

This is a self-archived version of an original article. This version may differ from the original in pagination and typographic details.

Author(s): Viljaranta, Jaana; Aunola, Kaisa; Tolvanen, Asko; Ryba, Tatiana V.

Title: The development of school and sports task values among adolescent athletes : The role of gender

Year: 2023

Version: Published version

Copyright: © 2022 the Authors

Rights: CC BY 4.0

Rights url: <https://creativecommons.org/licenses/by/4.0/>

Please cite the original version:

Viljaranta, J., Aunola, K., Tolvanen, A., & Ryba, T. V. (2023). The development of school and sports task values among adolescent athletes : The role of gender. *Current Psychology*, 42, 17573-17582. <https://doi.org/10.1007/s12144-022-02880-y>



The development of school and sports task values among adolescent athletes: The role of gender

Jaana Viljaranta¹ · Kaisa Aunola² · Asko Tolvanen³ · Tatiana V. Ryba^{2,3}

Accepted: 4 February 2022
© The Author(s) 2022

Abstract

Successfully integrating elite sports with education requires motivation to commit oneself to both domains. This study examines the development of and gender differences in adolescent athletes' task values for school and sports across the upper secondary school years. A total of 391 adolescents (aged 15–16 at the beginning of the study) were followed four times during sports upper secondary school. The participating student athletes were recruited from six sports upper secondary schools in Finland, which offer equal competitive sport opportunities for both genders. The results showed that school- and sports- task values are strongly related to each other. Males valued school less than females at the beginning of upper secondary school, and this gender difference remained, and also strengthened across years. No gender differences in sports-related task values were found. The findings indicate that females may be more committed to integrating elite sports and education than males due to their higher valuing of school.

Keywords Dual career · Gender differences · Task values · Sports · Education · Upper secondary school

Narratives of athletic excellence may guide adolescents to postpone education and professional qualifications to focus on their athletic careers. Alternatively, talented adolescent athletes may withdraw from sports to focus on preparing themselves for work life (Ryba et al., 2016a). Participation in two different domains, sports and academic education, is highly demanding, and success in one pursuit often comes at the expense of the other (Baron-Thiene & Alfermann, 2015; Cosh & Tully, 2014; Ryba et al., 2021). The *EU Guidelines on Dual Careers of Athletes* (European Commission, 2012) state that efforts should be made to guarantee the possibility of combining elite sports with academic education and/or work, that is, a dual career, for high-performance athletes. Recent research on gender differences in academic and sports domains, however, suggests that the challenges athletes confront in a dual career may be gendered

(Organisation for Economic Co-operation and Development [OECD], 2016; Pöysä & Kupiainen, 2018; Tamminen & Braun, 2017). Since motivation is a significant determinant of future educational and occupational aspirations and plans (e.g., Lauermann et al., 2015; Lazarides et al., 2016), more information is needed about the motivational development of adolescent athletes that should be considered when supporting these athletes' dual careers. The present study aimed to examine adolescent athletes' simultaneous development of sports- and school-related task values across the sports upper secondary school years, and the role that gender plays in this.

Dual Career

Participation in talent development programs can be highly demanding for adolescent athletes when striving to succeed simultaneously in sports and academic work (Baron-Thiene & Alfermann, 2015; Healy et al., 2016; Kristiansen, 2017; Nikander et al., 2020; Ryba et al., 2016b). To prevent adolescent athletes from dropping out of education and, consequently, to ensure their potential for entering the labor market after an elite sports career, the European Union dual-career policy was adopted in 2012 (European Commission,

✉ Jaana Viljaranta
jaana.viljaranta@uef.fi

¹ School of Educational Sciences and Psychology, University of Eastern Finland, P.O. Box 111, 80101 Joensuu, Finland

² Department of Psychology, University of Jyväskylä, PO Box 35, FI-40014 Jyväskylä, Finland

³ Methodology Center for Human Sciences, University of Jyväskylä, PO Box 35, FI-40014 Jyväskylä, Finland

2012). However, while a dual career benefits athletes in the long run, the two separate achievement domains, sports and school, create time constraints, overlapping schedules, and conflicting goals (for a review, see Stambulova & Wylleman, 2019). Therefore, high motivation for both sports and school is required to adapt to these demands and create a successful dual-career pathway through adolescence. The central question is how athletes' motivation for both is maintained throughout their upper secondary school years. For example, the pressure to combine an academic and sports career may render adolescent athletes vulnerable to stress and burnout (Sorkkila et al., 2020) and even loss of motivation in the area of mastery they once experienced as inspiring (Baron-Thiene & Alfermann, 2015; Saarinen et al., 2020).

Previous research has shown that adolescent athletes, in general, tend to prioritize sports over school and that their athletic aspirations might diminish their potential to succeed in academics (Cosh & Tully, 2014; Saarinen et al., 2020; Simons et al., 1999). However, gender may play a role in adolescent athletes' motivation and dual-career success. For example, previous research has shown that girls perform better in school than boys (Pöysä & Kupiainen, 2018), and girls also have stronger beliefs in themselves in gender-stereotypical female-dominated domains like languages (e.g., Wigfield et al., 1997). Boys, in contrast, may possess a stronger athletic identity than girls, since sports have traditionally been considered to be a male-dominated activity that provides more professional opportunities for males than females (Hargreaves, 2000). Although the gendered processes of dual-career construction have been highlighted (Ryba et al., 2021), the role of gender in the development of motivation for both sports and school has not been investigated. Therefore, the present study aimed to examine the role of gender in the development of motivation for sports and school to better understand the factors that affect the successful creation of a dual-career pathway.

