanding of a specific

effect (Preacher & Kelley, 2011). Effect sizes were interpreted as small ($d = 0.2$), medium ($d = 0.5$), and large ($d = 0.8$). The effects of relevant background characteristics (grade point average, gender, type of sport, and level of competition; Aunola et al., 2018; De Subijana et al., 2015) were included in the analysis to assess the validity of the extracted profiles (Giacobbi et al., 2005).

The interview data were analyzed using thematic analysis (Braun & Clarke, 2006). First, the interviews were transcribed, and then we actively and repeatedly read the interview transcripts and formed our initial ideas for coding. The second phase involved the initial coding of the data using an inductive (i.e., data-driven) latent approach. Third, the initial codes were arranged into themes and subthemes, and all relevant coded data extracts were collated within the identified themes. Fourth, the candidate themes were reviewed and refined in a two-level process. On the first level, the collated extracts for each theme were read and adjusted to capture the coherent patterns of the coded data. The second level involved assessing the validity of the themes in relation to the whole data set. Phase 5 involved naming the themes and subthemes. To enhance credibility, two of the authors (JK and JER) individually coded the interviewees' experiences in detail, with the third author (MH) providing valuable comments on the collated data extracts (i.e., researcher triangulation; Nowell et al., 2017). Dependability was increased by the researcher panel collaboratively formulating the final themes in a recursive process, moving back and forth throughout the phases of the analysis (Lincoln & Guba, 1985).

The sixth and final phase of the qualitative analysis involved writing up the results by selecting convincing extracts to provide evidence of the themes' prevalence within and across the data. Embracing ideas from Frith and Gleeson (2004) and rendering that knowledge is created from socially shared experiences (Morgan, 2014), the extracts were combined with our analytic claims to understand the role of experiences in student-athlete adjustment in the Finnish DC context.

5. Results

The fit indices pertaining to the series of LPAs conducted to group student-athletes into adjustment profiles are presented in Table 1. Overall, the results indicate that the three-group classification described the data most accurately. Although the Bayesian information criterion value decreased for each successive class that was added, the WLMR values supported the three-class solution. Moreover, the entropy value (0.949) was highest for the three-group solution. The three-group classification was retained as the final solution based also on theoretical interpretability and average individual posterior probabilities for being assigned to a specific group (latent class probabilities available upon request from the first author).

5.1. Adjustment profiles

A visual presentation of the three adjustment profiles is provided in Figure 1. The profiles were labeled based on the standardized mean factor scores of the six latent factors as follows: (a) *well-adjusted*, (b) *reasonably functioning*, and (c) *struggling*. The majority of student-athletes (56.2%) belonged to the *well-adjusted* profile, in which participants

Table 1
Information criteria values for different class solutions.

| Number of classes | BIC | Entropy | p_{VLMR} | Group size |
|-------------------|-----------------|--------------|---------------|---------------------|
| 1 | 3753.461 | | | 217 |
| 2 | 3480.416 | 0.913 | 0.0093 | 54, 163 |
| 3 | 3285.645 | 0.949 | 0.0405 | 22, 122, 73 |
| 4 | 3245.435 | 0.942 | 0.2417 | 23, 15, 105, 74 |
| 5 | 3193.863 | 0.938 | 0.5144 | 22, 103, 20, 57, 15 |

Note. The bold values represent the best fitting solution. BIC = Bayesian information criterion; VLMR = Vuong-Lo-Mendell-Rubin likelihood ratio

