



**UCAM**

UNIVERSIDAD CATÓLICA  
DE MURCIA

ESCUELA INTERNACIONAL DE DOCTORADO  
Programa de Doctorado en Ciencias del Deporte

Early dropout from Sports:  
A cross-sectional study in Italian and Spanish students

Autor:

Carla Consoni

Directores:

Dr. Domenico Cherubini - Ucam

Dr. Caterina Pesce – Università del Foro Italico

Murcia, 07 de Junio 2022





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## AUTORIZACIÓN DEL DIRECTOR DE LA TESIS PARA SU PRESENTACIÓN

El Dr. D. Domenico Cherubini y el Dr. Dña. Caterina Pesce como Directores (1) de la Tesis Doctoral titulada “Early dropout from sports activities: Analysis and comparison between Spain and Italy” realizada por Dña. Carla Consoni en el Programa de Doctorado en Ciencias del Deporte, autorizan su presentación a trámite dado que reúne las condiciones necesarias para su defensa.

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cn=CHERUBINI DOMENICO - Y2066763C  
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## ENGLISH ABSTRACT

*Background:* early withdrawal from sporting activities is a relevant phenomenon in young people. Lack of movement contributes to the adoption of incorrect lifestyles that will persist even in later ages in all people. Even young athletes may prematurely quit the sport during their school education before reaching their peak performance. When they dropout of sport during developmental age, the possibility to identify talent in sport is compromised. Moreover, systematic exercise programs may actually improve cognitive and metacognitive skills. Therefore, to dropout of sport might interrupt these benefits.

In summary, dropout from sport might be identified as an important phenomenon in youth with several negative implications at multiple levels. Furthermore, this process may be correlated to other non-sports factors and domains, such as the attritions factors at intra-personal and interpersonal levels. While the search for factors associated with sport dropout rates involved in both sport and broader lifestyle and achievement domains is ongoing, the relations between those factors, including skills that have a strategic value and are functional in performance and life domains different from sport, are still under-investigated.

*Purpose:* the main aim of this study was to analyze the association between early sport dropout and relevant strategic learning skills to both sport and academic performance. It was hypothesized that an insufficient level/lack of such skills that are functional to learning processes and mainly studied in academic achievement research might also be associated with early dropout from sport. Conversely, a higher level of these skills might be associated with sport participation. This association was investigated also as function of age, gender, nationality, senior high school curricula and the quantitative and qualitative characteristics of sports activity to perform a comparison between Italy and Spain and to extend the generalizability of results.

*Materials and method:* the sample consisted of 560 Spanish (301 male, 259 female) and 1892 Italian (1303 male, 589 female) high school students aged 14–18 years. The Spanish participants attended the compulsory secondary school (ESO) and the curriculum of upper secondary education, such as Bachillerato. The Italian students

attended upper secondary schools with an enhanced sports curriculum (sports senior high school), and other non-sport (scientific, applied sciences, linguistic, technical) senior high schools. They completed two self-assessment questionnaires concerning physical activity and sports habits (CAPAFD) and learning strategies in the affective-motivational and cognitive-metacognitive domains (QSA-r). The research hypothesis was tested in an exploratory manner, with the descriptive research method and by looking for associations with a cross-sectional design. Binary logistic regression analysis was performed to calculate the impact of demographic variables, sports habits, different high schools curricula and strategic learning skills on sport dropout categories. Data were processed by SPSS Statistics software.

*Results:* the data analyzed with frequency analysis showed that students dropout of sports at average age of  $13.9 \pm 2$  yrs. A significant effect for age emerged with a wide general and sport-specific sport dropout that increased progressively after sixteen ( $\chi^2=52.76$ ,  $p<.001$ , Cramer's  $V=.104$ ). Moreover a gender effect revealed a larger general and sport-specific dropout in females than in males ( $\chi^2=21.26$ ,  $p<.001$ ; Cramer's  $V=.093$ ). Further findings showed that dropout rates were minimal in high schools with increased sport curriculum compared to the other Italian and Spanish curricula ( $\chi^2=271.91$ ,  $p<.001$ , Cramer's  $V=.235$ ).

Additional analyses conducted on sport practice in the past as function of gender and nationality revealed a significant association between team sport and dropout rates in male ( $\chi^2=99.46$ ,  $p<.001$ , Cramer's  $V=.192$ ), female ( $\chi^2=16.72$ ,  $p=.002$ , Cramer's  $V=.106$ ) and Italian students ( $\chi^2=93.28$ ,  $p=.002$ , Cramer's  $V=.168$ ). Moreover a lack of persistence in the same (individual/team) sport type was found in association with a higher general and sport-specific dropout rate in males ( $\chi^2=68.41$ ,  $p<.001$ , Cramer's  $V=.159$ ) and in Italian students ( $\chi^2=75.52$ ,  $p<.001$ , Cramer's  $V=.151$ ).

Most importantly, further analysis revealed a higher increment in the frequency of the students with general dropout and a lower one in the students with sport-specific in the number of critical values in affective-motivational strategic learning skills ( $\chi^2=42.29$ ,  $p<.001$ , Cramer's  $V=.094$ ). Cognitive-metacognitive strategic learning skills were non-discriminant for sport dropout rates in both samples of students. Further findings revealed that these skills were associated interactively with both the Italian and the Spanish school curriculum.



*Conclusions:* this study suggests that personal resources and characteristics, sports habits and sports high school's curriculum may have a favorable impact on sport persistence and may contribute independently and jointly to sport dropout rates. Affective-motivational learning skills may play a key role in maintaining sports activity over time and in the strategies tailored to dropout prevention for student-athlete engaged in dual-career.

**Keywords:** abandonment, physical activity, affective-motivational, strategic skills.

**TESAURO Terms:** Education Sector, Pedagogy.

## RESUMEN

*Introducción:* el abandono precoz de las actividades deportivas es un fenómeno relevante entre los jóvenes. La falta de movimiento contribuye a la adopción de estilos de vida erróneos que persisten durante la edad adulta. Sin embargo, hasta los jóvenes atletas pueden dejar prematuramente el deporte durante su carrera antes de alcanzar su prestación máxima. Cuando estos dejan el deporte durante la edad del desarrollo, se ve afectada la posibilidad de identificar a talentos en el ámbito deportivo. Además, programas de prácticas realizadas con regularidad pueden mejorar las habilidades cognitivas y metacognitivas. Por lo tanto, el abandono del deporte puede interrumpir dichos beneficios.

En síntesis, el abandono del deporte puede ser identificado como un fenómeno importante entre los jóvenes con diferentes implicaciones negativas en múltiples niveles. Además, este proceso puede estar correlacionado con otros factores y ámbitos no deportivos, como los factores de fricciones a nivel intra- e interpersonal.

Mientras que la investigación de los factores asociados al proceso de abandono del deporte relacionados tanto con el deporte mismo como con otros ámbitos lleva desarrollándose desde hace años, las relaciones entre estos factores, incluyendo las competencias que tienen un valor estratégico y son funcionales en la prestación y en los ámbitos de vida diferentes del deporte, todavía no ha sido investigados de manera detenida.

*Objetivos:* el objetivo principal de este proyecto es el de analizar la relación entre el abandono precoz del deporte y las competencias estratégicas de aprendizaje relevantes tanto en el deporte como en el rendimiento académico. Se avanza la hipótesis de que un nivel insuficiente y/o una falta de estas habilidades funcionales a los procesos de aprendizaje y estudiadas fundamentalmente en la investigación sobre el rendimiento escolar, podrían estar asociadas también con el abandono precoz del deporte. Al revés, un nivel más alto de estas habilidades podría estar asociado a la participación deportiva. Esta relación ha sido analizada también en función de la edad, de la nacionalidad, de los curricula de Secundaria y de las características cuantitativas y cualitativas de la actividad deportiva entre Italia y

España para ampliar la generalizabilidad de los resultados.