Motivational Development

In the present study, we approached adolescent athletes' motivation from the viewpoint of task values. The expectancy-value framework of Eccles and colleagues (Eccles et al., 1983; Wigfield & Eccles, 2000) posits that individuals' choices to commit themselves to certain tasks, as well as their persistence and performance in the given tasks, are influenced by the subjective value they attach to those tasks. Subjective task values include three components that refer to positive motives leading to approach behavior. *Intrinsic value* refers to the liking or the enjoyment a person derives from performing a specific domain. *Attainment value* refers to the personal importance of succeeding in a specific domain. *Utility value* indicates the perceived usefulness of engagement and achievement in

a particular domain. Many studies have shown empirical evidence for the differentiation of these components (e.g., Gaspard et al., 2015; Wigfield & Eccles, 2002), although these components have also been collapsed into a single, more general construct describing the overall value of a certain domain (e.g., Eccles et al., 1993; Jacobs et al., 2002; Lazarides et al., 2016).

Task values play a critical role when adolescents plan their future and make educational and occupational choices (e.g., Eccles et al., 1983; Wigfield et al., 2017). High values in a certain domain have been found to lead to better performance in the valued domain and to choosing pathways related to the valued domain, whereas low values are related to poor performance and choosing not to participate in the devalued domains (e.g., Lazarides et al., 2016; Watt et al., 2012).

Previous research on the development of task values has reported changes in the mean level of task values over the years, often a decrease (e.g., Jacobs et al., 2002; Watt, 2004). In some studies this decline has been found to be stronger in earlier school years and then to level off in late adolescence (Jacobs et al., 2002; Watt, 2004). However, most studies have focused on one school domain at a time, and not much is known about how task values in substantially different domains develop simultaneously, especially when the different domains are highly competitive in terms of time and other resources, as they are in the sports upper secondary school context. As an exception, Aunola et al. (2018) studied the task values of adolescent athletes toward both sports and school from a person-oriented perspective. They found that about 63% of the student athletes valued both school and sports at the beginning of the first upper secondary school year, but this decreased to 47% at the end of the second school year. In contrast, the number of students who valued sports but not school increased from 25% to 30% for the same period. The study by Aunola et al. (2018) focused, however, on the patterns of task values rather than on the development of task values. Therefore, it is unclear to what extent attaching high values to either school or sports is associated with maintaining or even increasing motivation in the other domain or whether high values in one domain are associated with diminished values in the other domain. This is a critical question from a dual-career perspective, since it is essential to find ways to better understand how adolescent athletes motivate themselves to pursue two demanding and competing careers.

Gender Differences in Task Values

The expectancy-value theory has been used to explain gender differences in different academic choices, such as course selection and educational and occupational choices (e.g., Lauermann et al., 2017; Watt, 2004; Watt et al., 2012). This

theory suggests that different kinds of socialization processes, such as communicating gender-specific expectations (Bleeker & Jacobs, 2004) cause males to develop more favorable task values in male-typed domains or activities (e.g., mathematics or sports) and females in female-typed domains or activities (e.g., language or performing arts). It has also been suggested that gender role stereotypes may contribute to students' task values by exerting an impact on the importance males and females attach to various personal characteristics, for example, masculine characteristics such as physical strength and feminine characteristics such as gracefulness (Gao et al., 2008).

Previous literature concerning the school domain has shown that girls, in general, value school more than boys do (Hietajärvi et al., 2014). Previous studies focusing on task values toward sports as a school subject have found that boys value sports more than girls do (e.g., Jacobs et al., 2002; Wigfield et al., 1997). However, studies that focus on task values toward sports in a competitive environment are rare, and the findings have been contradictory. Cox and Whaley (2004) found no significant gender differences in sports-related task values, whereas Chin et al. (2009) found that adolescent male athletes in track and field value sports more than females do.

Unfortunately, the previous separate findings about gender differences in sports or school values do not reveal much about the role of gender in values in the two domains of a simultaneous dual career, sports and school. To our knowledge, only one study has focused on task values in both these domains in the highly competitive context of a dual career. Aunola et al. (2018) found that girls were overrepresented in the motivational group characterized by high task values in both domains and that boys were overrepresented in the group characterized by a high value for sports but a relatively low value for school. These results suggest that female adolescents are more motivated for a dual career than male adolescent athletes. However, since the study by Aunola et al. (2018) did not examine gender differences in the task value levels and changes in different domains, it does not give insights into the gendered dynamics of task values across time. Consequently, the aim of the present study was to examine the role of gender in school and sports task values (i.e., interest, attainment, and utility values) and their development through the years of sports upper secondary school.

Context of Sports Upper Secondary Schools in Finland

The present study was carried out in Finland, where adolescents make a decision regarding their secondary education at the age of 15 or 16 after completing nine years of basic education. In the Finnish educational system, secondary

education comprises upper secondary school (an academic track that prepares students to apply for higher education in universities or polytechnics) or vocational school (professional preparation after which students typically transition to work or continue in polytechnics). Talented and elite adolescent athletes often apply to sports upper secondary schools, which offer equal competitive sport opportunities for both genders. These schools specialize in multiple sports, such as winter and summer Olympic sports (e.g., ice hockey and gymnastics) as well as non-Olympic sports (e.g., Finnish baseball). Sports upper secondary schools enable the construction of a dual-career pathway by, for example, collaborating with athletic clubs and sports federations to arrange morning practices for athletes, giving some study credits for sport, and offering the possibility to extend a normal three-year academic curriculum to three-and-a-half or four years. Admission to sports upper secondary schools is competitive, and in addition to students' grades in the basic education report, accepted students must demonstrate high potential in their own sport.

