

A HOLISTIC APPROACH TO THE DUAL CAREER OF THE STUDENT-ATHLETE

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Creating a University-Wide Support System for the Academic Success of Student-Athletes: A Pilot Study

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Abstract

The aim of this research was to determine whether the implementation of a methodology that allows the dual career student-athlete to follow up on a weekly basis the contents of the theoretical and practical sessions of the subjects taught in the classroom reduces the perception of barriers, promotes meaningful learning, and increases the motivation and satisfaction of the basic psychological needs. Eight student-athletes, all of whom were elite athletes, participated in the present research. Participants completed the Dual Career Proficiency Questionnaire, Perception of high-level university student-athletes on the dual career (ESTPORT), Exercise Benefits and Barriers Scale (EBBS), Athletic Identity Measurement Scale (AIMS), Goals perceptions questionnaire, Satisfaction of Psychological Needs in Education, Educational Motivation scale and ad hoc multiple-choice test on knowledge of the subject, before and after the delivery of a course in which a weekly follow-up was conducted with these student-athletes on the theoretical and practical part of the course. After the intervention, there was a significant decrease in the importance given by dual career students to emotional awareness ($p=0.047$), in the perception of emphasis on ego goals ($p=0.041$), and a significant improvement regarding the score obtained in the multiple-choice test score ($p=0.033$). In conclusion, a dual career support intervention based on providing students with the necessary materials to asynchronously follow the development of the subject, together with the use of self-assessment resources and personal tutorials to guide the process has proven to be effective in improving student-athletes' knowledge of the subject, as well as reducing their ego-orientation in the educational context.

Keywords: barriers, dual career, learning, motivation, support.

1. Introduction

The conciliation between elite sport and education involves a major challenge that many students have to face and results imperative to ensure their holistic development (Kissow, 2015; Knight et al., 2018; Leake & Stodden, 2014). For this reason, innovative approaches such as dual career have emerged in the last years to enable the successful performance of both disciplines. This approach allows the integral development of the athlete in their role as athlete-student and in their transition to life after their sports career (Nyberg et al., 2023), being based on the universal rights of education and sport included in the Universal Declaration of Human Rights (United Nations General Assembly, 1948) and the International Charter of Physical Education, Physical Activity and Sport (UNESCO, 1978).

From an employment perspective, it brings multiple benefits such as the easy access to the labor market and the increased chances of achieving economic security at the end of the life as an athlete (Tekavc et al., 2015). In this way, it allows to build a multidimensional identity which could facilitate the athletes the retirement from elite sport (López de Subijana et al., 2015). Moreover, multiple studies show that the dual career presents advantages about time planning, and since the athletes will not have to sacrifice their studies, also increases the motivation and therefore, the sports performance (Lupo et al., 2015; Stambulova et al., 2015). This is also important to their overall well-being, regarding the prevention of injuries related to stress and overexertion, produced as a consequence of unmanageable high demands from both their academic studies and training (Gustafsson et al., 2008; Sisjord & Sorensen, 2018; Sorkkila et al., 2020). However, achieving a balance between elite sport and education can be very difficult (Linnér et al., 2021; López de Subijana et al., 2015; O'Neill et al., 2013; Quinaud et al., 2022; Ryba et al., 2017; Stambulova et al., 2015). Thus, athletes have more difficulty balancing studies and training as their level of education increases (Harrison et al., 2022; Linnér et al., 2019). This situation leads many athletes to choose as educational options the ones that are easiest to combine with elite sport (Kuettel et al., 2020) and sacrifice educational success when integrating elite sport and education (Cosh

& Tully, 2014). For this reason, it is necessary a proper implementation of the dual career where sport and academic institutions work together and coordinate their efforts to support student-athletes.