*Materiales y métodos:* la muestra está compuesta por 560 alumnos españoles (301 varones, 259 mujeres) y 1892 italianos (1303 varones, 589 mujeres) de edad comprendida entre los 14 y los 18 años. Los participantes españoles han cursado la ESO y el Bachillerato (nivel de estudios superior). Los estudiantes italianos han cursado escuelas de secundaria con un currículum deportivo potenciado (liceo deportivo) y liceos no deportivos (científicos, de ciencias aplicadas, lingüístico, técnico). Los estudiantes han contestado dos cuestionarios de autoevaluación relativos a la actividad física y las costumbres deportivas (CAPAFD) y las estrategias de aprendizaje en los ámbitos afectivo-motivacional y cognitivo-metacognitivo (QSA-r). La hipótesis de la investigación ha sido abordada de manera experimental, a través del método de investigación descriptivo y buscando relaciones con un diseño de investigación cross-sectional. El análisis de regresión logística binaria ha sido realizado para calcular el impacto de las variables demográficas, costumbres deportivas, diferentes currícula de las escuelas de secundaria y habilidades estratégicas de aprendizaje sobre las categorías de abandono del deporte. Los datos han sido elaborados a través del software SPSS Statistics.

*Resultados:* los datos analizados a través del análisis de frecuencia han demostrado que los estudiantes abandonan el deporte sobre los 13.9+<sub>2</sub> años. Un efecto significativo ha aparecido en relación con la edad tanto en los estudiantes con un amplio abandono deportivo general (definitivo) como específico (abandono de un deporte con consiguiente reinserción en otra actividad física o deportiva). Las tasas de abandono han aumentado progresivamente después de los 16 años ( $\chi^2 = 52.76$ ,  $p < .001$ , V di Cramer = .104). Además, un efecto de género ha revelado un abandono general y específico del deporte mayor entre las mujeres que entre los varones ( $\chi^2 = 21.26$ ,  $p < .001$ ; V di Cramer = .093).

Ulteriores resultados han confirmado que las tasas de abandono eran mínimas en los liceos con un mayor currículum deportivo con respecto a los demás currícula italianos y españoles ( $\chi^2 = 271.91$ ,  $p < .001$ , V di Cramer = .235). Ulteriores análisis realizados en la práctica deportiva desarrollada en el pasado en función del sexo y de la nacionalidad han relevado una asociación significativa entre deportes

de equipo y tasas de abandono entre los varones ( $\chi^2 = 99.46$ ,  $p < .001$ , V di Cramer = .192), las mujeres ( $\chi^2 = 16.72$ ,  $p = .002$ , V di Cramer = .106) y los estudiantes italianos ( $\chi^2 = 93.28$ ,  $p = .002$ , V di Cramer = .168). Además, una falta de persistencia en el mismo tipo de deporte (individual/en equipo) se ha relacionado con una mayor tasa de abandono general y específico del deporte entre los varones ( $\chi^2 = 68.41$ ,  $p < .001$ , V di Cramer = .159) y en los estudiantes italianos ( $\chi^2 = 75.52$ ,  $p < .001$ , V di Cramer = .151).

Un ulterior análisis ha relevado un aumento mayor en la frecuencia de los estudiantes con abandono general y un menor de los estudiantes con deporte-específico en el número de valores críticos en las habilidades estratégicas de aprendizaje afectivo-motivacional ( $\chi^2 = 42.29$ ,  $p < .001$ , V di Cramer = .094). Las habilidades de aprendizaje estratégico cognitivo-metacognitivo no eran discriminatorias para las tasas de abandono del deporte en ambas muestras de estudiantes. Ulteriores resultados han relevado que estas habilidades estaban asociadas interactivamente con el curriculum escolar italiano y español.

*Conclusiones:* este estudio sugiere que los recursos y las características personales, las costumbres deportivas y el curriculum de la escuela secundaria pueden tener un impacto favorable en la persistencia deportiva y pueden contribuir de forma independiente y conjunta con las tasas de abandono del deporte. Las habilidades de aprendizaje afectivo-motivacional pueden jugar un papel clave en el mantenimiento de la actividad deportiva en el tiempo y en las estrategias de prevención del abandono para los estudiantes atletas que llevan una doble carrera.

**Palabras clave:** abandono, actividad física, afectivo-motivacional, habilidades estratégicas.

**Términos TESAURO:** Sector de la Educación, Pedagogía.

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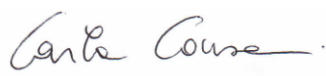
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Carla Consoni

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## ACRONYMS AND ABBREVIATIONS

EU	European Union
WHO	World Health Organization
JRC	Joint Research Centre
DC	Dual Career
UCAM	University San Antonio De Murcia
ESTPORT	European Sports Tutoring Model
ICT	Information Communication Technologies
MOODLE	Modular Object-Oriented Dynamic Learning Environment
CONI	Italian National Olympic Committee
CAP	Career Assistance Program
COE	Spanish Olympic Committee
ADO	Spanish Olympic Athletes Association
PTOF	Three-year educational offer plan
ECEC	Early Childhood Education and Care
IFP	Regional Vocational Training System
AFAM	High artistic, musical and dancing training
SSML	High Schools for Linguistic Mediators
ITS	Higher Technical Institutes
ESO	Compulsory Secondary Education
CEFR	Common European Framework of Reference for Languages
HDI	Human Development Index
ISS	Istituto Superiore di Sanità
PASSI	Progressi delle Aziende Sanitarie per la Salute in Italia
HEPA	Health-enhancing physical activity
CAPAFD	Analysis of the Practice of Physical-Sports Activities
QSA-r	Questionnaire on Learning Strategies – reduced version



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# **I- EARLY DROPOUT FROM SPORTS ACTIVITIES**



## I - EARLY DROPOUT FROM SPORTS ACTIVITIES

### 1.1. INTRODUCTION

The practice of sports promotes good health, an optimal psycho-physical development and the acquisition of healthy lifestyles that will persist even in later ages in all people (1). Nevertheless, young athletes, especially the talented ones, may prematurely quit sports during their school education before reaching their potential peak performance level in the own respective sport (2). Since the age in which the peak performance occurs, in most sports, is at the beginning of adulthood (3), when young athletes leave sports in childhood and adolescence, the possibility to identify talent in sports is compromised.

Therefore, to dropout of sports has become an important phenomenon in youth with several negative implications at multiple levels.

That is because it increases gradually during adolescence (4), is associated with physical inactivity over time and contributes to build unhealthy lifestyles (5). Physical inactivity is recognized as being a critical public health problem as well as it is predictive of increment of health problems in adulthood (6). These last ones may occur both in the immediate term, such as the poor ability to perform sustained physical exercise and in the long term, such as the functional alterations (7), which affects the musculoskeletal (8), cardiovascular, respiratory (9), metabolic systems, (10) and lower cognitive and mental health (11, 12). Furthermore, when the loss of physical exercise occurs during the developmental age, all the benefits related to sports practice which guarantee an optimal and well-being psycho-physical development are not achieved (13, 14, 15, 16, 17).

According to Kirk (18), Wall and Côté (19), the more the approach is enjoyable and gratifying, the stronger the motivation is to continue playing sports over time. This ensures the chance to realize greater investment in sports for the talent identification.

Conversely, young people who exercise, keep healthy lifestyle habits, such as

continued physical activity and healthy nutrition (20). Findings in *Sport and Physical Activity* surveys (21, 22) showed that, in 28 EU Members State, the percentage of 15-24 year olds regularly practicing sports decreased after ten years from 14% to 9%. In this group, 15% were males and 33% were females (expressed in percentage of the whole sample interviewed: 15 - 55+ yrs.).

Thus, it is important to contrast the early sport dropout to keep young people active over time and to avoid the negative consequences of a sedentary lifestyle.

On the other hand, adolescent sports participation (23) and, more broadly physical activity, are linked to academic achievement (24, 25). This is consistent with the evidence that systematic exercise programs may actually enhance the development of cognitive and metacognitive skills. These ones as well as being related to high-level cognitive functions are known to be important in addressing challenges both in academics environments and in other contexts (26, 27, 28).

Thus, it is necessary to propose to the adolescents the practice of suitable popular physical and sports activities for the educational, sociological and cultural context, so that young people persist in sports activity as long as possible over time (29, 30). Generally, children start playing sports to socialize, improve motor skills and have fun (31). However, these factors may be affected by other ones, such as age (32), gender (33, 34, 35), perception of competence (36), type of sport (37, 38) social environment (39, 40, 41).

Therefore, the sport dropout phenomenon may be due to personal, social and contextual factors (42, 43). Moreover, the combination of socioeconomic (44) and parental/coaches/peers support factors can predict sports participation /abandonment during childhood (45). Hence, sports dropout has been identified as a multifactorial and complex phenomenon. This is strongly influenced by different cultural backgrounds (44) and behavioral factors, as much as it is by personal characteristics, attitudes and motivations (46).