Research Questions

1. To what extent are the initial levels and the development of school-related task values and sports-related task values associated with each other? Because there is no previous research on the developmental dynamics between school- and sports-related task values among adolescent athletes, no hypothesis was set.
2. To what extent do gender differences exist at the initial level and the development of school-related task values across the sports upper secondary school years, that is, from the beginning of the first year until the end of the third year (four time points)? Based on previous findings showing that girls value school more than boys do (Hietajärvi et al., 2014) and that females participate more in higher education than males (OECD, 2016), it is hypothesized that females will report higher values for school than males do at the beginning of upper secondary school and maintain higher values for school than males do during the upper secondary school years.
3. To what extent do gender differences exist at the initial level and development of sports-related task values? Previous findings have been mixed, in that some studies reported males to be substantially more interested than females in sports (Deaner et al., 2016), whereas other studies found no gender differences in students' motivation for an athletic career (Lupo et al., 2015) or in student athletes' task values for sport (Cox & Whaley, 2004). Due to the previous mixed findings, no exact hypothesis was set.

Methods

Participants and Procedure

The present study is part of the Finnish Longitudinal Dual-Career Study (Ryba et al., 2016a), in which talented student athletes are followed through upper secondary school. The student athletes were recruited from six of 15 sports upper secondary schools in Finland to account for geographical representation. The Ministry of Education and Culture has given an elite sport school status to these schools; moreover, they have been classified as one of dual career pathways in a recent European study of dual career development environments (Morris et al., 2021). APA ethical standards were followed in the conducting of the study. In addition, before participant recruitment, an ethical approval for the data collection was obtained from the ethics committee of the University of Jyväskylä, Finland. In addition, all participants gave their written informed consent (of note, young people aged 15 onwards are considered consenting adults in Finland). The data used in this study were collected at school via an online questionnaire or an identical paper questionnaire at four time points: at the beginning of the first year of upper secondary school (T1), at the end of the first school year (T2), at the end of the second school year (T3), and at the end of the third school year (T4). The questionnaires included demographic questions, such as gender, year of birth, mother language etc., as well as questions related to adolescents' well-being, motivation etc. For the purposes of this particular study, athletes' task values toward school and sports were assessed at each time point.

At T1, when the participants were aged 15–16 years, a total of 391 student athletes (51% females, 49% males) participated in the study (Ryba et al., 2016a). The proportion of missing values varied between 0.059 and 0.061 at T2, between 0.107 and 0.146 at T3, and between 0.246 and 0.368 at T4. Little's MCAR test ($\chi^2(553)=656.60, p=.002$) showed that missing values were not missing completely at random (MCAR). Those who reported lower school- and sports-related values at the beginning of upper secondary school were more likely to drop out of the study than those reporting higher values. However, the analyses were carried out using the full information maximum likelihood (FIML) method, which is able to correct estimation bias. FIML assumes the missing values to be missing at random (MAR) instead of MCAR and was, therefore, suitable for the analyses in the present study.

Measurements

Task Values

Participants' school and sports task values were examined using a modified version of the task value scale developed by Eccles et al. (1983, see also e.g. Aunola et al., 2018; Lazarides et al., 2016 as examples of studies where the

modified scale has been used). Task values for school were examined by asking the participants to rate 18 questions that measured interest (6 items; e.g., How much do you like math?), utility (6 items; e.g., How useful or necessary is learning math for your future plans?), and attainment (6 items; e.g., How important is it for you to get good grades in math?) values on a 5-point scale (1 = *not at all* to 5 = *very much*). The questions concerned math, languages, and theoretical subjects (e.g., biology, history, etc.). A sum score was created for school-related interest (Cronbach's alpha varied between .72 and .77), utility (Cronbach's alpha varied between .69 and .77), and attainment (Cronbach's alpha varied between .84 and .88) values.

Participants' sports task values were examined by asking respondents to rate 13 questions that measured interest (5 items; e.g., How much do you like playing your sport?), utility (4 items; e.g., How useful or necessary is sports for your future plans?), and attainment (4 items; e.g., How important is it for you to do well in your sport?) for different sports-related domains, such as sports in general, sports practices, and sports competitions/games, on a 5-point scale (1 = *not at all* to 5 = *very much*). A sum score was created for sport-related interest (Cronbach's alpha varied between .77 and .88), utility (Cronbach's alpha varied between .78 and .84), and attainment (Cronbach's alpha varied between .80 and .85) values.

Analysis Strategy

The analyses were conducted in the following steps. First, because the previous literature suggests the three task value components should be handled separately (e.g., Gaspard et al., 2015; Wigfield & Eccles, 2002), six univariate linear growth models (Duncan et al., 2006) across the four time points were conducted separately for school and sports for the interest, utility, and attainment values. Second, because it can be assumed that even though the three value components are separate from each other, they together indicate an overall value (e.g., Eccles et al., 1993; Jacobs et al., 2002; Lazarides et al., 2016) toward either school or sports, these six models were integrated into one second-order latent growth model. This was done by modeling second-order factors for growth components, that is, intercepts and slopes, separately for sports and schools. Finally, gender was included in the model as a predictor of the second-order intercept and slope components of the school and sports task values, and the residuals of the second-order factors were allowed to freely correlate.

All analyses were performed using the Mplus statistical package (version 7.3; Muthén & Muthén, 1998–2016). The parameters of the models were estimated using the FIML estimation with standard errors that are robust

to non-normality (MLR estimator; Muthén & Muthén, 1998–2016). This method allowed all the available data to be used in the estimation of the parameters of the models. The means (*M*) and the standard deviations (*SD*) for sports-related variables are shown in Table 1 and for school-related variables in Table 2.