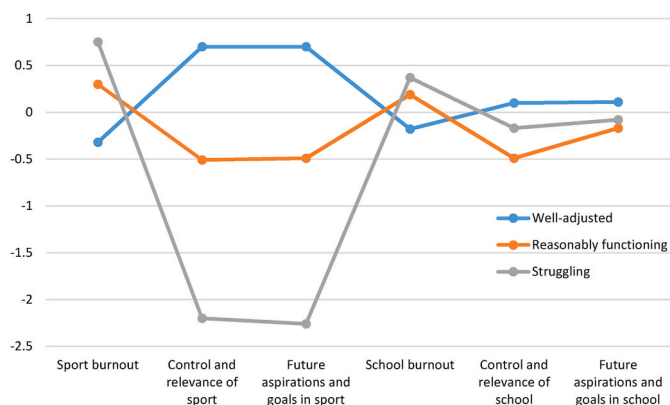


Fig. 1. Identified adjustment profiles among student-athlete

showed a high level of adjustment. Adolescents in this group reported low sport ($M = -0.32$, $SD = 0.96$) and school ($M = -0.18$, $SD = 0.96$) burnout, high sport-related aspirations and goals ($M = 0.70$, $SD = 0.24$) and control and relevance ($M = 0.70$, $SD = 0.32$), and moderate school-related aspirations and goals ($M = 0.11$, $SD = 0.96$) and control and relevance ($M = 0.10$, $SD = 0.99$). The second-largest group (33.6%) was the *reasonably functioning* profile, in which students displayed average DC adjustment. Adolescents in this group showed slightly elevated levels of sport ($M = 0.30$, $SD = 0.90$) and school ($M = 0.19$, $SD = 1.00$) burnout, average sport-related aspirations and goals ($M = -0.49$, $SD = 0.39$) and control and relevance ($M = -0.51$, $SD = 0.38$), and school-related aspirations and goals ($M = -0.17$, $SD = 1.07$) and control and relevance ($M = -0.49$, $SD = 0.38$). The student-athletes in the smallest profile (10.2%), *struggling*, showed the least DC adjustment. Characteristics of this profile were elevated levels of sport ($M = 0.75$, $SD = 0.76$) and school ($M = 0.37$, $SD = 1.03$) burnout, accompanied by low scores in sport-related aspirations and goals ($M = -2.26$, $SD = 0.63$) and control and relevance ($M = -2.20$, $SD = 0.57$). School-related aspirations and goals ($M = -0.08$, $SD = 0.94$) and control and relevance ($M = -0.17$, $SD = 0.90$) were average among adolescents in this group.

Next, we contrasted the adjustment profiles for mean score differences in the six latent factors. In general, the profiles differed in terms of the combination of variables: Wilk's lambda (12, 412) = 0.66, $p < 0.001$. The two-way ANCOVA indicated more variation between the profiles in sport-related factors ($\eta^2_p = 0.15$ – 0.87) than in school-related factors ($\eta^2_p = 0.02$ – 0.05). Student-athletes in the *well-adjusted* profile showed significantly lower mean scores on sport-related burnout and higher scores on control, and relevance and aspirations and goals in sport compared to adolescents belonging to the *reasonably functioning* and *struggling* profiles $F(2, 211) = 18.40$ – 687.48 , $p < 0.001$, with medium to large effect sizes ($d = 0.62$ – 2.96). Adolescents in the *struggling* profile had significantly lower mean scores on all three sport-related factors compared to student-athletes in the *reasonably functioning* profile, with small to medium effect sizes ($d = 0.45$ – 1.77). Regarding school-related factors, adolescents in the *well-adjusted* profile reported lower school burnout scores compared to student-athletes in the *struggling* profile $F(2, 211) = 5.11$, $p < 0.01$; however, the effect size was small ($d = 0.45$). The only significant difference in background characteristics was that a larger percentage of student-athletes in the *well-adjusted* (81%) and *reasonably functioning* (71%) groups competed at the national level compared to student-athletes who belonged to the *struggling* group (36%).

5.2. Student-athletes' experiences

The thematic analysis of the interviews resulted in three main themes: (a) school-related experiences, (b) sport-related experiences, and (c) DC experiences related to burnout and engagement. The 19

interviewees representing the three profiles reported similar school-related experiences, whereas sport and DC related experiences were different for adolescents in the three profiles. Thus, we begin by presenting student-athletes' shared school-related experiences jointly for the three profiles. Thereafter, we provide separate profile-specific portrayals of sports and DC experiences for the *well-adjusted*, *reasonably functioning*, and *struggling* profiles. To further our understanding of the shared and unique experiences of adolescents representing these three profiles, we provide extracts from the interviews along with researcher commentary.

5.2.1. Student-athletes' shared school-related experiences

Although student-athletes from all three profiles reported prolonged school days due to a combination of classes and school-based sport training, the daily requirements of school were generally perceived as moderate. Mike (floorball, *struggling* profile) explained, "I usually spend roughly 15–30 min per night on homework assignments. ... Though, it kind of varies from day to day." Consequently, an uneven distribution of school work throughout the school year caused temporary stress in school, as Stefan (basketball, *reasonably functioning* profile) commented, "All the exams tend to pile up during the last weeks of the semester. ... We have four exams this upcoming week, and there were two exams last week." The interviewees placed high importance on earning good grades, enabling a wide range of academic options in the future. Marie (rhythmic gymnastics, *well-adjusted* profile), said, "I've managed to obtain commendable exam marks, so school has gone pretty well... I'm not sure what I want to do when I grow up; therefore, my plan is to apply for upper secondary school after the 9th grade."