Most recently, some researchers (47, 48, 49) discussed similar theoretical models to categorize the variables associated to early dropout. According to the cognitive-affective model (50) also Sorkkila et al. (51) framed that demands, critical situations and personal resource deficit are associated with the development of sport and school burnout.

On the other hand, Cosh and Tully (52) observed that playing sport could

upskill young athletes by enhancing time- management, self-care, self-efficacy and specific strategies for coping with stress in different life areas. Moreover, to transfer these skills to academics' commitments may help young people to achieve successfully their goals in other life domains.

In summary, these studies confirm an important relationship linking sport and physical activity to functional personal resources that have a cross-boundary influence on every learning context and are relevant to deal with challenges, changes and critical situations. Therefore, the linkage of cross-functional personal skills in more domains encourages the investigation of unspecific dimensions and factors, which could play a role in dropout from or persistence in sports activity but are still underexplored.

Furthermore, while the search for factors associated with sport dropout rates is ongoing, the role played by skills that may affect performance in broader life domains different from sport is still under-investigated.

In the framework of soft skills that have to be promoted in the educational field Bay, Grządziel and Pellerey (53) define specific learning skills as strategic. These capacities enable positive behavior towards challenges, changes and critical situations and they are functional in order to carry out personal objectives.

The strategic learning skills are general and transferable and seem to constitute stable internal dispositions necessary to deal autonomously and successfully with study, work, sport and any relevant tasks in life. From an early age, good management of these skills allows the person to play a self-orienting role in different learning and life domains (54).

In other life contexts, sport experiences may provide a favorable environment to promote positive youth development through sport participation (55).

Thus, the main aim of this research was to explore the association between early dropout from sport in adolescence and strategic learning skills. It has been hypothesized that these skills functional to learning processes mainly studied in academic achievement research might also be associated with sport participation and vice versa, as an insufficient level/lack of such skills could be associated with early dropout from sport. This association was investigated also as a function of age, gender, nationality, senior high school curricula and the quantitative and

qualitative characteristics of sports activity (38, 37) to perform a cross-country comparison and to extend the generalizability of results.

## 1.2. STATE OF THE ART

According to the literature, there is a wide consensus to define sports dropout as a multidimensional phenomenon affected by a multilevel combination of many significant interplaying factors. Despite many researchers from various fields (mostly psychological) studied sport dropout, the approach to the study of this theme has been changing over the years.

Some researches (56) highlighted the need of addressing the reasons for dropping out due to both sport and non-sport factors. The latter may represent stronger motivations for quitting sport rather than the specific elements of displeasure of the sport itself. In addition, Deelen et al. (57) and Van Houten et al. (58) most recently, identified some major events as predictors of dropout from sport.

Other researches displayed the necessity to frame the various attrition correlates with sports participation within different domains from sports, such as school, community-level factors, psychosocial differences and leisure time (59). Further studies referred to adequate multilevel models to analyze various interplaying factors associated to the dropout phenomenon.

According to the Schlossberg's transition model (60, 61), Swain (62) highlighted that salient and outstanding changes in life may be associated with dropout from sports. The difficulty of managing the moments of transition involves personal or contextual variables and specific characteristics of the experience (61) by stimulating adequate strategies to response and solutions.

A recent study (63) underlined the Ebaugh's (64) sociological theory of the disengagement from sports as the theoretical framework understanding the sport dropout process over time. This theory highlights the importance of identifying as early as possible non-positive experiences/factors that could be predictive of dropout. Therefore, it may be possible to prevent the moment when the person starts doubting whether to continue or to stop sports activity until the final decision



of quitting sports. The timely identification of the factors that emerge at the beginning of the process of abandonment of sport may help to realize preventive and targeted intervention strategies.

Thus, the current studies grounded on various theoretical reference models that may analyze the association of behavioral correlates at multiple levels of dropout phenomenon (48, 47, 65, 49, 66) have replaced studies traditionally focused on variables-oriented approach. These refer to motivational (67) socio-economic (68), qualitative and quantitative aspects of sport (38, 37), analyzed separately or as groups of two.

In summary, the research has led authors to increasingly consider the abandonment from sports as a process that can be interpreted in a systemic key through a person-oriented- approach (69) and correlated to other non-sports factors and domains.

The findings related to these theoretical study models showed that the sport dropout rates are mostly associated with specific attrition factors at intra-personal and interpersonal levels. These factors such as the volitional, motivational, attitudinal, behavioral and social aspects involved in sport participation are related to functional resources and features of the person as well as they are to the self-esteem and self-efficacy.

This leads to hypothesize a linkage between the personal and social features and sports activity as predictive factors of participation or abandonment.

The correlates associated with sport dropout and categorized by some searches in various theoretical models are reported in table 1.

**Table 1.** Main correlates associated with sport dropout rates and categorized in the various theoretical models.

LEVELS	CORRELATES
<i>Intra personal</i>	<sup>a</sup> Lack of enjoyment - Perceptions of physical competence - Intrinsic pressures (e.g. stress) - Negative perceptions towards team or coach - Maturation (relative age effect and individual age ) <sup>b</sup> Perceived competence – Amotivation – Autonomy - Identified regulation - Intention to dropout -Intrinsic motivation to accomplishment - Intrinsic motivation to experience stimulation - Relatedness - External locus of control - Conflict between sport and non-sport activities - Intention to participate in sport - Future Expectancies in sport - Value of activity
<i>Inter personal</i>	<sup>a</sup> Pressure (family, coach, peers) - Other social priorities - Having other things to do - Tracking alternative sport <sup>b</sup> Ego climate - Task climate - Coach relationship - Peer-induced ego/task motivational climate - Presence of close friendships in sport
<i>Structural</i>	<sup>a</sup> Time – Injuries – Costs – Inadequate Facilities
<i>Biological</i>	<sup>b</sup> Age - Body mass index (BMI) – Height
<i>Institutional</i>	<sup>b</sup> Annual cost of sport - Type of school - Type of sport
<i>Community</i>	<sup>b</sup> Community size – Relationship among group and organizations
<i>Policy</i>	<sup>b</sup> Government stakeholders
<i>Adaption and transition</i>	<sup>c</sup> Situations – self – support – strategies
<i>Major events</i>	<sup>d</sup> Change schools and increase other responsibility and social obligations
<i>Ebaugh's Sociological Theory</i>	<sup>e</sup> First doubt - seeking alternatives – the turning point – after the decision

<sup>a</sup> = Crane & Temple 2015; Witt & Dangi 2018; <sup>b</sup> = Balish et al. 2014; <sup>c</sup> =Schlossberg, 2011;<sup>d</sup> =Deelen et al. 2018; Van Houten et al. 2017; <sup>e</sup> = Eliasson, 2021

Even though the researches framed the phenomenon of abandonment from sport as a process that involves many attrition factors at different grades, the influence of their role, how they interact and how they can influence someone's performance at multiple levels and in different areas from sport are still under-investigated.

**II - THE ACQUISITION OF  
SKILLS AS AN ESSENTIAL  
REQUIREMENT IN THE  
CHANGING SOCIETY**



## **II - THE ACQUISITION OF SKILLS AS AN ESSENTIAL REQUIREMENT IN THE CHANGING SOCIETY**

### **2.1. COMPETENCE BUILDING PROCESS**

During the last thirty years, skills development has become a crucial aspect of the training and education process. This process refers to the ability to activate and make available one's internal resources such as skills, aptitudes and personal inclinations, integrating them with the available external resources such as situations, tools, references, etc. Thus, the activation of interplayed individual resources through the person's intentional and active action becomes functional in a given context or situation. This enables the manifestation of the specific competence and the achievement of a predetermined goal. Finally, a competence is socially recognized when it can also be applied to other contexts, it has a transferable nature and not manifest itself as a single performance (70).

Furthermore, in order for the process of competence development to take place successfully, it is essential that the individual has meaningful and stable knowledge and conceptual frames of reference. These are the basis of the formation of adequate intellectual and operational skills, values and motivations consciously and intentionally put into action by the person to favor a dynamic and interactive approach with the knowledge that has to be acquired. Therefore, having relevant and significant skills represents a preliminary aspect of the individual and may be an expression of creativity, cognitive flexibility and personal adaptive capacity of the person to find answers in an ever-changing context. Additionally, the development of skills follows different rhythms and directions in relation to the subjective variables (internalization - processing of knowledge, motivation for learning, self-esteem) and the objective ones of the socio-relational context (manifestation and evaluation of competence) (71).