Results

As a first step of the analyses, six separate linear growth models were estimated: models for the school-related interest, utility, and attainment values and models for the sports-related interest, utility, and attainment values. All these models fit well to the data (both CFI and TLI were greater than .95). The only modifications needed were in the school- and sports-related interest value models, where

residual covariances were needed between the interest variables at T2 and T3.

As a second step of the analyses, these six linear growth models were combined, and a second-order factor for the intercept and the slopes was added separately for school and sports. The model did not fit the data [$\chi^2(256) = 942.08$, CFI = .84, TLI = .82, RMSEA = .08, SRMR = .10], and as a third step of the analyses, with the help of modification indices, five specific factors capturing time-specific common variance of interest, utility, and attainment values were added to the models: three specific factors for school (T2, T3, and T4) and two specific factors for sports (T2 and T3). After this specification, the model fitted the data well [$\chi^2(242) = 396.77$, CFI = .96, TLI = .96, RMSEA = .04, SRMR = .07].

Table 1 Interest, utility, and attainment scores for sports

	All			Females			Males		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
T1 Interest	391	4.71	0.34	199	4.69	0.35	192	4.73	0.34
T1 Attainment	391	4.52	0.47	199	4.55	0.45	192	4.49	0.49
T1 Utility	389	4.68	0.44	197	4.68	0.46	192	4.68	0.42
T2 Interest	368	4.63	0.49	191	4.58	0.52	177	4.67	0.44
T2 Attainment	368	4.48	0.54	191	4.47	0.58	177	4.50	0.51
T2 Utility	368	4.60	0.46	191	4.57	0.46	177	4.63	0.45
T3 Interest	334	4.50	0.57	171	4.48	0.60	163	4.51	0.54
T3 Attainment	334	4.40	0.53	171	4.41	0.53	163	4.39	0.54
T3 Utility	334	4.46	0.62	171	4.46	0.60	163	4.47	0.65
T4 Interest	247	4.42	0.58	126	4.47	0.53	121	4.38	0.63
T4 Attainment ²	247	4.34	0.59	126	4.45	0.49	121	4.21	0.66
T4 Utility	247	4.45	0.59	126	4.47	0.55	121	4.43	0.64

Mean difference between females and males are statistically significant ¹ $p < .05$, ² $p < .01$, ³ $p < .001$

Table 2 Interest, utility, and attainment scores for school

	All			Females			Males		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
T1 Interest ²	387	3.33	0.59	198	3.41	0.62	189	3.25	0.56
T1 Attainment ¹	389	4.04	0.56	198	4.10	0.57	191	3.98	0.54
T1 Utility	389	3.92	0.52	199	3.97	0.52	190	3.87	0.53
T2 Interest ¹	367	3.29	0.61	192	3.36	0.59	175	3.23	0.63
T2 Attainment ²	367	3.92	0.61	192	3.99	0.57	175	3.84	0.64
T2 Utility	367	3.86	0.54	192	3.90	0.54	175	3.81	0.55
T3 Interest ³	349	3.23	0.63	183	3.34	0.60	166	3.12	0.65
T3 Attainment ³	349	3.82	0.70	183	3.96	0.62	166	3.67	0.76
T3 Utility	349	3.75	0.61	183	3.80	0.59	166	3.70	0.63
T4 Interest ²	293	3.23	0.71	172	3.34	0.73	121	3.09	0.64
T4 Attainment ³	295	3.73	0.78	173	3.86	0.70	122	3.55	0.84
T4 Utility	293	3.76	0.63	172	3.81	0.64	121	3.69	0.63

Mean difference between females and males are statistically significant ¹ $p < .05$, ² $p < .01$, ³ $p < .001$

As a final step of the analyses, gender was added to the model so that it predicted the second-order factors of the intercepts and the slopes in the school- and the sports-related task values. In the final model, the nonsignificant paths were fixed to zero. Also, based on the suggestion of modification indices, two regression paths, one from gender to the intercept of the sports-related attainment value and one from gender to the slope of the school-related utility value, were added. This model (see Fig. 1) fitted well to the data [$\chi^2(262) = 414.45$, CFI = .96, TLI = .96, RMSEA = .04 and SRMR = .06].

The results showed, first, that the initial levels (intercepts) of the school- and sports-related task values were positively and statistically significantly associated (*stand. Estimate* = .23, $p < .01$): the higher the task values in one area, the higher the task values in the other area at the beginning of sports upper secondary school. The same was true also in the case of the development (slopes) of the school- and the sports-related task values: the more the task values in one area decreased over the school years, the more decrease occurred in the other area (*stand. Estimate* = .20, $p < .05$). No associations were found between the school intercept and the sports slope or between the sports intercept and the school slope, which indicates that the initial level of the school-related task values was not associated with the development of the sports-related task values and vice versa.