Student-athletes were generally satisfied with the structural support their schools provided for their DCs. Simon (basketball, *well-adjusted* profile) explained, "Flexible school schedules allow for opportunities to practice sports during school hours and to maintain a balance between school and free time." Teachers were considered particularly important sources of contextual support, providing empathy and support in balancing school and sports demands. Ian (ice hockey, *well-adjusted* profile) said,

In case of absence due to sports training or away matches, they (teachers) are keen that homework has to be taken care of before we leave... if there are exams, you can even take care of them before you leave.

Although interviewees within and across the adjustment profiles were more or less satisfied with how they had been able to manage school, they also recognized that the adjustment process is individual and stretches beyond the school context alone. Abby (swimming, *reasonably functioning* profile) said, "I remember our PE teacher telling us at the beginning of the seventh grade that combining sports and school is demanding... I don't question it, but in my opinion, it really depends on the person."

5.2.2. Sport and DC related experiences of well-adjusted student-athletes

Sports formed an essential part of life for the 11 interviewees representing the *well-adjusted* profile, as Stefanie (motocross) voiced, "I don't know what I would do in my life [laughs] if I didn't get to do it (sports) anymore." Sarah (rhythmic gymnastics) added, "I will continue doing sports as long as possible and succeed as well as possible." They devoted considerable time to sports, and their current sports success fueled their will to invest further. Frans (soccer) stated, "I do sports between 4 and 8 h each day," and Ronan (track and field) added, "I had just started doing track and field and broke the qualifying limit for the youth nationals in my first steeplechase race. ... I finished third in the 1500-m steeplechase race among some 20 participants in boys under 14." In terms of maintaining DCs safely and pursuing concurrent high ambitions in school, Laura (soccer) described her plan: "My dream is to be accepted into a sports-focused upper secondary school." Although the

large volume in training caused occasional physical exhaustion, sports also enhanced their general well-being. Johnny (ice hockey) said, “Sports help [me] to forget all those stressful things and to stay fresh. ... You get to spend quality time with friends and do something you’re passionate about; yes, it helps.” School and sports evidently proceeded in harmony, and *well-adjusted* student-athletes had no difficulty separating the two. Sarah (figure skating) expressed,

Well, I’ve combined them (sports and school) for a long time, so it’s just normal for me... I don’t need a lot of guidance in school... the teachers have seen from the beginning that I have a pretty clear idea of how I do my things at school.

Adolescents in this group had refined abilities to plan their everyday lives, including prioritizing schoolwork before leisure-time activities when needed. As Johnny (ice hockey) said, “Sometimes you just have to be outside your comfort zone at home... even if you, for instance, would like to play PlayStation, but you might have to choose to study for exams instead.”

5.2.3. Sport and DC related experiences of reasonably functioning student-athletes

For the seven interviewed athletes in the *reasonably functioning* profile, school was the first priority, but sports were also an important part of their lives. They experienced sports mainly as a source of fun and enjoyment—athletic success was not a driving force for them. Paula (swimming) said, “I’m satisfied if I qualify for the youth nationals. ... I do not need to win anything there. I will continue doing sports as long as I can still enjoy it.” Although engaging eagerly in sports and spending nearly as much time in training and competition as those in the *well-adjusted* profile, their future roles and plans for future elite sports careers were uncertain. Ben (soccer) exclaimed, “It’s hard to imagine that I would be involved in professional sports a decade from now,” whereas Abby (swimming), who had the most positive view of her foreseeable future in sports, stated,

I’m going to continue swimming, but for how long I can’t say. ... I’d probably apply to Mäkelänrinne (specialized upper secondary sports school) because of swimming but also for quality teaching. ... Actually, the school is located near my home, so I would almost certainly apply for the study program that is intended for regular students regardless of my swimming career.

They lacked practical tools allowing for efficient use of time, as Laura (rhythmic gymnastics) expressed, “It’s difficult (finding time for schoolwork) if there is no time for school assignments after school, in which case I’m forced to do school assignments or prepare for exams after a long (3h) training session.” In addition, conflicting ambitious academic aspirations and increasing sports demands resulted in physical and mental taxation. Paula (swimming) explained the mechanism:

I don’t experience it (fatigue) as [being] so much about sleeping, but about all the other things in general, kind of accumulated fatigue. ... Sometimes I get a little tired in both (sports and school); if I’m tired in one context, then it also easily transfers to the other context.