The concept of competence declined here is addressed to a set of skills that do not express individual constrained limited performances but functional, oriented, intentional, replicable and transferable actions that are fundamental requirements of the person oriented to full self-realization. This highlights the nature of a strategic and tactical meta-competence and it refers to know how to manage oneself in the training and self-training processes connected with the formation of new skills and / or further development of existing skills and their transfer to new learning contexts.

Moreover, the society where we live is constantly changing and more and more transferable and functional skills are required in multiple contexts. These competences have been named in different ways (72, 73,) and have been being implemented over time by additional aspects to respond to the demands of the ever-changing society. Furthermore, these relevant skills include all general skills with high feature of adaptability and transferability and are opposed to other competences of technical nature referred more strictly to specific settings (74).

## 2.2. WHAT ARE THE FUNCTIONAL SKILLS?

During their lifetime people have to deal with choices and actions to carry out successfully their life plans. The choices, meaningful transitions and turning phases that the person faces, can be destabilizing especially during the educational path (75). This stimulates the person to seek solutions and adaptation strategies aimed at realizing his/her own personal goals effectively. Danish et al. (76) defined life skills as a set of functional resources that promote competence and self-management capacity. These allow the person to express his/her own all round abilities, manage critical situations successfully and manifest self-regulated behavior by carrying out his/her own projects in the contexts where people live. Searchers categorized these skills in behavioral (being able to communicate effectively to peer and adult), cognitive (being able to make a decision), interpersonal (being confident), intrapersonal (being able to plan) and physical (being able to take a correct postural attitude).

The World Health Organization (77) stated: the “abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life may be defined as life skills”. Additionally, some studies (72, 78) displayed that these competences seem to be fundamental for the career and the life transitions and progressions.

These skills are in great demand in workplaces, so much that they are regarded as an essential pre-requisite for any type of experience and any performance.

Thus, these are considered fundamental in the management of all those processes that are not technical (for which hard skills are needed) but relevant to the achievement of a successful performance (78). These skills have been considered and classified as psychosocial characteristics and not as individual behaviors (79, 80).

The essential life skills according to WHO (77) are reported below:

1. decision-making
2. problem solving
3. critical and creative thinking
4. communication
5. interpersonal relationships
6. self-awareness
7. empathy
8. coping with stress and emotion.

Hence, the active knowledge of someone’s own internal resources becomes fundamental to be able to manage them autonomously and productively in every context. This aspect becomes functional to create a conscious, oriented and self-regulated behavior (81). Furthermore, these individual characteristics may influence the structuring of a set of internal resources relevant to deal with new challenges and changes at a personal and social level.

### 2.3. FUNCTIONAL SKILLS IN ADOLESCENCE AND IN THE LIFELONG LEARNING

For many young people, facing choices and changes represents a difficult time to manage and it may negatively influence the health-related behaviors (82) and the social relations (72). In addition, Pearson (83) found that the relevant changes in adolescence, such as physical modifications or transitions from primary to secondary school to adulthood, may impact on maladaptive behaviors such as to dropout of sport (82). These studies are consistent with co-variation of school age-dropout from sport-unhealthy lifestyle and sedentary increasement (84).

Indeed, the World Health Organization (77) highlighted the need to teach young people life skills in all areas where they experience to prevent and to solve their adolescent problems (85, 86). The development and management of adaptive skills may help young people to understand themselves, others and the environment in which they live better.

Consequently, significant contexts and meaningful opportunities such as sport and school may represent relevant impact environments that may promote the growth of young people through gratifying and salient experiences (87). Since physical exercise influences the development of mental well-being and executive functions positively and these latter may affect the acquisition of life skills (26), to promote sport participation through favorable and significant learning situations may be crucial during educational age. Moreover, according to McCloskey and Perkins (88) the development of fundamental functionalities such as executive functions is a process that begins in early childhood but that continues into adulthood as well.

The significant contexts where complex interrelations take place may influence the development of the person and highlight the importance to have internal resources to self-orient positively in their own socio-cultural context (89). Thus, also education has to be directed towards the acquisition of relevant skills aimed at self-fulfillment. Durlak et al. (90) affirmed that scholastic programs oriented to develop personal and social competences (e.g. self-regulation, empathy, problem solving, communication, or collaboration) might have a positive impact on well-being, academic performance, flexible thinking and prosocial behavior.



Additionally, Lee (72) affirmed that students who are admitted to college or university have a good level of both cognitive and non-cognitive skills that are fundamental to achieve academic and social performance. This is consistent with Heckman and Kautz (91) who maintained that adolescent performance improves more when operational processes put in place to achieve success also involve the development of non-cognitive skills. Conversely, a reverse trend occurs when the performance is achieved only through typical cognitive skills of the school learning.

On the other hand, when a person faces critical demands in different contexts and persists in his/her own objectives, cognitive abilities are not enough. To realize a successful performance people also have to develop other non-cognitive skills, such as cognitive flexibility and adaptability, volition and motivation, perseverance and resilience, conscientiousness and reliability, positivity and self-regulation (92).

### **2.3.1. The Key competences**

Member States have adopted the European Recommendation on Key Competences about the identification and definition of key competences in the context of lifelong learning strategies since 2006 (93). Through this recommendation, the European Parliament and the Council of the European Union have developed a set of key competences, defined as essential to ensure inclusion, resilience and an adequate ability to adapt to change.

To invest in the development of these basic skills seems necessary to respond to the rapid increasing demands of a constantly changing society. Moreover, these skills improve the approach to learn in the various contexts of reference, facilitate overcoming critical moments and transition in life (from youngsters to adults) and in school and work career.

The learning of these skills is not limited to the developmental age and the school context but these are developed throughout their life and are transversal in different learning settings (formal, informal and non-formal contexts such as sport and other socio-educational activities).

Thus, reciprocity and interaction between learning contexts can be enhanced through targeted actions that provide common and functional skill development

in multiple areas. This may ensure the continuity of skills development generating quality in learning contexts.

In the 2018 Recommendation (94), the Member States have stated that to ensure full realization for all individuals through the development of a person's potential, it is necessary to support and strengthen the development of key competences from an early age and throughout lifetime.

These skills are all relevant and relate to the capacities of problem solving, cooperating and manifesting critical and computational thinking, creativity and self-regulation. They are interrelated and functional to the construction of other skills, so much that some essential aspects of some skills developed in a specific area can affect other competences in other domains as well. Therefore, some interpersonal, communicative and cognitive skills of the person are relevant and very common in different life situations and are the basis of all key competences.

"The key competences highlighted in the European Council Recommendation are eight:

1. Literacy competence
2. Multilingual competence
3. Mathematical competence and competence in science, technology and engineering
4. Digital competence
5. Personal, social and learning to learn competence
6. Citizenship competence
7. Entrepreneurship competence
8. Cultural awareness and expression competence" (94).

### **2.3.2. Personal, social and learning to learn competence as *future skills***

The conceptual framework of personal, social and learning to learn key competence addresses the development of other skills. As highlighted by the European Council (94 p. 10) "personal, social and learning to learn competence is the ability to reflect upon oneself, effectively manage time and information, work with others in a constructive way, remain resilient and manage one's own learning

and career. It includes the ability to cope with uncertainty and complexity, learn to learn, support one's physical and emotional well-being, to maintain physical and mental health, and to be able to lead a health-conscious, future-oriented life, empathize and manage conflict in an inclusive and supportive context".

This key competence is set also by other sub-skills of management/self-regulative-nature, such as knowing how to identify one's own skills, manage the attention levels and concentration, self-orient in situations of complexity, critically reflect on one's own self and be able to make decisions. These capacities stimulate the ability to work both independently and in a group, plan one's learning to maintain one's goals over time and manage one's social and working life successfully. Particularly, learning to learn stimulates autonomous learning processes, metacognition, self-regulation and self-awareness (73).

"People should be able to identify and set goals, to motivate themselves and to develop resilience and confidence to pursue and achieve the goal of learning throughout their life. An attitude of addressing problems to solve them is useful both for the learning process and for the ability to manage obstacles and changes. It includes the desire to apply what has been learned previously and one's own life experiences as well as the curiosity to seek new opportunities for learning and development in the different contexts of life"(94 p. 10).