Second, the results showed that gender predicted both the initial level (intercept; *stand. Estimate* = $-.14$, $p < .05$) and the development (slope; *stand. Estimate* = $-.22$, $p < .01$) of the school-related task values: the males showed a lower initial level of school-related task values than the females, and the gender differences remained and even strengthened over

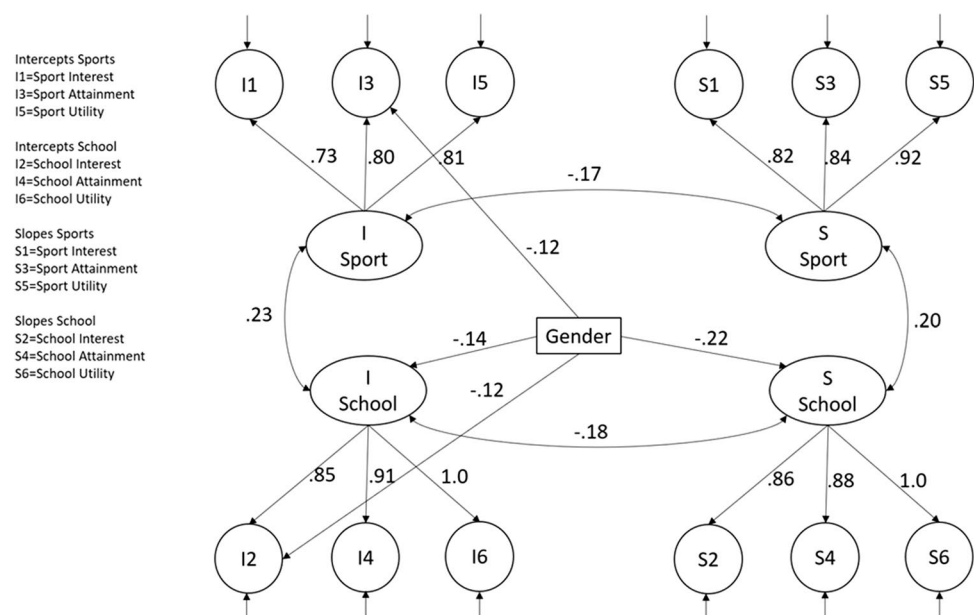
time. Finally, the results showed that there were no gender differences in either the initial level (intercept) of the sports-related values or in the development (slope) of these values.

Discussion

Motivation plays an important role when adolescents navigate through different educational challenges, and one especially demanding situation can be the challenge of combining elite sports and education into a dual-career pathway (Elliott et al., 2018; Sorkkila et al., 2020; Stambulova & Wylleman, 2019). Youth athletes, especially in the Nordic cultures, are increasingly expected to sustain their athletic and educational careers so as not to restrict their life opportunities (Ryba et al., 2016b). However, committed participation in both domains is highly demanding, and success in one domain often comes at the expense of the other (e.g., Cosh & Tully, 2014; Elliott et al., 2018; Ryba et al., 2015; Saarinen et al., 2020), and sports is often prioritized over school (Cosh & Tully, 2014; Nikander et al., 2020). Since the literature indicates that challenges confronting dual-career athletes may be gendered, the present study aimed to examine whether gender plays a role in the simultaneous development of sports- and school-related values.

The findings of the present study showed that school- and sports- task values are strongly related to each other: the more adolescent athletes reported valuing school at the beginning of upper secondary school, the higher their values also for sports were, and vice versa. Also, the development of school- and sports- task values goes hand in hand. This finding indicates the importance of considering the everyday lives of adolescent athletes from a dual-career perspective.

Fig. 1 Standardized and statistically significant associations for second-order factor structure



School and sports are not separate areas in adolescent athletes' lives; the two domains seem to be interconnected from a motivational perspective (see also Aunola et al., 2018). It could be interpreted as a good sign that student athletes do not, in general, highlight the importance of one area over the other. However, this finding also indicates that adolescents who assign low values to one area also show low values in the other area. These adolescent athletes may be most vulnerable in terms of integrating sports and education into a sustainable dual career. It is possible that for these adolescents, schoolwork is not very motivating and, in addition, they don't have a genuine desire to become a high-performance athlete but, instead, think sports more as a hobby. For these students sports upper secondary school might provide a possibility to study and to integrate sports as a hobby in a relatively flexible way to studying, even though they don't have high aims in either of them.

An important finding is that valuing one area at the beginning of the study was not related to the development of values in the other area over time. In other words, we did not find evidence for students prioritizing one area over another. For example, high valuing of sports was not related with a decline in valuing school over the upper secondary school years (see, for example, Cosh & Tully, 2014; Simons et al., 1999). This is a good sign, especially for those student athletes who are motivated in both sports and school (see also Lupo et al., 2015; Stambulova et al., 2015) of the possibility of successfully combining two different demanding areas and maintaining motivation for both. However, it is important to find ways to support adolescent athletes to maintain motivation for both school and sports, and it is especially critical for those adolescents who already have lower values at the beginning of upper secondary school. Such support would prevent such students from dropping out of educational pathways.

The findings concerning the role of gender in sports- and school-related task values showed, first, that the females reported a higher initial level of school-related task values at the beginning of sports upper secondary school than the males. In addition, the males' school-related task values were not only lower than the females' task values at the beginning of upper secondary school, but also the gender differences remained and even strengthened across time. However, gender was not related either to the initial level of sports-related task values or to their development.

The females' higher school-related task values are in line with previous literature showing that females, in general, value school more than males do (Hietajärvi et al., 2014). Person-oriented studies have also shown that it is more typical for females than males to exhibit task value profiles that indicate high values for several school subjects (Lazarides et al., 2016). This may indicate that females place a higher value on education, in general, than males do, which is also

reflected in females' higher educational plans and aspirations (OECD, 2016). It is possible that females of this age are more mature and able to plan their long-term future and therefore see the value of school and education to be more important than males do. It may also be that the males who attend elite sports upper secondary schools are a special group of male adolescents whose focus in life is sports, which is reflected in their lower school-related values.