Abby (swimming) added, “Sometimes, I can’t stop thinking of school during training. ... It probably affects my sports performance. ... However, the same thing also works the other way around.”

5.2.4. Sport and DC related experiences of struggling student-athletes

In the interview with Mike (floorball), who represented the *struggling* profile, meeting friends and the fact that sports provided opportunities to create daily routines and make life more organized constituted his main reasons for engaging in sports. He approached sports on a day-to-day basis and spoke of occasional problems finding motivation for his sports, as well as a high uncertainty regarding the role of sports in his future “My goal is to get sufficient playing time this season, and it would

be awesome if I make a team playing on a more advanced level the following season. ... After that, well, I haven’t thought about it.” Furthermore, his engagement in sports varied according to the context, as he was more motivated to participate in sports practice arranged by his club team but participated less enthusiastically in school-based sports training or when training on his own:

If we don’t have practice sessions with the team, we should go out for a run 3 times a week by ourselves. ... Well, I don’t know ... I don’t have time for it this week. ... I don’t take morning practice (school-based) so seriously.

He tried to address a constant imbalance between school, sports, and leisure time by using avoidance and approach coping strategies:

For example, when new vocabulary is introduced in [the] Swedish language, I should study the content right after the lesson, then I wouldn’t need to devote extensive amounts of time studying all sections at once 2 days before an exam because I haven’t bothered in the first place. ... If I finish school at 2 p.m., I’ll probably study until 9 p.m. ... I might even skip team practice to find the time.

As these strategies were not always sufficient, he also self-negotiated increasing levels of DC stress and tried to reason with teachers:

If I’m tired, I go easy in training. ... If we have important matches with the club team on the weekend, I tell the PE teacher that I cannot do anything [tiring] in class. ... Subject teachers usually understand that if I have had a burdening week in sports, I can get extra time to prepare for exams.

6. Discussion

The aim of this study was to examine student-athletes’ DC adjustment in Finnish lower secondary sports schools at the end of the second academic year using a two-phase mixed-methods approach that integrated quantitative and qualitative data. In the quantitative phase, we extracted three adjustment profiles showing different patterns of burnout and engagement in school and sport. In line with earlier findings among older Finnish student-athletes (Sorkkila et al., 2020), over half of the student-athletes showed high DC adjustment and were categorized into the *well-adjusted* profile. Adolescents belonging to the *well-adjusted* profile showed low levels of school and sport burnout, which is characteristic of well-functioning student-athletes (Sorkkila, Aunola, & Ryba, 2017). School and sports progressed harmoniously and independently with respect to each other (Ryba et al., 2017); therefore, they were able to prioritize sports (i.e., convergent DC path; Torregrosa et al., 2015) while maintaining high engagement in school.

The second-largest adjustment profile holding one-third of the participants, was labeled *reasonably functioning*, with resemblances to a parallel DC path interweaving sports and school as equally important life themes (Torregrosa et al., 2015). Roughly 10% of adolescents belonged to the third and smallest profile that was labeled *struggling*, with resemblances to a linear DC path in terms of higher engagement with school than sports (Torregrosa et al., 2015). Adolescents in the *struggling* profile ascribing higher importance to school was somewhat unexpected because student-athletes following a linear path tend to prioritize sports over school (Moazami-Goodarzi et al., 2020; Torregrosa et al., 2015). Student-athletes in the *reasonably functioning* and *struggling* profiles showed adjustment issues typical for a dissonant DC construction style (Ryba et al., 2017), with elevated levels of burnout, especially in sport but also in school. In addition to suffering from burnout, struggling student-athletes had to diminish their current engagement and future aspirations in sports to protect themselves from further negative consequences (Gustafsson et al., 2011).

Moreover, we found no differences between the three profiles in present and future school-related engagement, which accurately mirrors

the cultural milieu highlighting the importance of education in Finnish DC contexts (Moazami-Goodarzi et al., 2020). Furthermore, the variation between the profiles in sports engagement might be explained by the fact that student-athletes tend to shift their investment and focus between the two contexts from time to time during midadolescence (Stambulova et al., 2015). In line with previous findings (Gustafsson et al., 2018), adolescents representing the three profiles showed variation in their level of sport burnout and student-athletes within all profiles displayed higher levels of sport burnout than school burnout (Sorkkila, Ryba, et al., 2017). It has been suggested that burnout might be the price of engaging fully in two time-consuming and wearing contexts (Gustafsson et al., 2011; Sorkkila, Aunola, & Ryba, 2017). Contradicting this notion, our results showed that student-athletes within the *well-adjusted* and *reasonably functioning* profiles who competed at the national level reported lower levels of burnout compared to student-athletes in the *struggling* profile competing at the local level. In all, the adjustment phenomenon is quite complex, and extensive support is needed because our results suggest that engagement and burnout may evolve as opposite and positive or negative parallel processes. Maintaining a balance between school and sports becomes pivotal when school and sports requirements increase during later phases of the DC (Aunola et al., 2018; Sorkkila et al., 2020).

