Promotion of top performing athletes in both sporting and academic domains

Promoción de atletas de alto rendimiento tanto en el ámbito deportivo como en el académico

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Abstract

Introduction: The successful support of talented young athletes is largely characterised by talent scouting, talent retention and optimal talent development. Success must be measured longitudinally in order to demonstrate long-term success. This illustrates the considerable impact of a robust school structure, which is fundamental to sporting success, particularly within the framework of Elite Schools of Sport (EdS). **Objective:** The objective of this study is to examine the extent to which self-competence is evolving and to provide insights into whether motives are developing in a distinct manner. **Methodology:** For this purpose, 15 athletes were interviewed at two different points in their education: at time t1, when they were still attending primary school, and at time t2, when they were pupils at an EdS. The SSIK-3 was used to record self-regulation competences, and the OMT to record implicit motives. **Results:** It is important to note that stress-related items show an increased level of expression after entry into the EdS (mean t1=2.14, mean t2=2.33, p=.396), with self-regulation (p=.070, r=0.48) and self-access decreasing (p=.076, r=0.47). When the correlations between the stress-related scales and the self-competence scales are taken into account, a strong negative correlation with stress becomes apparent, particularly in the areas of volitional behaviour (rt1=-638, p<.005) and self-approach (rt1=-.834, p<.001). **Conclusions:** Concurrently, the need for affiliation motive has increased, which can be explained by the results indicating that athletes want support systems to help reduce stress. The DUAL^{2}E support concept, on which this article is based, addresses these needs and aims to establish long-term support systems.

Key words: dual career, implicit sporting motives, explicit self-competences, elite sporting schools.

Resumen

Introducción: El apoyo eficaz que reciben los jóvenes atletas talentosos se caracteriza principalmente por la detección, la retención y el desarrollo óptimo del talento. El éxito debe medirse longitudinalmente para demostrar su perdurabilidad. Esto pone de manifiesto el considerable impacto que tiene una estructura escolar sólida en los logros deportivos, en particular dentro del marco de las Escuelas Deportivas de Élite (EdE). **Objetivo:** El objetivo de este estudio es examinar el grado de evolución de la competencia y analizar si las motivaciones se desarrollan de manera diferenciada. **Metodología:** Para ello, se entrevistó a 15 atletas en dos momentos distintos de su trayectoria educativa: en el momento t1, cuando aún cursaban la primaria, y en el momento t2, cuando eran alumnos de una EdE. Se utilizó el SSIK-3 para registrar las competencias de autorregulación y el OMT para registrar las motivaciones implícitas. **Resultados:** Es importante destacar que los ítems relacionados con el estrés muestran un aumento tras el ingreso al programa EdE (t1 media = 2,14, t2 media = 2,33, p = 0,396), mientras que la autorregulación (p = 0,070, r = 0,48) y el acceso disminuyen (p = 0,076, r = 0,47). Al considerar las correlaciones entre las escalas relacionadas con el estrés y las de competencia, se evidencia una fuerte correlación negativa con el estrés, particularmente en los ámbitos de comportamiento volitivo (rt1 = -0,638, p < 0,005) y en el acercamiento (rt1 = -0,834, p < 0,001). **Conclusiones:** Simultáneamente ha aumentado la motivación de conexión, lo cual se explica por los resultados que indican que los atletas buscan sistemas de apoyo para reducir el estrés. El concepto de apoyo DUAL^{2}E, en el que se basa este artículo, aborda estas necesidades y busca establecer sistemas de apoyo a largo plazo.

Palabras claves: Doble carrera, motivos deportivos implícitos, autocompetencias explícitas, escuelas deportivas de élite.

INTRODUCTION

The objective of the study is to identify the needs and developments of young athletes, with a view to creating optimised support structures. The objective is to provide enhanced career development support, with two key goals: maximising performance potential and minimising the risk of premature retirement. This should ultimately reflect the success of elite sports institutions.