In recent years, the increasing interest especially on part of the government and universities in the development of dual career has led to the allocation of a large amount of financial resources (Nyberg et al., 2023). In this regard, the Catholic University of Murcia (UCAM) has implemented different types of methodologies, such as the figure of the tutor-student whose function is to be a nexus between the student-athlete and peers/classes/teachers (Sánchez-Pato et al., 2017). This idea improves the proximity and promotes a more relaxed environment. Despite it, this approach also presents some disadvantages such as inaccurate and biased information (e.g. lack of communication, incomplete or wrong information or quality of the annotation, students taking the subjects in different academic years, or not sending the documentation on a regular basis in order to be able to monitor it on a weekly basis, among others). To address this problem, this project establishes direct communication between the teacher and the athlete-student and has the following objectives a) to determine whether the implementation of a methodology that allows the dual career student-athlete to follow the contents taught in the theoretical and practical classroom sessions of the subjects on a weekly basis reduces the perception of the student athletes about the competences and barriers in achieving success in the dual career; b) to analyze the influence of the proposed work methodology on basic psychological needs, motivation and task and ego orientation; and c) to evaluate the effectiveness of the proposed project on the academic performance of the dual career student-athlete and to promote meaningful learning.

2. Materials and methods

2.1. Design

This is a quasi-experimental design, with a non-probabilistic convenience sample. The institutional ethics committee reviewed and authorized the protocol designed for data collection, in accordance with

the guidelines from the Helsinki Declaration (code: CE102203). Study participants provided their consent to participate prior to data collection and were informed of the study objectives and the confidentiality of the data obtained during the study.

2.2. *Participants*

The sample consisted of ten elite male athletes enrolled in the optional subject “kinanthropometry”, belonging to the 4th Degree in Sports Science at the Catholic University of Murcia (UCAM) in the 2022/2023 academic year. The sample corresponds to the sample universe.

The inclusion criteria were a) to be enrolled in the subject “kinanthropometry” in the academic year 2022/2023; b) to be part of the dual career programme of the Catholic University of Murcia, which has a student-athlete support system described in previous research (Sánchez-Pato et al., 2017); and c) to have been studying at the university for at least one year. The exclusion criteria were a) failure to complete the initial or final evaluation questionnaires; and b) dropping out of university studies at the time this research was carried out. After applying the inclusion and exclusion criteria, the final sample consisted of eight individuals.

2.3. *Procedure*

Before the start of the subject, the professor in charge of the subject held a video-conference via Google Meet platform with each student individually to explain how the platform works, how this project was going to be organized and to resolve any doubts that might arise. Each meeting lasted between 30 and 45 minutes. After this first tutorial, the participants were sent the pre-test questionnaire via Google Form platform.

In order to carry out the support programme for the dual career, with regard to the theoretical part, during the development of the subject, all

the theoretical sessions that were developed in a face-to-face manner with the students were recorded. The recordings were processed with the text transcription programme Descript, with a pro account. Descript is a collaborative video and audio editing software that uses Automatic Speech Recognition (ASR) artificial intelligence to make transcriptions from different sources and formats. This programme has been chosen because of the quality of the service it offers, its user-friendly interface and accuracy in transcription, as well as the ability to edit and export the results obtained. After this, the content of the transcript was reviewed by the subject professors and five to ten multiple-choice questions of different levels of difficulty were included at the end of each topic as a self-assessment so that the student-athletes could check whether they had achieved the competences taught in that topic. Then, the written topic was sent to the participants of this research within a maximum period of one week after it was taught in the face to face classes, so that they could follow it up at the same pace as the rest of the students in the subject.

On the other hand, for the acquisition of practical skills, an adaptation of the practices in Google Form was carried out (practice 1: <https://acortar.link/3dZfVZ>; practice 2: <https://acortar.link/jF1ypq>; practice 3: <https://acortar.link/vhhB7u>; practice 4: <https://acortar.link/BE3CIA>; and practice 5: <https://acortar.link/MiVQJz>) with various activities related to the generation of audiovisual resources so that the participants could progressively acquire the skills that would guarantee them the acquisition of the knowledge of the practical part of the course, according to the University regulations.

In addition, a self-assessment rubric was included at the end of each practical to evaluate the competences acquired. This rubric was used by the participants, in the framework of a student self-assessment, and by the professor in charge of the subject after viewing the audiovisual resources generated by the students, thus enabling the professor to give feedback to the students on their degree of acquisition of practical competences. All practices were sent to the students at the beginning of the course, recommending them to carry out a practical session approximately every two weeks.

Participants were able to request any tutorials they needed for clarification of theoretical or practical content. In addition, at the end of the subject, an individual video-conference was held with each of them to close the course, after which post-test questionnaires were sent to them.

For both the pre-test and the post-test, participants did not receive any extra instructions or explanations about the purpose of the questionnaire, apart from what was indicated in the questionnaire itself. Participants completed the questionnaire in approximately 20-30 min.