The subsequent qualitative phase allowed us to capture experiences underlying engagement and burnout to explain the distribution of student-athletes in the adjustment profiles. The combined results of all 19 interviews revealed three main themes including school-related experiences, sports-related experiences, and DC experiences. In support of prior literature (Li & Sum, 2017), the interviewees reported more positive than negative experiences in general. Although the experiences identified in this study resembled the findings of a previous study (Sorkkila et al., 2020), the way these experiences affected the adjustment of student-athletes differed between the studies. Contradicting previous findings (Ryba et al., 2016, 2017), interviewees within all three profiles were willing to make concessions in sports rather than in school. Thus, student-athletes within all three profiles reported similar personal and environmental school-related experiences. In particular and similar to older Finnish student-athletes (Sorkkila et al., 2020), the interviewees invested extensive time in studying and felt pressure to perform well on exams. A high GPA enables an educational transition to upper secondary school, which functions as the main path to tertiary education and is thus crucial for future employment opportunities.

The interviewees within all three profiles were generally satisfied with the level of teacher support and institutional flexibility they had experienced. These findings are essential, as schools play an important role in adapting students' workloads (Kristiansen, 2017; Salmela-Aro, 2017), and teachers are important facilitators of school engagement and burnout prevention (Virtanen, Lerkkanen, et al., 2018). Student-athletes experienced that teacher-related support was mainly focused on providing opportunities for distance learning and empathy, whereas the adapted school curricula enabled combining sports and studies in a flexible way. However, the combination of prolonged school days coupled with multiple daily training sessions and insufficient time to recover from intense games and competitions on weekends caused school-related stress and fatigue in sport for all interviewees. In line with the person-environment fit theory (Eccles et al., 1993), the results underlined the importance of incorporating sports-related experiences and DC experiences in and beyond school and sports to explicitly understand the adjustment process of adolescents in each profile (Stambulova & Wylleman, 2019).

An interesting finding was that individuals in the three profiles engaged in sports for different reasons. Replicating previous findings (Sorkkila et al., 2020), adolescents in the *well-adjusted* profile experienced sports as fueling their general and school well-being but also as affecting their will to prepare for the possibility of sports as a future career (Li & Sum, 2017). This finding contrasts with the experiences of adolescents representing the *reasonably functioning* profile and earlier

research (Stambulova et al., 2015) highlighting the fun factor of school-based sports training. At the same time, they reported a high present engagement in sports but less ambitious plans for the future. Student-athletes belonging to the *struggling* profile reported social reasons for engaging in sports and a high uncertainty about the future role of sports that is typical for adolescent athletes (Stambulova et al., 2015). Importantly, adolescents in the *reasonably functioning* and *struggling* profiles had considered and were prepared to leave their sports if their academic pursuits were compromised.

Our results align with previous evidence (Kristiansen, 2017; Li & Sum, 2017; Ronkainen & Ryba, 2018; Stambulova et al., 2015) suggesting that student-athletes demonstrate personal abilities and strategies for maintaining their well-being and adjusting to DC hardships. DC management and planning strategies have been established as important for successful DCs (De Brandt et al., 2017). Adolescents who showed the *well-adjusted* profile had refined personal competencies (e.g., time management and prioritization skills) that enabled them to maintain a high level of engagement and low levels of burnout in sports and school, whereas a lack of these skills made it difficult to integrate sports and school meaningfully for student-athletes representing the *reasonably functioning* and *struggling* profiles. School engagement has generally been shown to facilitate overall satisfaction with life (Salmela-Aro, 2017). Typical for academically ambitious students (Salmela-Aro, 2017), student-athletes who showed the *reasonably functioning* profile experienced a high level of school engagement simultaneously with exhaustion. Their performance outcomes did not always align with their academic expectations, which has previously been shown to predispose athletes to heightened burnout (Gustafsson et al., 2018). Furthermore, the fact that they experienced difficulties in shifting their thoughts from school to sports could imply that student-athletes might initially suffer from context-specific symptoms of school-related burnout (Sorkkila et al., 2020), which eventually pour over into the sport context (Sorkkila et al., 2018). Adolescents in the *struggling* profile perceived school as highly important but had considerable problems in directing efforts toward the task most imperative at the present. This manifested itself in heightened burnout but also in terms of feelings of pessimism and distrust toward the role of sports in their futures while trying to figure out how to integrate sports into everyday life (Li & Sum, 2017).