Therefore, the approach of this study is to identify the psychological developments that occur during the transition from primary school to an elite sports school. The objective is to optimise support potential from the outset. It is important to note that early childhood support must be optimised in the context of talent scouting and talent development (Pfitzner, 2020; Breithecker, 2018; Hottenrott & Braumann, 2015). A longitudinal study should therefore help to better understand the development of motivational structure and self-regulation skills. The data collected will form the basis for a model that enables talented athletes to exert a greater influence on their dual career path and communicate their own needs.

The DUAL^{2}E concept aims to structure individual support within the framework of holistic school tasks.

DUAL²E stands for:

D	**D**oppelbelastungen erkennen (Recognise double burdens)
U	**U**nterstützung anbieten (Offer support)
A	**A**nforderungen sichtbar machen (Make requirements visible)
L²	**L**ernen – gemeinsam lernen (wiss. Befragungen)
	(Learning - learning together from and with the athletes (scientific surveys))
	Lehren – eine Weiterbildungsstruktur schaffen - Netzwerke bilden (partizipieren & kommunizieren)
	(Teaching - create a further education structure - form networks (participate & communicate))
E	**E**valuieren (Evaluate)

Sports careers at the EdS

It is reasonable to assume that career paths vary significantly (Stambulova & Harwood, 2022) and that development processes are highly individualised (Breithecker, 2018; Niehues, 2023; Niehues et al., 2021; Sallen, 2018; Sallen et al., 2018). As Stambulova and Harwood (2022) observes, the relative importance assigned to careers can vary between school and sport, a consideration that is particularly pertinent in practice. This underscores the significance of providing support to talented individuals, as their career trajectories diverge significantly depending on their level of success and the organisational structure of the sport.

It is important to be aware of developments and career paths within the individual, in order to demonstrate the added value of targeted and individualised support for athletes, and the opportunities this presents for educational institutions, which have a significant influence on athletes' sporting careers (cf. Gerloff & Sallen, 2021; Güllich & Cobley, 2017; Güllich, 2016; Wendeborn, 2023).

It is therefore essential that all partners involved in the school and sport system coordinate their efforts, and this should be structured by the DUAL²E concept in order to prevent dropouts, for example.

As the risk of a premature career end appears to be particularly high if the age of entry into sporting specialisation is early (Emrich et al., 2009; Barth et al., 2024), the responsibility of the school must be emphasised here.

Optimised coordination between school and sport is the prerequisite for this in order to better identify potential (Pfitzner, 2020; Veber et al., 2019) and to minimise the risk of chronic stress and poor well-being (Beckmann & Ehrlenspiel, 2017; Breithecker, 2018; Thompson et al., 2022). In order to increase well-being and thus minimise the risk of dropout, it is essential to recognise disruptive factors in success at an early stage so that good support systems can be applied precisely and individually (Schröder, 2025b; Schröder & Knisel, 2024). Witt and Dangi (2018) state that increased stress is associated with frequent criticism, leading to feelings of anxiety and nervousness, which in turn can result in a diminished sense of enjoyment (cf. Schröder, 2025a). The pressure from parents and coaches has been identified as a contributing factor to athletes feeling stressed and experiencing time stress.

In line with the theoretical correlations, the development of a support concept centred on the collaboration of the partners involved is recommended. This approach will ensure that the unique personality of the athlete is recognised and supported. In addition to the enhanced communication framework, a systematic coaching programme grounded in the GROW model (Whitmore, 2014) will guarantee that athletes receive personalised assistance, for instance to cultivate self-regulation abilities.

The objective of external training programmes is to educate multipliers who can apply the GROW model in a targeted manner and make the results transparent. The first step is to discuss goals (G), which can be mapped primarily at school and sporting level. Once the athletes' goals have been recorded, their feasibility is examined and subjected to a reality check (R). Possible options (O) are explored and discussed with the athletes. In the context of goal formulation with a focus on enhancing regenerative capacities, a reality check can serve to identify time resources based on the structure of everyday life. This approach can then facilitate the identification of options that allow for the creation of uninterrupted periods following an optimised organisation of time, thereby enabling recovery processes. The objective is to assess the necessary steps to initiate the will-based change process (W). It is recommended that these meetings take place at regular intervals (4-6 weeks) as required, in order to establish a platform for dialogue.