In this conceptual framework, in 2019, The Life Comp-report of Joint Research Centre (JRC) - the European Commission's science - built a common Developing European paradigm for this key competence and its interrelations at intrapersonal, interpersonal, cognitive and metacognitive levels with other key competences (73). The theoretical background that emerges in this competence includes both cognitive and meta-cognitive (such as learning processes) and non-cognitive aspects (such as affective-attitudinal), strongly interrelated between them. To have these personal skills and sub-skills may help the person to implement self-directed behaviors through successful actions aimed at personal self-realization. Additionally, these capabilities have a great potential of adaptability and allow each individual to deal with complex situations even in evolving and unstructured contexts. Moreover, the educational, formative and self-orienting value of the personal, social, learning to learn key competence expressed in the Council Recommendation (94), also allowed to display those relevant

competences, previously identified with different labels and functions, functional to face transitions and salient life moments. Therefore, by following the growing studies about need to develop functional skills, these have been defined over time as life, soft, transversal, socio-emotional, non-cognitive, 21st century skills and competences for 2030 (Tables 2,3,4). These competences highlight different aspects of the nature of human actions and behavior and are based on a common ground related to conscious, self-directed and self-controlled acting, which refer to the self-determination and self-regulation dimensions.

## 2.4. THE PROCESS OF SELF-DIRECTION IN LEARNING

### 2.4.1. Self-determination

Life goals and/or personal expectations orient and direct human behavior over time. Human action becomes autonomous and allows people to experience well-being when it is based on the fulfillment of three internal needs: Autonomy, Competence, and Relatedness. Conversely, when people do not manifest authentic behavior that derives from the internal thrusts of their own self, they act according to introjected external rules. Consequently, this leads to less persistence in behavior and performance, resulting in having less satisfaction (95).

According to Ryan and Deci (96), Hodge et al. (79), the fulfilment of these needs is predictive of intrinsic motivation and allows people to realize positively their projects and plans in different life domains. Moreover, the satisfaction of these needs contributes to improve psychological growth and physical well-being, the quality of interpersonal relationships and personal performance (97). Thus, these essential psychological needs have been identified as the main assumptions of self-determination (98).

The need for Autonomy expresses the origin and the choice of one's actions and behaviors in a logic self-direction the own intentions and purposes. Likewise, the need for Competence expresses a sense of self-efficacy and self-confidence in the individual when he/she is completing a task. The perception of competence is closely linked to the individual. The individual feels competent when he expresses

personal and interpersonal skills and is able to interact productively in social environments. The perception of one's competence is an intrinsic requirement that begins in childhood. To satisfy this need is essential in the individual because it is linked to the perception of the sense of self-realization. Finally, the need for Relatedness expresses the requirement for the individual to have a positive relationship with the others and with the reference environment (79). On the other hand, the perception of one's competence and the need of autonomy and relatedness become primary human requirements in the individual and are considered as fundamental pre-requisites for the development of the person.

Indeed, any intervention to develop life skills into people, should primary satisfy these three psychological basic needs (98).

#### **2.4.2. Self-Regulation**

Human actions start from an interaction between the Self (understood as a value system, resources, beliefs, knowledge and skills that characterize the subject) and the environment (situations, relationship, challenges and tasks). The boost to intervene and transform the perceived situation into another one that represents the goal to be achieved emerges from these interactions.

The decision to act (or the elaboration of the intention to act) represents the pre-decision-making process and opens up to concrete action through the planning of an action, its consistent and persistent implementation and the careful evaluation of its results (71). This active process in which the individual is engaged in the implementation of an oriented and conscious action puts in place (before - during - at the end of the action) a whole series of self-regulatory competences and sub-competences of cognitive-metacognitive, motivational, affective, volitional and relational nature during the implementation phase.

In the phase that anticipates the action (forethought), the subject realizes a careful assessment of the situation that he has to deal with and the available internal resources (diagnostic component). Next, the motivations and intentions are selected (decision-making component) to choose the type of action to be implemented and to identify the appropriate goals and strategies for achieving them (planning and organizational component).

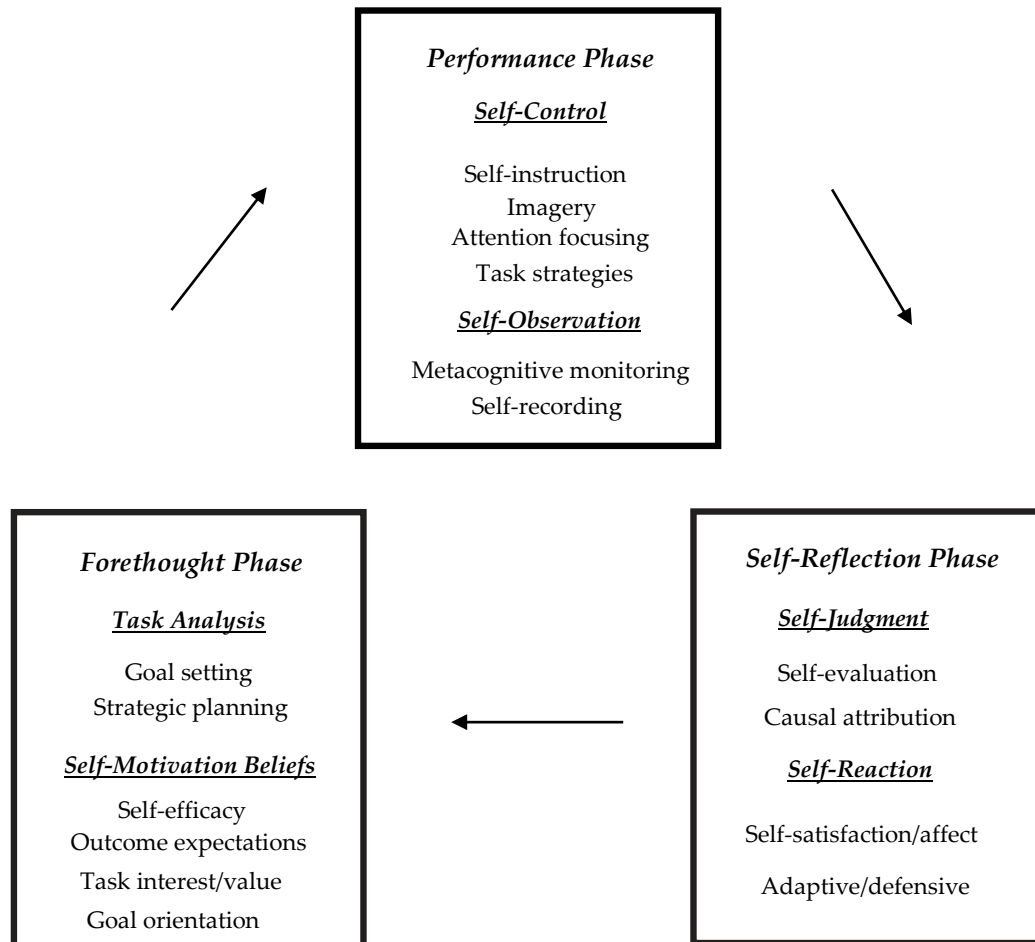
At the end of the forethought action phase, the individual moves on to the execution phase of the action through self-regulation (regulatory and management component) and self-observation (observational component) strategies. Among the strategies that enable self-control of one's actions, the following ones are highlighted: the selective control of attention, the maintenance of working memory and information coding, the selection of essential cognitive functions, the control of emotions and motivations, organization and governance-learning environment (99).

In the phase following the implementation of the action, self-reflection processes are activated by the person on the basis of the results obtained, the causes that determined the success/failure of the action and the mastery achieved. Performance will be judged and evaluated (self-evaluation component) in relation to one's previous similar performance and other performance patterns and environmental demands.

This three-step process of action learning represents the multidimensional and interdependent cycle of self-regulation described by Zimmermann (100), where self-regulation refers to both self-determination and self-regulation processes (fig.1). Therefore, these two capabilities are the basis of the self-direction process in learning, and the aforementioned three phases are not rigidly separated but interconnected.

The model is cyclical because through self-monitoring each learning test provides feedback information where the individual can modify the goals and strategies put in place to develop subsequent performances (101).

Figure 1. Cycle of self-regulation. (Zimmermann, 2008).



In order for the self-regulated learning action to take place productively, the person has to perceive him/herself as being at the origin of his/her own choices and actions and be aware that he/she has the internal resources needed to achieve the set goals.