6.1. Practical implications

Distinctive for its pragmatism (Kaushik & Walsh, 2019), this study produced practical knowledge that can be utilized by lower secondary schools when developing and establishing sports classes as part of their core activities. In particular, it may be beneficial for these institutions to acknowledge that there may be subgroups of student-athletes who need specific types of environmental support to thrive in the DC context. Although the majority of student-athletes adjusted well or reasonably to the DC context, the overall story of the *struggling* profile highlights the need to evaluate the criteria by which student-athletes are selected for sports classes solely on their athletic competence. High athletic competence by itself may not be sufficient to handle DC demands; thus, we recommend that conducting interviews along with physical aptitude tests might help distinguish applicants who possess the most potential to maintain a DC in the short and long run. Although lower secondary sports schools have incorporated teaching habits of healthy living and skills that facilitate adaptability as part of their curricula, we suggest that schools should further emphasize these topics but also include DC management and planning competencies that benefit all student-athletes. The responsibility for teaching these vital skills should be divided between teachers, parents, and coaches. Nearly half of the student-athletes reported elevated levels of burnout in school and sport; thus, annual discussions in schools might be useful strategies for detecting these signs early. Student-athletes should be actively encouraged to seek social support from teachers and significant others, as these constitute important coping resources that are essential for the

adjustment process (Brown et al., 2015).

6.2. Limitations and future directions

This study had at least two limitations that affected the accuracy of our results. First, because the study was part of a larger research project, the qualitative sample consisted of 30 interviews, of which 19 could be utilized in this study. Importantly, the *struggling* profile was represented by one interview, so this profile should be considered latent in need for more verification. Although the information extracted from the interview source produced the anticipated results that supported the quantitative findings and provided a glimpse into the lives of struggling athletes (Goles & Hirschheim, 2000), it would be beneficial to incorporate additional interviews to further elucidate the experiences of struggling student-athletes in the DC context. Second, the relatively small sample size of 217 student-athletes steered us to use general measures of burnout and engagement to extract the three profiles, whereas Salmela-Aro et al. (2008, 2009) suggested that assessing burnout separately along three dimensions (i.e., exhaustion, inadequacy, and cynicism) might further explicate the differences in burnout between the profiles. Moreover, our unidimensional way of conceptualizing engagement through the cognitive dimension leaves out the behavioral and affective dimensions, which are typically included as parts of the multifaceted engagement construct (Fredricks et al., 2004). Regarding this limitation, the interviews tapped—to some extent—the two missing dimensions of engagement and burnout that were not captured by the quantitative analysis. Consequently, future studies could incorporate quantitative measures of all three dimensions of engagement and burnout to provide a different perspective on these phenomena. In addition, a steady accumulation of analogous future research is needed to generalize our findings, as this study was among the first to collect evidence of student-athletes' early DC experiences, engagement, and burnout.

6.3. Conclusion

We identified three adjustment profiles for student-athletes, which we labeled *well-adjusted*, *reasonably functioning*, and *struggling*. The quantitative and qualitative results of this study supported each other, indicating that adolescents within the three profiles showed both common and differing features of burnout, engagement, and experiences. They reported overlapping school-related experiences, and analogous levels of school engagement and educational aspirations. Simultaneously, adolescents belonging to the three adjustment profiles differed in their sport-related and DC experiences, burnout levels, and sport engagement. In earlier studies, burnout and engagement were recognized as concurrent processes in sport (Gustafsson et al., 2018) and school (Salmela-Aro & Upadaya, 2020), and experiences were identified as being strongly bound to the stage and context of the DC (Li & Sum, 2017). However, to the best of our knowledge, this is the first study to link these three measures in the DC context. Based on the findings and as suggested by the person–environment fit theory (Eccles & Roeser, 2011), we conclude that the sufficiency of personal and environmental resources in relation to demands of sport or school centrally affects student-athletes' functioning and well-being considerably in both contexts.

Ethics statement

This study was carried out in accordance with the recommendations of Finnish Advisory Board on Research Integrity guidelines, The Board for Research Ethics at Åbo Akademi University.

Declaration of competing interest

None.

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