However, males' initially lower values for school, as well as the strengthening gender difference in values for school across time, is a worrying signal in terms of male athletes' commitment to combine elite sports with academic education, which is not possible without strong motivation to perform in both domains. Overall, this pattern of findings indicates that male student athletes, in particular, are at risk for motivational problems in relation to academic tasks, which can lead to problems in succeeding in their upper secondary school education (Eccles et al., 1983). This finding raises the question of whether there are contextual factors, such as environmental demands or (lack of) support, that lead males to value school and possibly education in a broader sense less than females do. It is possible that some gender-stereotypical expectations or demands play a role in this development. Sports researchers have argued that elite sports culture favors male athletes by, for example, endorsing sportsmen while ignoring and trivializing sportswomen in media coverage (Bruce, 2016), as well as providing male athletes with greater opportunities to develop professional careers (Messner & Sabo, 1990; Pfister, 2010). Furthermore, in a recent qualitative longitudinal study that examined the implications of gender identity for dual-career construction, Ryba et al. (2021) proposed that the performance master narrative of elite sports is masculine (in its structure and content). Hence, it would be easier for males to construct a life story in line with the performance narrative. Because the performance narrative directs young athletes' thinking toward a single-minded dedication to sport (Douglas & Carless, 2009), the male participants in the study by Ryba et al. (2021) were more likely than the female athletes to resolve narrative tensions by withdrawing from education either permanently or temporarily.

The findings showing that males and females value sports equally are in line with earlier studies that found no gender differences in students' motivation for an athletic career (Lupo et al., 2015) or in student athletes' task values for sports (Cox & Whaley, 2004), although contradictory findings have also been found among track and field adolescent athletes (Chin et al., 2009). This finding is encouraging, especially because there are studies reporting that adolescent females show less confidence in their athletic abilities and drop out of sports careers at twice the rate of adolescent males (e.g., Tamminen & Braun, 2017). However, our results indicate that both male and female participants of the present study were encouraged to aim for a dual career by applying

to an elite sport upper secondary school that is charged with a national task to nurture talented athletes' holistic development, including integration of high performance sport with education. It is possible that the support these adolescents have received from their environment while planning their educational choices after comprehensive school has also encouraged females to think positively about their potential to have a sports career, which is encouraging for inclusion of girls and women in the elite sport culture.

Some limitations should be considered when interpreting the findings. First, the study focused only on athletes in sports upper secondary schools, not on athletes in general upper secondary schools or vocational schools. The findings could be different depending on the school context. Second, only the positive task value components of the expectancy-value theory were included in the study. Because the negative cost component is related to the negative consequences of engaging in a certain area, it may play a role in a highly competitive dual-career setting, even though the results of the present study did not find evidence for adolescent athletes highlighting the value of one area over the other, at least at the very beginning of upper secondary school. Finally, the effects of gender on task values were minor, suggesting that besides gender, other factors not examined in the present study may play a role in the development of task values.

As a conclusion, in adolescent athletes' everyday lives school and sports are highly connected with each other from a motivational perspective. The findings of the present study indicate that females may be more committed to integrating elite sports and education than males due to their higher valuing of school. However, it could be seen important that all high-achieving adolescent athletes receive the support they need, to guarantee them the possibility of a dual career.

Funding Open access funding provided by University of Eastern Finland (UEF) including Kuopio University Hospital. This study was supported by a grant from the Finnish Ministry of Education and Culture to Tatiana V. Ryba (OKM/13/626/2015; OKM/38/626/2015; OKM/42/626/2016), and by a grant from the Academy of Finland to Jaana Viljaranta (No. 316852).

Data Availability The datasets analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics Approval APA ethical standards were followed in the conduct of the study. In addition, before participant recruitment an ethical approval for the data collection was obtained from the ethics committee of the University of Jyväskylä, Finland.

Consent to Participate All participants gave their written informed consent.

Conflicts of Interest/Competing Interests No potential conflict of interest was reported by the authors.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Aunola, K., Selänne, A., Selänne, H., & Ryba, T. (2018). The role of adolescent athletes' task value patterns in their educational and athletic career aspirations. *Learning and Individual Differences*, 63, 34–43. <https://doi.org/10.1016/j.lindif.2018.03.004>
- Baron-Thiene, A., & Alfermann, D. (2015). Personal characteristics as predictors for dual career dropout versus continuation—A prospective study of adolescent athletes from German elite sport schools. *Psychology of Sport and Exercise*, 21, 42–49. <https://doi.org/10.1016/j.psychsport.2015.04.006>
- Bleeker, M. M., & Jacobs, J. E. (2004). Achievement in math and science: Do mothers' beliefs matter 12 years later? *Journal of Educational Psychology*, 96, 97–109. <https://doi.org/10.1037/0022-0663.96.1.97>
- Bruce, T. (2016). New rules for new times: Sportswomen and media representation in the third wave. *Sex Roles*, 74, 361–376. <https://doi.org/10.1007/s11199-015-0497-6>
- Chin, N., Khoo, S., & Low, W. (2009). Sex, age group and locality differences in adolescent athletes' beliefs, values and goal orientation in track and field. *Journal of Exercise Science and Fitness*, 7, 112–121. [https://doi.org/10.1016/S1728-869X\(09\)60014-9](https://doi.org/10.1016/S1728-869X(09)60014-9)
- Cosh, S., & Tully, P. J. (2014). "All I have to do is pass": A discursive analysis of student athletes' talk about prioritizing sport to the detriment of education to overcome stressors encountered in combining elite sport and tertiary education. *Psychology of Sport and Exercise*, 15, 180–189. <https://doi.org/10.1016/j.psychsport.2013.10.015>
- Cox, A. E., & Whaley, D. E. (2004). The influence of task value, expectancies for success, and identity on athletes' achievement behaviors. *Journal of Applied Sport Psychology*, 16, 103–117. <https://doi.org/10.1080/10413200490437930>
- Deaner, R. O., Balish, S. M., & Lombardo, M. P. (2016). Sex differences in sports interest and motivation: An evolutionary perspective. *Evolutionary Behavioral Sciences*, 10, 73–97. <https://doi.org/10.1037/ebs0000049>
- Douglas, K., & Carless, D. (2009). Abandoning the performance narrative: Two women's stories of transition from professional sport. *Journal of Applied Sport Psychology*, 21, 213–230. <https://doi.org/10.1080/10413200902795109>
- Duncan, T. E., Duncan, S. C., & Strycker, L. A. (2006). *Quantitative methodology series. An introduction to latent variable growth curve modeling: Concepts, issues, and applications* (2nd ed.). Lawrence Erlbaum Associates Publishers.
- Eccles, J. S., Adler, T. F., Futterman, R., Goff, S. B., Kaczala, C. M., Meece, J. L., & Midgley, C. (1983). Expectancies, values, and