As Klein and Herber (2022) emphasise, it is vital that athletes play an active part in key issues. For instance, they should also have the opportunity to evaluate offers and thus influence them if necessary. This necessitates the provision of consistent and prompt support to athletes, given the likelihood of evolving demands throughout their careers. It is therefore important to create framework conditions that change subsystems in such a way that they are perceived by the athletes as influenceable. This will increase their self-control skills and enable them to solve problems themselves (Borggrefe et al., 2024).

In the context of goal formulation, the primary objective is to establish self-congruent goals from the athlete's perspective, thereby enhancing their self-regulation skills.

Self-regulation is a process by which athletes set and work towards goals that are consistent with their personal values. In this context, Baumann and Kuhl (2005) speak of an 'inner democracy' that forms the basis of self-regulation, in which the athlete's own needs and those of others are simultaneously taken into account and integrated.

Goals are achieved in a flexible and suitable manner for the situation, and are reinforced by the athlete's self-belief, which promotes self-regulation. This approach has been shown to enhance perceived self-determination, fostering a stronger alignment between an athlete's personal needs and their professional beliefs. It is reasonable to infer that this will enhance intrinsic motivation while concurrently diminishing the impact of formerly obligatory extrinsic sources of reward (Deci et al., 2001). In conclusion, this should reduce the probability of dropout.

Simultaneously, enhancing volitional competencies should reduce inhibition of willpower, thereby preventing a decline in motivation. The objective is to be able to apply these competencies even under pressure, which is synonymous with a high level of self-control. These competences are then recorded and compared with stress-relevant competences such as stress and threat. Should they will be inhibited, this may be considered a loss of self-control brought on by stressful stimuli. Research indicates that reinforcing positive effects can reduce listlessness, thereby strengthening willpower and making intentions more likely to be realised (Baumann & Kuhl, 2005).

METHODS

Fifteen pupils aged between 10 and 11 years (mean age: 10.47, SD=0.64) participated in the study, which was based on the SSI-K3 (Kuhl & Fuhrmann, 2004) for self-competences on the one hand and the OMT (Kuhl et al, 2002) for the implicit motive structure on the other. The participants were recruited from a prestigious sports school in Berlin. They were pupils who were still attending primary school at time t1 and 7th grade at time t2. Longitudinal research is essential to gain further insights into the development of self-regulation skills in athletes, with the aim of implementing a sustainable, sport-promoting system. In the future, it is recommended that pupils be surveyed on a regular basis. This will enhance the informative value of the data and potentially allow for the identification of correlations within subgroups.

As stated in the report by Kuhl and Fuhrmann (2004), the SSI-K3 demonstrates excellent internal consistency, with a reliability coefficient of .78 to .89. The questionnaire is divided into the following categories and subcategories: Key concepts include self-access, coping with failure, self-perception, integration, stress and threat. The Operant Motive Test (OMT) was used to determine implicit motive structures and compare them with the participants' self-regulation abilities. The results were confirmed by inter-rater reliability.

RESULTS

Longitudinal comparison of the young students from 6th to 7th grade

Explicit self-regulation results

A correlation matrix is performed at the outset to demonstrate the relationships between the categories, thereby facilitating the identification of the most significant stress influencers. The parameters that have a particularly negative impact on stress then provide an indication of which support systems could be beneficial in reducing stress.

The findings demonstrated a strong negative correlation between the categories of willpower (t_1=-.638, p=.014; t_2=-.557, p=.038) and self-access (t_1=-.834, p=<.001; t_2=-.27, p=.35) and stress levels. Furthermore, the influence on self-access skills decreased (see Tables 1 and 2).