2.4. *Instruments*

The questionnaire administered to participants in both the pre-test and post-test comprised validated instruments utilized in previous studies. Specifically, participants completed the Dual Career Competency Questionnaire (De Brandt et al., 2018). It is a questionnaire that is composed of questions about the competences that they believe could help them achieve success in the dual career, as well as their level of development in each of them. A Likert scale of 1 (strongly disagree) to 5 (strongly agree) points was used for its completion and allows to establish four dimensions (dual career management; career planning; emotional awareness; and social intelligence and adaptability) (De Brandt et al., 2018).

The "Perception of high-level university student-athletes on the dual career" (ESTPORT) questionnaire (Sánchez-Pato et al., 2016) was also administered. In this study, four items pertaining to the evaluation of the academic career and items related to the barriers faced in pursuing a dual career were utilized. The final score for this dimension was computed based on previous research (Abenza-Cano et al., 2020; Mateo-Orcajada et al., 2022). Responses were recorded on a Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The third questionnaire used was the Exercise Benefits and Barriers Scale (EBBS) (Sechrist et al., 1987). The 14 questions related to the exercise barriers dimension were introduced, with a four-category Likert

scale response from 1 (strongly disagree) to 4 (strongly agree). The final score for this dimension was calculated following the methodology of prior studies (Sechrist et al., 1987).

To measure athletic identification, the Athletic Identity Measurement Scale (AIMS) was used (Vissek et al., 2008). A total of 7 items completed on a scale of 1 (strongly disagree) to 7 (strongly agree) points allow measuring aspects of athletic identification. These items are grouped into several scales, including social identity, exclusivity, negative affectivity, and an overall score (Vissek et al., 2008).

Goals perceptions were assessed with Kaplan and Maehr's questionnaire. Two sections of the questionnaire "Personal Achievement Goals Scales" related to perceptions of emphasis on ego goals and perceptions of emphasis on task goals were used. Five items make up each section and are completed using a Likert scale from 1 (strongly disagree) to 5 (strongly agree). The final score for each of the two dimensions was calculated following the methodology of previous research (Kaplan & Maehr, 1999).

With regard to the assessment of psychological variables, the Satisfaction of Psychological Needs in Education was evaluated (León et al., 2011). This scale examines students' perception of their basic psychological needs in the university education context. It comprises 15 items that measure autonomy, competence, and relatedness, employing a five-point Likert-type response format. The final scores for each dimension were calculated based on previous studies (León et al., 2011).

The Educational Motivation scale (Núñez et al., 2005) was used to measure intrinsic motivation, extrinsic motivation, and demotivation. This 12-item scale includes seven categories: intrinsic motivation for knowledge, intrinsic motivation for achievement, intrinsic motivation for stimulating experiences, extrinsic motivation - identified regulation, extrinsic motivation - introjected regulation, extrinsic motivation - external regulation and amotivation. Responses were recorded on a Likert-type scale ranging from 1 to 7. The scores for each of these dimensions were calculated based on previous studies (Núñez et al., 2005).

Finally, in both the pre-test and post-test, participants completed an ad hoc multiple-choice test on knowledge of the subject, which has already been used in previous research (Vaquero-Cristóbal et al., 2021). It consisted of 10 questions with four answer options, and a point was awarded when the participant got the answer right (Vaquero-Cristóbal et al., 2021).

2.5. Data analysis

Analysis of normality was performed using the Shapiro-Wilk test, as well as analysis of skewness, kurtosis, and variance. As the variables did not follow a normal distribution, nonparametric tests were used for their analysis. For the comparison of differences in the study variables between pre- and post-test measurements, the Wilcoxon test for related sample was used. The value $p < 0.05$ was used to establish statistical significance. Statistical analysis was performed using the SPSS statistical package (v.25.0, SPSS, Inc.).

3. Results

The differences in the study variables between the pre- and post-test measurements are shown in Table 1. After the intervention, there was a significant decrease in the importance given by dual career students to emotional awareness ($p=0.047$). No significant differences were found in the importance given to dual career management ($p=0.287$), career planning ($p=0.121$), nor to social intelligence and adaptability ($p=0.201$), nor in the perceived possession of any of these competencies ($p=0.231-0.680$).