- academic behaviors. In J. T. Spence (Ed.), *Advances in motivation and achievement* (pp. 75–146). Freeman.
- Eccles, J. S., Wigfield, A., Harold, R. D., & Blumenfeld, P. (1993). Age and gender differences in children's self- and task perceptions during elementary school. *Child Development*, 64, 830–847. <https://doi.org/10.1111/j.1467-8624.1993.tb02946.x>
- Elliott, S., Drummond, M. J. N., & Knight, C. (2018). The experiences of being a talented youth athlete: Lessons for parents. *Journal of Applied Sport Psychology*, 30, 437–455. <https://doi.org/10.1080/10413200.2017.1382019>
- European Commission. (2012). EU guidelines on dual careers of athletes: Recommended policy actions in support of dual careers in high performance sport. https://ec.europa.eu/assets/eac/sport/library/documents/dual-career-guidelines-final_en.pdf
- Gao, Z., Lee, A. M., & Harrison, L. (2008). Understanding students' motivation in sport and physical education: From the expectancy-value model and self-efficacy theory perspectives. *Quest*, 60, 236–254. <https://doi.org/10.1080/00336297.2008.10483579>
- Gaspard, H., Dicke, A.-L., Flunger, B., Schreier, B., Häfner, I., Trautwein, U., & Nagengast, B. (2015). More value through greater differentiation: Gender differences in value beliefs about math. *Journal of Educational Psychology*, 107, 663–677. <https://doi.org/10.1037/edu0000003>
- Hargreaves, J. (2000). *Heroines of sport: The politics of difference and identity*. Routledge.
- Healy, L. C., Ntoumanis, N., & Duda, J. L. (2016). Goal motives and multiple-goal striving in sport and academia: A person-centered investigation of goal motives and inter-goal relations. *Journal of Science and Medicine in Sport*, 19, 1010–1014. <https://doi.org/10.1016/j.jsams.2016.03.001>
- Hietajärvi, L., Nuorteva, M., Tuominen-Soini, H., Hakkarainen, K., Salmela-Aro, K., & Lonka, K. (2014). Kuudesluokkalaisten nuorten sosiodigitaalinen osallistuminen, kiinnostuksen kohteet ja kouluhyvinvointi [Sixth grade adolescents' sociodigital participation, interests and school well-being]. *Kasvatus*, 45, 429–443.
- Jacobs, J. E., Lanza, S., Osgood, D. W., Eccles, J. S., & Wigfield, A. (2002). Changes in children's self-competence and values: Gender and domain differences across grades one through twelve. *Child Development*, 73, 509–527. <https://doi.org/10.1111/1467-8624.00421>
- Kristiansen, E. (2017). Walking the line: How young athletes balance academic studies and sport in international competition. *Sport in Society*, 20, 47–65. <https://doi.org/10.1080/17430437.2015.1124563>
- Lauermann, F., Chow, A., & Eccles, J. S. (2015). Differential effects of adolescents' expectancy and value beliefs about math and English on math/science-related and human services-related career plans. *International Journal of Gender, Science and Technology*, 7, 205–228.
- Lauermann, F., Tsai, Y.-M., & Eccles, J. S. (2017). Math-related career aspirations and choices within Eccles et al.'s expectancy-value theory of achievement-related behaviors. *Developmental Psychology*, 53, 1540–1559. <https://doi.org/10.1037/dev0000367>
- Lazarides, R., Viljaranta, J., Aunola, K., Pesu, L., & Nurmi, J.-E. (2016). The role of parental expectations and students' motivational profiles for educational aspirations. *Learning and Individual Differences*, 51, 29–36. <https://doi.org/10.1016/j.lindif.2016.08.024>
- Lupo, C., Guidotti, F., Goncalves, C. E., Moreira, L., Doupona Topic, M., Bellardini, H., & Capranica, L. (2015). Motivation towards dual career of European student-athletes. *European Journal of Sport Science*, 15, 151–160. <https://doi.org/10.1080/17461391.2014.940557>
- Messner, M. A., & Sabo, D. F. (Eds.). (1990). *Sport, men, and the gender order: Critical feminist perspectives*. Human Kinetics.
- Morris, R., Cartigny, E., Ryba, T. V., Wylleman, P., Henriksen, K., Ramis, Y., Lindahl, K., & Ceci Erpič, S. (2021). A taxonomy of dual career development environments in European countries. *European Sport Management Quarterly*, 21(1), 134–151. <https://doi.org/10.1080/16184742.2020.1725778>
- Nikander, A., Ronkainen, N., Korhonen, N., Saarinen, M., & Ryba, T. V. (2020). From athletic talent development to dual career development? A case study in a Finnish high performance sports environment. *International Journal of Sport and Exercise Psychology*. <https://doi.org/10.1080/1612197X.2020.1854822>
- Organisation for Economic Co-operation and Development. (2016). Gender gap in education. <http://www.oecd.org/gender/data/gender-gap-in-education.htm>. Accessed 20 Jan 2022.
- Pfister, G. (2010). Women in sport – Gender relations and future perspectives. *Sport in Society*, 13, 234–248. <https://doi.org/10.1080/17430430903522954>
- Pöysä, S., & Kupiainen, S. (Eds.). (2018). *Tytöt ja pojat koulussa – Miten selättää poikien heikko suoriutuminen* [Girls and boys in school – How can boys' weak performance be defeated in comprehensive school?]. Valtioneuvoston selvitys- ja tutkimustoiminnan julkaisusarja 36/2018. <http://urn.fi/URN:ISBN:978-952-287-541-9>.
- Ryba, T. V., Ronkainen, N. J., & Selänne, H. (2015). Elite athletic career as a context for life design. *Journal of Vocational Behavior*, 88, 47–55. <https://doi.org/10.1016/j.jvb.2015.02.002>
- Ryba, T. V., Aunola, K., Kalaja, S., Selänne, H., Ronkainen, N. J., & Nurmi, J.-E. (2016a). A new perspective on adolescent athletes' transition into upper secondary school: A longitudinal mixed methods study protocol. *Cogent Psychology*, 3. <https://doi.org/10.1080/23311908.2016.1142412>
- Ryba, T. V., Aunola, K., Ronkainen, N. J., Selänne, H., & Kalaja, S. (2016b). Urheilijoiden kaksoisuraan liittyvän tutkimuksen tämänhetkinen tilanne Suomessa [The current status of dual career research in Finland]. *Liikunta & Tiede*, 53, 88–95.
- Ryba, T. V., Ronkainen, N., Douglas, K., & Aunola, K. (2021). Implications of the identity position for dual career construction: Gendering the pathways to (dis)continuation. *Psychology of Sport and Exercise*, 53. <https://doi.org/10.1016/j.psychsport.2020.101844>
- Saarinen, M., Ryba, T. V., Ronkainen, N. J., Rintala, H., & Aunola, K. (2020). "I was excited to train, so I didn't have problems with the coach": Dual career athletes' perceptions of (dis)empowering motivational climate. *Sport in Society*, 23, 629–644. <https://doi.org/10.1080/17430437.2019.1669322>
- Simons, H. D., Van Rheenen, D., & Covington, M. V. (1999). Academic motivation and the student athlete. *Journal of College Student Development*, 40, 151–162.
- Sorkkila, M., Ryba, T. V., Selänne, H., & Aunola, K. (2020). Development of school and sport burnout in adolescent student-athletes: A longitudinal mixed-methods study. *Journal of Research on Adolescence*, 30, 115–133. <https://doi.org/10.1111/jora.12453>
- Stambulova, N. B., & Wylleman, P. (2019). Psychology of athletes' dual careers: A state-of-the-art critical review of the European discourse. *Psychology of Sport and Exercise*, 42, 74–88. <https://doi.org/10.1016/j.psychsport.2018.11.013>
- Stambulova, N. B., Engström, C., Franck, A., Linnér, L., & Lindahl, K. (2015). Searching for an optimal balance: Dual career experiences of Swedish adolescent athletes. *Psychology of Sport and Exercise*, 21, 4–14. <https://doi.org/10.1016/j.psychsport.2014.08.009>
- Tamminen, K., & Braun, C. (2017). Psychological considerations of adolescents in sport and performance. In *The Oxford research encyclopedia of psychology*. Oxford University Press. <https://doi.org/10.1093/acrefore/9780190236557.013.17>