Table 1. Alpha reliability and correlations for main variables in the study (t_1)

	Scale	N	$\propto$	1	2	3	4	5	6	7
1	Self-regulation	14	.70	1						
2	Self-control	14	.70	.608*	1					
3	Willingness to perform	14	.89	.365	.365	1				
4	Self-access	14	.75	.498	.529	.789**	1			
5	Stress	14	.94	-.216	-.265	-.638*	-.834**	1		
6	Stress load	14	.84	-.213	-.391	-.587*	-.818**	.933**	1	
7	Threat	14	.94	-.199	-.149	-.622*	-.774**	.964**	.805**	1

**. Correlation is significant at the 0.01 level (2-tailed), *. Correlation is significant at the 0.05 level (2-tailed)

Table 2. Descriptive statistics, standard deviations, alpha reliability and correlations for main variables in the study (t_2)

|	Scale	N	$\propto$	1	2	3	4	5	6	7
1	Self-regulation	14	.82	1						
2	Self-control	14	*.234[1]*	.348	1					
3	Willingness to perform	14	.71	.136	.838**	1				
4	Self-access	14	.80	.487	.543*	.490	1			
5	Stress	14	.85	.069	-.352	-.557*	-.270	1		
6	Stress load	14	.86	.011	-.174	-.344	-.248	.906**	1	
7	Threat	14	.66	.155	-.468	-.655*	-.195	.853*	.553*	1

**. Correlation is significant at the 0.01 level (2-tailed), *. Correlation is significant at the 0.05 level (2-tailed),
[1] *Self-control is not taken into account in the following due to the poor internal consistency at time t_2*

The self-competence indicators demonstrate a downward trend, with a significant decrease observed from t_1 to t_2. In contrast, the stress-related categories exhibit a marked increase during the same period. These findings are in alignment with the results presented in the correlation matrix.

Table 3. Descriptive statistics, standard deviations and results of the Wilcoxon-test for main variables in the longitudinal study (t_1-t_2)