Regarding the evaluation of the resources offered to carry out the dual career, no significant differences were found in the flexibility of the university curriculum ($p=1.000$), the university distance learning ($p=0.317$), the implementation of teachers' methodological strategies ($p=0.083$), nor in the university's monitoring of the dual career in sport ($p=0.564$). Nor were differences found in the perceived barriers to

carrying out the dual career ($p=0.733$), nor in the barriers to sport practice ($p=0.362$) after the intervention.

Athletic identity was also unchanged after the intervention, with a similar total score ($p=0.622$), as well as in its dimensions of social identity ($p=0.458$), exclusivity ($p=0.157$), and negative affectivity ($p=0.596$).

Regarding goals perceptions, no significant differences were found in the perception of emphasis on task goals ($p=0.140$), but significant differences were found in the perception of emphasis on ego goals ($p=0.041$). However, no significant differences were found in any of the basic psychological needs (autonomy: $p=0.066$; competence: $p=1.000$; relatedness: $p=0.285$), nor in the variables related to motivation (intrinsic motivation for knowledge: $p=0.236$; intrinsic motivation for achievement: $p=0.205$; intrinsic motivation for stimulating experiences: $p=0.865$; extrinsic motivation - identified regulation: $p=0.351$; extrinsic motivation - introjected regulation: $p=0.362$; extrinsic motivation - external regulation: $p=0.528$; amotivation: $p=0.705$).

Regarding the score obtained in the multiple-choice test, the dual career participants presented significant improvements after the intervention ($p=0.033$).

Table 1. Pre-and post-test differences in the study variables

Variable	Pre-test		Post-test		Z	p
	M	SD	M	SD		
Importance given to...						
Dual Career Management	4.53	0.27	4.36	0.52	-1.065	0.287
Career Planning	4.20	0.49	4.00	0.53	-1.552	0.121
Emotional Awareness	4.48	0.37	4.21	0.50	-1.983	0.047
Social Intelligence & Adaptability	4.29	0.44	4.11	0.55	-1.279	0.201
To what extent do you have these competences?						
Dual Career Management	4.11	0.47	3.89	0.77	-1.198	0.231
Career Planning	3.83	0.51	3.75	0.89	-0.425	0.671
Emotional Awareness	3.86	0.68	3.93	0.72	-0.412	0.680
Social Intelligence & Adaptability	4.13	0.43	3.79	0.85	-1.781	0.075
How do you rate...						
The flexible university curriculum	1.63	0.74	1.63	0.52	0.000	1.000
University distance learning	2.25	1.17	1.75	0.46	-1.000	0.317
Implementation of teachers' methodological strategies	1.38	0.52	1.00	0.01	-1.732	0.083
The university's monitoring of the dual career in sport	3.75	1.58	3.63	1.51	-0.577	0.564
Barriers						
In dual career	2.69	0.82	2.59	0.89	-0.341	0.733
In sport (in general)	4.18	0.49	4.06	0.37	-0.912	0.362
Athletic identity						
Social identity	19.13	1.81	18.75	1.91	-0.742	0.458
Exclusivity	10.63	3.29	11.50	3.16	-1.414	0.157
Negative affectivity	10.13	3.60	9.50	3.89	-0.530	0.596
Total Athletic Identity	39.88	5.69	39.75	6.96	-0.493	0.622
Goals perceptions						
Perceptions of emphasis on ego goals	1.70	0.73	1.27	0.32	-2.043	0.041
Perceptions of emphasis on task goals	4.41	0.59	4.56	0.53	-1.476	0.140
Basic Psychological Needs						
Autonomy	4.13	0.62	3.85	0.82	-1.841	0.066
Competence	4.28	0.67	4.28	0.85	0.000	1.000
Relatedness	4.33	0.62	4.48	0.60	-1.069	0.285
Motivation						
Intrinsic motivation for knowledge	4.72	0.90	4.38	1.26	-1.185	0.236
Intrinsic motivation for achievement	4.03	1.17	3.59	1.55	-1.266	0.205
Intrinsic motivation for stimulating experiences	3.38	1.10	3.47	1.49	-0.170	0.865
Extrinsic motivation – identified regulation	5.13	0.83	4.91	1.16	-0.933	0.351
Extrinsic motivation – introjected regulation	4.06	1.02	3.72	1.51	-0.912	0.362
Extrinsic motivation – external regulation	4.38	1.32	4.06	1.78	-0.632	0.528
Amotivation	1.41	0.60	1.44	0.55	-0.378	0.705
Multiple-choice score	4.88	1.13	6.50	1.31	-2.132	0.033