- Watt, H. M. G. (2004). Development of adolescents' self-perceptions, values, and task perceptions according to gender and domain in 7th- through 11th-grade Australian students. *Child Development*, 75, 1556–1574. <https://doi.org/10.1111/j.1467-8624.2004.00757.x>
- Watt, H. M. G., Shapka, J. D., Morris, Z. A., Durik, A. M., Keating, D. P., & Eccles, J. S. (2012). Gendered motivational processes affecting high school mathematics participation, educational aspirations, and career plans: A comparison of samples from Australia, Canada, and the United States. *Developmental Psychology*, 48, 1594–1611. <https://doi.org/10.1037/a0027838>
- Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology*, 25, 68–81. <https://doi.org/10.1006/ceps.1999.1015>
- Wigfield, A., & Eccles, J. S. (2002). The development of competence beliefs, expectancies for success, and achievement values from childhood through adolescence. In A. Wigfield, J. S. Eccles, & the Institute for Research on Women and Gender (Eds.), *Development of achievement motivation* (pp. 91–120). Academic Press.
- Wigfield, A., Harold, R. D., Freedman-Doan, C., Eccles, J. S., Suk Yoon, K., Arbreton, A. J. A., & Blumenfield, P. C. (1997). Change in children's competence beliefs and subjective task values across the elementary school years: A 3-year study. *Journal of Educational Psychology*, 89, 451–469. <https://doi.org/10.1037/0022-0663.89.3.451>
- Wigfield, A., Rosenzweig, E. Q., & Eccles, J. S. (2017). Achievement values: Interactions, interventions, and future directions. In A. J. Elliot, C. S. Dweck, & D. S. Yeager (Eds.), *Handbook of competence and motivation: Theory and application* (2nd ed., pp. 116–134). Guilford Press.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.