Scale t_1-t_2	N	Mean		SD		Z	p	r
		t_1	t_2	t_1	t_2			
Self-regulation	14	2.83	2.66	0.36	0.40	-1.81	.070	0.48
Self-control	14	2,65	2.37	0.58	0.37	1.76	.078	0.47
Willingness to perform	14	2.61	2.51	0.55	0.41	-.63	.529	0.17
Self-access	14	2.91	2.73	0.47	0.45	1.77	.076	0.47
Stress	14	2.14	2.33	0.85	0.51	.849	.396	0.23
Stress load	14	1.92	2.19	0.76	0.62	1.13	.258	0.30
Threat	14	2.36	2.49	1.03	0.52	.526	.599	0.14
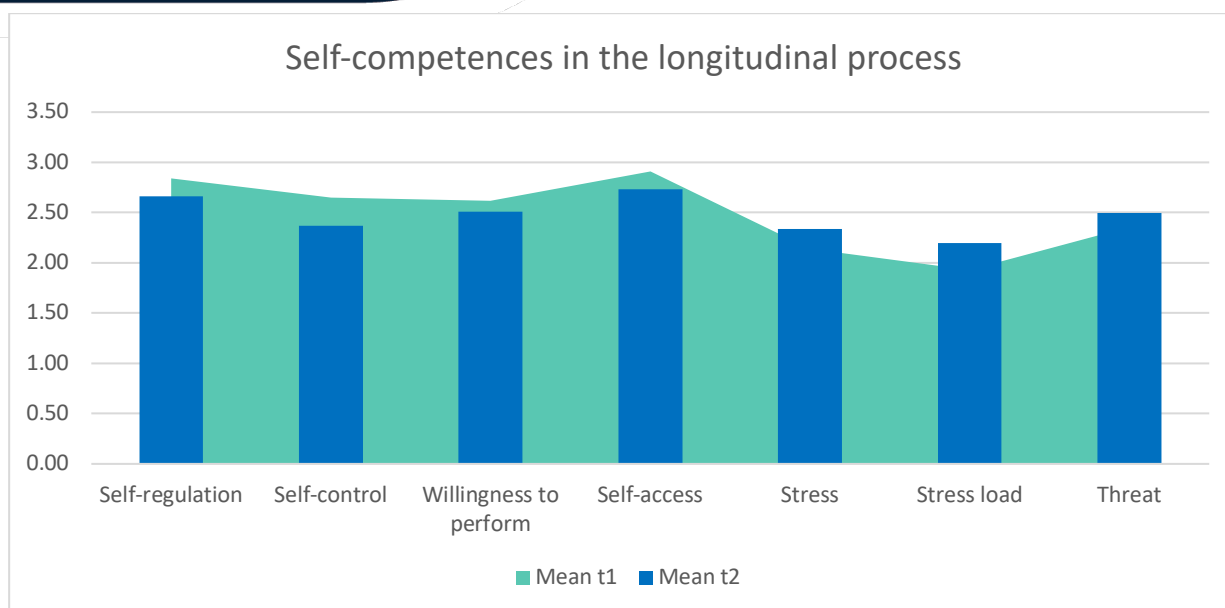
Figure 1. Development of the self-competences from t_1 to t_2
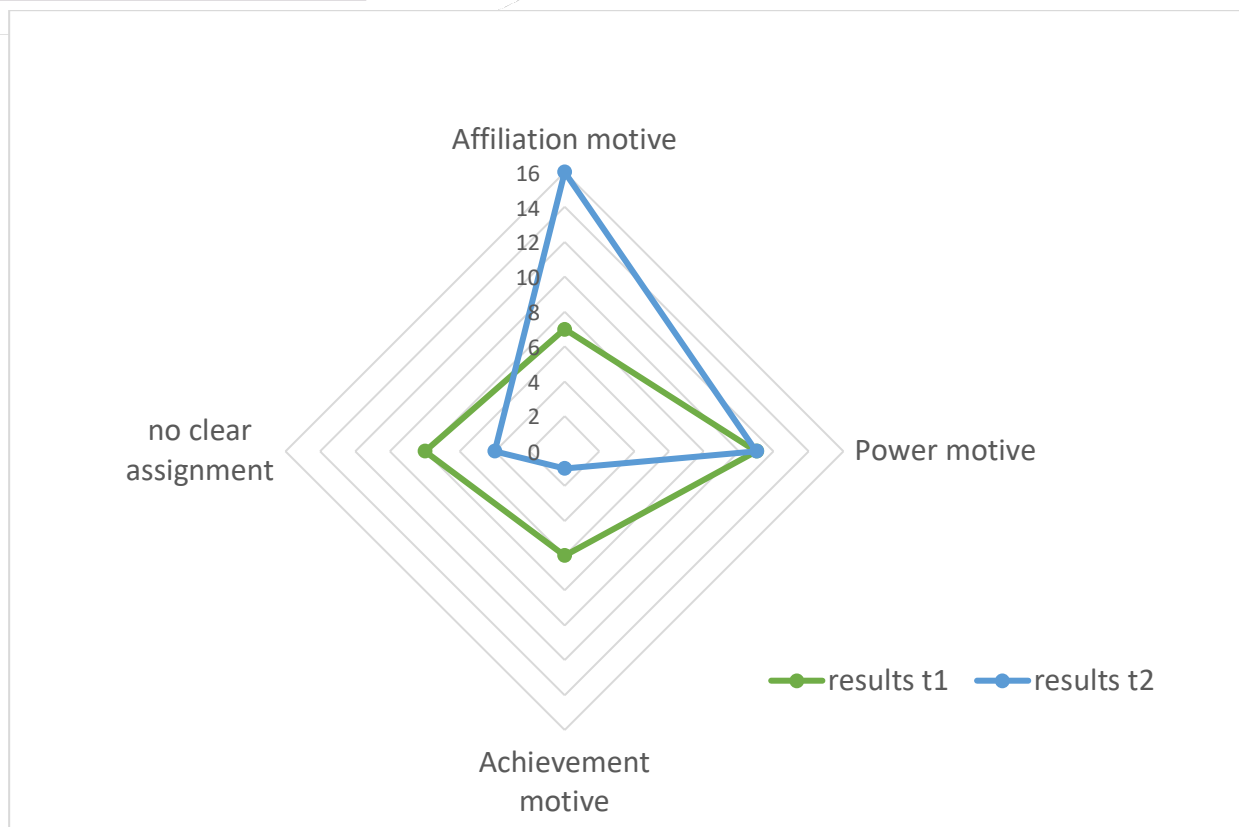
Implicit motive structure - results

The results of the OMT at t_2 demonstrate a significant increase in the motives for affiliation, especially among those who were less clear in their assignment or highly motivated by a need for achievement at t_1. The Power-motive exhibited remarkable stability, maintaining its position throughout the duration of the two measurements. The interrater reliability is satisfactory, with a range of 0.61 to 0.667.