4. Discussion

The first objective of this research was to determine whether the implementation of a methodology that allows the dual career student-athlete to follow the contents taught in the theoretical and practical classroom sessions of the subjects on a weekly basis reduces the perception of the student athletes about the competences and barriers in achieving success in the dual career. In this sense, it has been observed that the use of support materials and guiding methodology during a four-month period did not lead to a decrease in the perception of barriers on the part of the participants nor a modification in the perception about the competences in dual career. In the case of dual career students, time compatibility has been one of the main barriers highlighted when it comes to combining the timetables involved in their sporting careers with those necessary to maintain a correct academic training (Mejías et al., 2021). This sometimes makes it difficult for the student-athlete to reach a sufficient level of understanding to be able to pass the subject satisfactorily, especially when the subjects are practical, which generates frustration and increases their perception that they are incapable of achieving a balance between their facet as a sportsperson and as a student in the search for success in the dual career (Abenza-Cano et al., 2020). Previous research has indicated that the use of resources that allow for asynchronous learning of student-athletes, such as those used in this research, have shown positive effects in the ability of student-athletes to self-regulate their teaching and sporting schedules, being able to access teaching resources at all times and gaining greater control of the educational environment (Abenza-Cano et al., 2020; Mateu et al., 2019; Perez-Rivases et al., 2017). However, the fact that these resources were used in only one subject in the final year of the degree may have reduced the effect of the intervention on the student-athletes' perception of barriers.

The second objective established in the present research was to analyze the influence of the proposed work methodology on basic psychological needs, motivation and task and ego orientation. In this sense, it was observed that the student-athletes who participated in the research had a reduced ego-orientation after the research. Previous

research has related ego-orientation to a more superficial cognitive learning strategy, whereas a mastery or task orientation can be found to be more related to learning strategies that go deeper into the content (Somuncuoglu & Yildirim, 1999). Ego-oriented students are concerned with being judged as proficient, and their perceptions of their ability tend to be compared to the group or normativity (Ames & Archer, 1988; Skaalvik, 1997). That makes ego-orientation more likely to cause anxiety and it was negatively related to achievement and self-perceptions (Somuncuoglu & Yildirim, 1999). Therefore, a significant reduction of ego-orientation can help to improve the teaching and learning process of student-athletes. On the other hand, motivation and basic psychological needs are of great importance in the educational context, and it has been found that high levels of satisfaction of basic psychological needs and high levels of motivation favor the acquisition of knowledge, as they are related, especially in the university population, to greater involvement by students in the proposed activities (Müller et al., 2021; Navea-Martín & Varela Montero, 2019). In this respect, it has been observed that interventions based on support strategies for university students, such as those implemented in the present research, improve the satisfaction of basic psychological needs in education and increase motivation (Gutiérrez & Tomás, 2018). In contrast, neither basic psychological needs nor motivation-related variables were modified by the intervention, which may be due to the fact that at the time of the pre-test, athletes showed high levels of these variables, so perhaps a longer intervention implemented in more student-athletes is necessary to achieve significant changes.

And the third objective of this project was to evaluate the effectiveness of the proposed project on the academic performance of the dual career student-athlete and to promote meaningful learning. In this sense, a significant increase in the knowledge expressed by the participants about the subject was observed. It has been shown that, in the university population, self-assessment has benefits such as improving the learning process, favoring an active and real involvement of the students in the assessment, improving autonomy, motivation and the ability to reflect on the process, being able to identify where they need to improve (Calatayud & Alonso Tena, 2022). This resource,

together with the monitoring carried out by the teachers of the subject and the opportunity to visualize the theoretical classes and carry out the practices asynchronously, may have favored a greater involvement and deepening of the student-athletes in their learning process (Abenza-Cano et al., 2020).

5. Conclusion

A dual career support intervention based on making the necessary materials available to students to asynchronously follow the development of the subject, together with the use of self-assessment resources and personal tutorials to guide the process has proven to be effective in improving student-athletes' knowledge of the subject, as well as reducing their ego-orientation in the educational context. However, interventions of longer duration including a larger number of student-athletes may be needed to produce significant changes in the variables of motivation, basic psychological needs in education or the perception of barriers in the dual career.

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