Moreover, quality of the self-regulation process is correlated to contextual variables and depends on other relevant psychological dimensions such as motivation, methodology and time (101). Through an adequate mechanism of self-regulation, these factors may activate in the person internal resources that are functional to realize a successful performance. This starts up some key processes in the person such as time management, self-efficacy, volition, identification of goals and strategies to realize them, self-monitoring, self-evaluation, etc.

Indeed, self-regulation is a strategic component of the action because it provides direction, perspective and orientation about how to proceed towards achieving the own goals. Furthermore, the individual has to feel able to manage him /herself to accomplish assigned or chosen tasks by monitoring his/her progress as he/she advances (tactical component). Engaging and making progress may give a clearer perception of the meaning of the skills developed and how to manage them in more contexts (71). In addition, the internal representation of the goal to be pursued orients the performance of the action and this is supported by the volition that determines its intensity and persistence. (71).

#### **2.4.3. The cross-boundary nature of the self-regulation processes**

The American psychologist Zimmermann is one of the leading scholars of self-regulation processes. In 1998, he proposed a conceptual framework referred to functional self-regulation processes in the academic and other specific fields based on a Rohwer's article (102). Rohwer's article pointed out that although students did a lot of homework, they did not have adequate study skills. Moreover, Rohwer observed that the failure to structure the self-regulation processes that underlies the building of study skills could be related to the negative influence of external factors to the school context. In fact, study assignments, are carried out independently and outside the formal context of the school.

Therefore, a student with a low motivation and low support from adults is unlikely to optimize academic performance (101). On the contrary, in formal learning contexts, the implementation of methodological processes aimed at the acquisition of self-regulation processes and study skills from the earliest levels of



school (103), orientates individual performance in a perspective of self-direction and self-realization.

In the Zimmermann' study (101) it is stated that self-regulation mechanisms, acquired in formal study settings, can be used throughout life and in other informal and non-formal contexts, such as sports, music and writing. Since goal attainment is the main boost to act the self-regulation processes activated in the school and sports domain these ones show elements of similarity (table 2). This suggests that skills developed in the school context and aimed at optimizing academic performance can be functional also to achieve success in the sports field.

Thus, the development of study skills implements self-regulation processes and purposeful strategies through self-motivated actions, sense of responsibility, self-efficacy, self-evaluation and perseverance. Similarly, these personal resources can become strategic to manage the dynamics related to sports practice and its maintenance over time.

This suggests that these self-regulation skills developed during the school career could be protective factors that support participation and persistence in sports practice.

On the contrary, an insufficient development of these skills could be predictive of maladaptive behaviors, such as dropout from sport. Indeed, the cross-boundary nature of self-regulation processes - on the transferability of self-regulation mechanism from one domain to another - displayed in Zimmermann' study (101), could confirm the positive and bidirectional association between strategic learning skills, sport participation and academic performance.

**Table 2.** Comparison between Self-regulatory processes of students and athletes. Adapted by Zimmermann (1998)

Self-Regulatory Processes	Area of Expertise	
	Athletes	Students
<b>Goal setting</b>	Setting specific and quantifiable daily goals for training	Making lists to accomplish during studying
<b>Task strategies</b>	Knowing how and what to practice, for example, taking periodic breaks and slow execution	Creating mnemonics to remember facts
<b>Imagery</b>	Visualizing yourself successfully making the shot	Imagining the consequences of failing to study
<b>Self-instruction</b>	Self-verbalizing confidence statements, e.g. "Let's go!"	Rehearsing steps in solving a math problem
<b>Time management</b>	Setting up regular practice times, eating times, and relaxation and preparation periods	Scheduling daily studying and homework time
<b>Self-monitoring</b>	Keeping a daily record of goal accomplishment or filming matches for replay	Keeping records of completed assignments
<b>Self-evaluation</b>	Breaking game into components and evaluating yourself after each performance	Checking work before handing it in to the teacher
<b>Self-consequences</b>	Grade yourself after every match	Watching TV or making a telephone call contingent on homework completion
<b>Environmental structuring</b>	Building practice facility designed to develop weak part of one's game	Studying in a secluded place
<b>Help seeking</b>	Returning to teacher when flaws develop in one's game	Using a study partner

## 2.5. STRATEGIC LEARNING SKILLS

Pellerey (54) displayed the meaning of self-determination processes based on the Zimmermann's model by highlighting the importance of motivational,

volitional and affective relational processes as well as the cognitive and the metacognitive ones. Thompson and Lagattuta (104) highlighted how socio-emotional factors can have a positive impact on life and work. They also emphasized how these strongly interconnected dynamics can be crucial in managing the emotional, social and academic aspects of learning processes.

In relation to the capabilities of self-determination and self-regulation, the strategic learning skills represent a conceptual framework of reference aimed at the knowledge and the development of functional skills for the self-management of study habits and/or critical situations encountered in school and social environment of students. The process of building/developing of these strategic learning skills has to be started progressively and gradually as soon as possible and through targeted scholastic programs and methodologies. Throughout their schooling, students will be expected to acquire both an awareness of the various skills needed to self-manage their learning and behavior, and the ability to know how to self-evaluate the performance of their strategic skills. This process may be realized through the explicit teaching of cognitive, metacognitive, motivational, affective and volitional skills in several contexts in which the person experiences. The development of these skills, which cover a broad spectrum of self-regulatory competences, may give meaning and perspective to one's actions and help to express autonomously one's potential. This process leads the person to learn the ability to self-manage over time; self-organize, solve problems, manifest self-control, self-motivate and self-regulate in one's emotions and actions.

To acquire these skills directs the person towards the full affirmation of his/her own identity and self-realization and this allows the person to experience social relationships in a self-regulated and therefore a strategic way (54).

The students capable of self-regulating their own learning are able to:

1. use a set of cognitive strategies which help them to understand, transform, process, organize and retrieve information;
2. plan, control and direct their own mental processes in order to achieve intentionally chosen goals;

3. show behaviors oriented toward learning and achieve personal goals and express self-efficacy in schoolwork. Students with a constructive motivational orientation are able to develop positive emotions regarding the tasks to be faced. Moreover, they have the ability to control and change these emotions in relation to the situation and the task;
4. manage their time and commitments in relation to the task to be completed. They can organize environments conducive to learning and self-interrogate in difficulties by seeking the help of teachers and/or their peers;
5. show great commitment to participate in the management of school duties, the climate of the classroom and its organization;
6. implement a series of volitional strategies, aimed at avoiding internal and external distractions, maintaining concentration, effort and motivation, while they carry out their tasks.

The strategic skills related to aforementioned behaviors identified by Bay, Grządziel and Pellerey (53) are above all:

- a. cognitive and metacognitive skills, such as the organization, understanding, processing and remembering of concepts learned, attention control;
- b. emotional skills, such as controlling anxiety and emotions;
- c. relational skills, such as the ability to collaborate with others in studying, playing, in various activities;
- d. motivational skills, such as the perception of competence and causal attributions;
- e. volitional skills, such as perseverance.

Within the theoretical frame about competences, deemed fundamental to the fulfillment of the person and highlighted in the Recommendation (94), strategic learning skills can be included in the category of functional and future-oriented competences with good reason. The comparisons between the strategic learning skills and the other competences are listed in tables 3, 4, 5.

**Table 3.** Comparing the 2018 Recommendation about Personal, Social, Learning to Learn Key Competence with future oriented competences (Personal Area). Adapted by LifeComp (2019)

	PERSONAL AREA			
Recommendation 2018	<i>Reflection Motivation Confidence Resilience</i>	<i>Desire to apply prior learning Curiosity to learn</i>	<i>Cope with uncertainty/ complexity Manage career Seek education, training, career opportunities</i>	<i>Physical, social, mental, emotional health &amp; wellbeing</i>
<b>Life skills</b>	Self-awareness Self-management	Agency		
<b>Soft skills</b>	Self-management Self-esteem Responsibility Integrity Motivation Flexibility			
<b>Socioemotional non-cognitive</b>	Self-esteem Confidence Optimism Conscientiousness Emotional stability	Autonomy Openness to experience	Autonomy Openness to experience	Emotional stability Conscientiousness
<b>Transversal</b>	Self-discipline Responsibility Integrity Flexibility			Appreciation of healthy lifestyle
<b>21<sup>st</sup>- century</b>	Manage life	Manage career	Manage life & career	
<b>OECD 2030</b>	Self-awareness Self-regulation Resilience			Physical & mental health
<b>Strategic Learning Skills</b>	Self-management Self-regulation Self-awareness Self-esteem Resilience Responsibility	Autonomy Volition	Manage life & career	Emotional stability