Table 4. Interrater reliability and OMT results

Motive (1-4)		Total (t_1 and t_2)	prevalence to t_1	prevalence to t_2
Interrater-Reliability kappa (k)		0.651	0.667	0.61
1	Affiliation	23	7	16
2	Power	22	11	11
3	Achievement	7	6	1
4	No clear assignment	12	8	4

Figure 2. Distribution of the results of the implicit motive measurement at t_1 and t_2 determined by the OMT

DISCUSSION

The results indicate that close supervision is necessary to ensure optimal long-term support for the athletes. The decline in self-regulation and self-access skills from t1 to t2 is attributed to the new and varied demands of an elite school of sport, which reduce the opportunities for in-depth self-awareness. The significant differences in self-regulation skills suggest that the resources available for recovery in competitive sports training are not yet fully understood. Research has demonstrated that high levels of self-regulatory abilities may serve as a significant predictor of enhanced performance in competitive sport contexts (Wilson et al., 2021; Young et al., 2023). While this study should be regarded as a preliminary investigation, it offers valuable insights into potentially effective support measures. Further, more extensive and long-term data collection will be essential to further refine these findings. It is imperative to emphasise the significance of regular discussions within the GROW model framework. This approach facilitates the documentation of athletes' needs and reinforces their sense of being a pivotal component of the support system, which in turn fosters their motivation to participate.

The concept of co-determination holds particular significance for athletes, impacting their self-efficacy and, consequently, their overall well-being (Deci et al. 2001; Stander & Van Zyl, 2019). As part of a special report on athlete development in Germany, the Federal Institute for Sports Science (2015) identified key success factors in sporting success. To this end, 1429 active and former athletes were asked which support systems they considered to be important. The dual sporting career was identified as a key priority, as in addition to injury-related dropouts, it is precisely conflicts of interest with work, training and school that lead to premature career termination. The respondents indicated that both sports psychology support and dual careers are of significant importance. Unfortunately, their satisfaction with these two

systems tended to show poorer results, which emphasises the importance of this study and the resulting measures (Breuer et al., 2015).

CONCLUSIONS

The increase in perceived stress during the transition to an EdS is structurally justifiable and also depends on the extent to which additional stress arises. This can be seen in longer journeys, higher school demands and much more (cf. Breuer et al., 2015). However, this necessitates the establishment of individual support systems, which are tailored to each person's specific needs. This can be achieved through the implementation of regular interviews, with the GROW model serving as a foundation for their structure. A clear system of responsibilities that can be mapped at school and sports level is prerequisite for establishing meaningful monitoring systems.

One proposed solution is to develop a concept that enables athletes to optimally reconcile their academic and sporting commitments. In the context of an optimised dual career, it is essential to integrate all processes and partners from the school and sporting fields that influence sporting success. The rise in stress levels indicates that the varied demands can, at times, result in excessive pressures, potentially hindering the effective progression of a sporting career. It is evident that the groups demonstrate discrepancies in their planning abilities, which are associated with perceived stress levels. This, in turn, has a direct impact on the probability of achieving sporting success. In order to ensure effective resource allocation and optimisation of utilisation, it is essential to classify athletes accordingly and thus create clarity about their respective needs. In order to proceed with this process, it is necessary to implement an effective categorisation system. Such a system can also be applied to peak performance in areas outside of sport. The objective is to establish these individualised support systems as talent development programmes and thus extend them to a large number of pupils, for example those gifted in science. This would ensure the long-term sustainability of the school organisation and facilitate a general talent development focus, which would in turn lead to an increase in social potential.

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