**Table 4.** Comparing the 2018 Recommendation about Personal, Social, Learning to Learn Key Competence with future oriented competences (Social Area). Adapted by LifeComp (2019)

	SOCIAL AREAS		
<b>Recommendation 2018</b>	<i>Feel empathy</i> <i>Create confidence</i>	<i>Communicate</i> <i>Manage interactions</i> <i>Collaborate</i> <i>Negotiate</i> <i>Manage conflict</i> <i>Assertiveness</i> <i>Integrity</i>	<i>Respect diversity</i> <i>Overcome prejudices</i>
<b>Life skills</b>	Empathy	Communicate teamwork Negotiate Advocacy	
<b>Soft skills</b>	Empathy	Sociability Leadership	
<b>Socioemotional non-cognitive</b>	Maintain healthy, caring relations Agreeableness Extraversion	Work with others Agreeableness Extraversion	Respect Agreeableness
<b>Transversal</b>	Empathy	Communicate Collaborate Solve conflict	Intercultural attitudes
<b>21<sup>st</sup> century</b>		Communicate Collaborate	Personal & social responsibility
<b>OECD 2030</b>	Core: Socio-emotional skills (empathy, trust)	Core: Socio-emotional skills (collaboration)	Transformative: Reconcile tensions & dilemmas
<b>Strategic Learning Skills</b>		Communicate & Collaborate (peer, teachers, coach)	

**Table 5.** Comparing the 2018 Recommendation about Personal, Social, Learning to Learn Key Competence with future oriented competences (Learning to Learn Area). Adapted by LifeComp (2019).

	LEARNING TO LEARN	
<b>Recommendation 2018</b>	<i>Manage time, learning, information</i> <i>Set goals</i> <i>Know own capacities, learning strategies, needs</i> <i>Collaborative, autonomous learning</i> <i>Focus, organize, evaluate, share learning</i> <i>Persevere</i> <i>Learning mindset</i>	<i>Deal with complexity</i> <i>Critically reflect, make decisions</i> <i>Seek support</i> <i>Problem-solving attitude</i>
<b>Life skills</b>	Process information & knowledge	Problem solving Critical thinking Responsible decision-making
<b>Soft skills</b>	Manage time	Making decisions
<b>Socioemotional non-cognitive</b>	Achieve goals: perseverance, self-awareness, passion Build on personal strengths Conscientiousness	
<b>Transversal</b>	Independent learning Persevere	Reflective thinking Decision making Creativity
<b>21<sup>st</sup> century</b>	Metacognition	Problem solving Critical thinking Decision making Innovation
<b>OECD 2030</b>	Transformative: responsibility Anticipation, action, reflection cycle for competence development	Core: ethical thinking Transformative: responsibility, create new value, reconcile tensions & dilemmas
<b>Strategic Learning Skills</b>	Manage time Manage learning, knowledge processes Metacognition Identify goals Know personal learning strategies Understand personal needs Ability to concentrate and persevere	Problem solving Critical and Reflective thinking Responsible decision-making Seek support Creativity

## 2.6. SPORTS, PHYSICAL ACTIVITY AND THE EXECUTIVE FUNCTIONS

Despite the health benefits that physical activity promotes for everyone, more than 80% of US adolescents do not practice a sufficient level of physical exercise (105); while 24% of young European aged 15-24 have never played sports and only 14% of them rarely participate in any sport (22). In addition to the benefits for general health and psycho-social aspects, lack of physical activity might also limit salient learning experiences, especially in children and adolescents (106). Conversely, practicing sport activity produces benefits that impact on brain health, the development of cognitive functions and the management of anxiety and depression (105, 27).

Therefore, the positive association between sports participation and academic achievement is widely accepted in the literature (107, 108, 109, 110, 111, 112). Studies confirmed a relationship between physical activity and relevant improvements in cognitive and in executive functions (23, 113, 114). Regular exercise and specific sports practiced, can improve the mental processes both in brain function (memory, perception, intellect, action) and in the functional and procedural stages of the cognition system (planning, control and coordination of actions of complex cognitive process) (113). Moreover, although these benefits are mediated by fitness activity and sports type (mostly sports with complex motor skills), abandoning sports activities interrupts benefits associated with cognitive function and the academic performance (23). Because executive functions begin to grow in childhood and their evolution continues throughout life, to sustain the participation in sports, especially during childhood and adolescence may help to increase the academic and work success (28). Furthermore, by involving gross-motor cognitive training, the participation to challenge and the mental engagement in sports activities as well as qualitative and quantitative features of physical exercise training may determine a different impact on executive function, development and improvement of the cognitive benefits, also in function of age, gender and individual motor competence (115, 116).

Since recent studies (117) have found that exercise may affect emotional recognition process and elaboration process of contextual information, further studies should be encouraged to better understand the association – physical /



sporting activity – academic / mental performance as processes and multilevel factors involved in long-term effect. Especially in children and adolescents, it is crucial to determine the positive effects of the sport and physical activity on their development processes as regards to academic performances and classroom behaviors habits (118). To study these relationships highlights the positive impact of exercise on the acquisition of basic executive functions and consequently, the processes of mental development, metacognition and life skills and how these improvements influences the neurocognitive dimension and school performance (26, 119). On the other hand, a lack of physical activity reveals an incompleteness in the development of mental processes, neurocognitive performance, high level of executive functions, affecting the structure of self-regulation and self-determination capabilities negatively. Furthermore, Barkley (120) stated that self-management of oneself allows the evolution of one's actions towards the ability to self-regulate and achieve independent, constructive, purposeful and adaptive behavior through the functional use of executive functions (121).

## 2.7. FUNCTIONAL AND ESSENTIAL SKILLS IN SCHOOL AND SPORTS DOMAINS

The teenage is rich of changes at physiological, psychological and socio-environmental level (122) and transitions that highlight the shifts from adolescence to adulthood (82). Particularly, these transitions refer to sports area - from junior to senior sport level – and education one - from primary to secondary school - and from university to work (123). Stambulova et al. (124) stated that the more young people are able to coordinate the different levels in which they experience (athletic, psychological, psychosocial and educational), the greater will be the adaptive and flexible approach aimed at achieving a satisfactory balance between sport, study, work and private life. To achieve an optimal balance between sporting and academic obligations, an adequate synergy between environmental and personal factors is needed.

On the other hand, some environmental aspects, such as national sports policies in favor of Dual Career (DC), can positively affect the sport persistence in athletes. Likewise, the personal resources of student-athletes' play an essential role in fostering the maintenance of DC (123). As sport dropout rates increase in adolescence (84, 38, 4, 42), to improve and develop relevant and functional skills to deal with challenges, choices and critical situations and to fully realize personal goals over time, becomes essential in both sport activity and life. Indeed, the impact dimension of important events in the lives of adolescents depends on individual resources, personal problem solving capacity and coping approach of each individual to critical situations (124). To be unable to manage these situations and the psychological and emotional factors might lead to negative changes in one's sport habits. Certainly, a deficit in personal skills and resources, non-positive salient events and experiences may affect sports participation/dropout in organized sport (125). Moreover, Schröder (126) Schmid et al. (127) affirmed that adolescents with high patterns of psychosocial resources and action-planning (128) tend to be more physically active and do not dropout of sports. Additionally, they may implement self-regulated behaviors aimed at achieving goals and having greater flexibility to adapt to new requests and changes.

Furthermore, Ketteridge, & Boshoff (129) studied one application of Person, Environment and Occupation Model (130) whereby the personal capacities - participation - performance, are achieved when a relationship between domains in which the person is engaged takes place. Moreover, any occurring change in one of the areas involved at any level may have an impact on the other ones. This is consistent with other researches such as Sorkkila et al. (131), who affirmed that a domains interrelation exists - school and sport - and may have a significant impact on the lives of adolescents. In fact, relevant critical situations experienced in school context during the period of developmental age may indirectly lead to build attrition factors to sport participation, if the person is unable to manage them (132).

Moreover, Danish, Forneris, & Wallace (133) affirmed that there could be a similarity between skills involved in excellent performances in sport and the ones in other different domains from sport. In addition, Timo et al. (134) affirmed that the perception of competence jointed with self-esteem is highly involved in both sport and school performance. Indeed, managing one's emotions and states of

anxiety, making a decision, dealing with and solving problems, having self-regulated behavior, ending personal commitments and deadlines, setting goals, be able to communicate in a group and self-evaluate after a feedback (87) may be identified as functional personal resources in the sports and in non-sports domains. To teach youth that these skills learned in sport domain are transferable from one domain to another non-sport one can emphasize the success of the effect and encourage a better internalization.

Furthermore, Dishman et al. (135) theorized that physical activity enhances self-esteem and self-efficacy through self-management strategies implementation (e.g. thoughts, goals, plans, and acts) to achieve a goal. They also stated that sport activity improves discipline, self-confidence, goal setting and time management especially in young people. Gould and Carson (136) have also defined these types of internal personal resources and inclinations transferable to non-sport domain as sport-based life skills.

In summary, these competences may enhance many benefits in more formal and informal life settings and domains where it is necessary to build skills, goals (85) and lifelong approach to self-improvement and well-being (137). In addition, to develop functional skills that allow to adapt to a variety of situations enables successfully coping with both academic and sports pressures especially for young people involved in the dual careers of students and athletes (132). Indeed, University students involved also in sports career suffer pressures from athletic (high-level training, injuries, stress competition) and non-athletic (psychological, psychosocial, academic/vocational) domains (138). Moreover, non-positive peer/parental/coach support may represent a difficult situation to be managed by student-athletes (139, 140).

In agreement with Debois et al., (141) and Stambulova et al. (124) the role of personal resources in the management of sports career is widely accepted as a functional factor to develop a successful performance. In addition, Linnér et al. (138) displayed that the most important skills required by University students to manage successfully the dual career of student-athletes were the capacity of planning, organizing and managing time. In accordance with Baron-Thiene and Alfermann (3), the students-athletes should become autonomous to identify their own goals, know how to develop a positive attitude towards competition, a proper

motivational orientation, and appropriate volitional skills. Furthermore, athletes employed in dual-career must be able to manage functional skills that may be supportive to orient themselves and to overcome the transition step both in school and in sports settings in a better way. More specifically, it seems that the transferable skills are the most relevant requirements which can influence the development of an excellent performance. These functional skills to manage dual career highlighted by Linnér et al. (138 p. 10-11) were:

1. Ability to plan
2. Ability to prioritize what needs to be done
3. Ability to use time efficiently
4. Dedication to succeed in both sport and study
5. Perseverance during challenging times and in the face of setbacks
6. Willingness to make sacrifices and choices to succeed in Dual Career.

On the other hand, the study of the direct association between sport and functional skills for self-fulfillment of the person and their transfer to other contexts and domains than sport is ongoing (136). In contrast, the impact and the transfer of the same type of skills, learned in other context such as school, are under-investigated in sport participation/dropout dimension.

The aforementioned scientific evidences encourage the study of the formation /development of essential skills in the individual and identifies them as protective factors of participation/persistence in the sport career. These skills are essential to achieve self-governance of the Self and through a bidirectional process that can occur from sport to other contexts and vice versa. This highlights the need to implement procedures and methodological systems of learning aimed at acquisition of functional self-regulation skills to the autonomous management of a person's life, such as strategic learning skills.

# **III - DUAL – CAREER FOR STUDENT-ATHLETES**



### III - DUAL CAREER FOR STUDENT-ATHLETES

#### 3.1. THE EUROPEAN GUIDELINES FOR STUDENT-ATHLETES

The contemporary commitment to the sporting and academic/working career has been defined as Dual Career (DC) (142). All those ones who face this double career in their life path must be able to complete training objectives by combining education and high performance in sport, without compromising quality and results (142). In particular, the need to balance the two careers plays a fundamental role in young people's lives during their schooling, especially in the careful management of time. The student-athletes need to be supported for maintaining sporting and academic commitments over time, in order to avoid early abandonment from sport. Demands, challenges and pressures can become stressful and unsustainable as well as transitions phases experienced from student-athletes in both the school and sports system, if not managed properly (143). To that end, the European Commission (142) published for all Member States a conceptual framework of reference aimed at the creation of specific national guidelines for each country to protect and support the maintenance of the DC. These directives essentially highlight the need to create a network of agreements between the sports and academic / professional domains in order to create sustainable programs for dual careers.

This is aimed to optimize the educational system by building the right conditions for an adequate approach to DC while the personal differences, the sport practiced and the social cultural context where the person lives are respected. Additionally, the promotion of the dual career of athletes is consistent with the objectives of the Europe 2020 strategy (144), which provides actions aimed at preventing early school leaving, increasing the number of high school graduates and strengthening employment. Moreover, keeping active athletes that are more talented allows greater investments in sports.

### 3.2. REFERENCE MODELS FOR DUAL CAREER

The interest in maintaining the dual career has generated the study of conceptual frameworks, methodologies and operating systems that are increasingly advanced over time. Indeed, some researches (145) have highlighted three types of sports careers: the linear career, where the athlete is engaged full-time in a sports career; the convergent one where the athlete gives priority to the sporting career while he is also engaged in other activities (such as school or work) and the dual career that represents the parallel commitment to two careers by giving the same value to both of them. Furthermore, Luhmann (146) pointed out that functional adjustments can be made to the needs of dual careers in sports specialization schools of various countries designed to accommodate athletes also involved in the academic field. These adjustments concern the temporal, social and factual dimensions. The temporal dimension plans a careful organization of exams, homework, questions and lessons that include a flexible timetable. The social one provides the use of support staff in the academic field, while the factual dimension can foresee both the realization of a more contained didactic program and the incorporation of sports contents in the school program. In general, flexible academic programs that take into account the needs of sport (type of sport, age performance, training, competitions schedule), a network of support staff of teachers / tutors both in the academic and sports fields and structures that are easily accessible to student-athletes may have a favorable impact on maintaining a dual career over time (132).

Regarding the need to systematize operational models, the European Guidelines (142) pointed out that these can be functional to the needs of dual careers in Member States. To implement these models for supporting the dual career of student-athletes, each State must take account of the different socio-cultural contexts and the specific political strategies.

Referring to this, the University San Antonio De Murcia (UCAM) has built a dual career experimental model for University students who are also engaged in high-level sports careers: the European Sports Tutoring Model – ESTPORT (147, 148, 149). This model allows young student-athletes to complete their sports career without giving up quality University training and involves a person-oriented



approach. The student-athlete is placed at the center of an educational system that can support him/her in all phases of professional training and private life. The European Sports Tutoring Model for DC underlines the importance of implementing individualized interventions for each student-athlete aimed to a balanced management of educational and sporting-competitive needs. The monitoring and tutoring activity has a fundamental importance to the construction of an intervention plan on the student-athlete. These activities are mainly expressed through information, guidance, consultancy, intermediation and management / enhancement of individual resources aimed to realize productive matching with the world of work. This innovative model has been implemented by the contribution of other methodological aspects and produced experiences by other Universities that have successfully used it producing positive results.

In consideration of the high mobility which high-level athletes are subjected to, the e-learning methodology has proved to be particularly productive to perform the goals of this model through the use of Information and Communication Technologies (ICT). This methodology, which is grounded on virtual technologies (platforms, moodle, forums and virtual learning contexts) allows the athlete to share knowledge, content and actively participate in the learning community, even at distance.

### 3.3. THE DUAL - CAREER POLICY IN ITALIAN STUDENT-ATHLETES

In the area of upper secondary education, different initiatives involve Italian students. The schools with enhanced sport curriculum, where students who carry out high-level sports activities can combine study with training through the setting up of targeted methodologies, have been launched (150). These institutes are regulated by and operate under the direct control of the Ministry of Education. Moreover the student-athlete of upper secondary school who participate in sports and competitive activities organized by Federations / Institutions recognized by the Italian National Olympic Committee (CONI) during school hours are supported by specific regulation. This predicts that those who carry out documented and

continuous absences due to sports competitions has the right to have these absences justified (151).

At the end of upper secondary school, the athletes can access the sports groups of the Italian armed forces after public competitions, operating thus throughout the national territory.

Moreover, in collaboration with the CONI and various sports associations in Italy, Spain and Norway, the ADECCO Foundation provides programs for the relocation of former athletes to the world of work. Since 2001, CONI and ADECCO have been managing a program for ex-athletes that is called Master Program 2000, which provides the inclusion in the working world of former athletes (152).

#### 3.4. THE DUAL-CAREER POLICY IN SPANISH STUDENT-ATHLETES

In the field of higher education, high schools are integrated within the High Performance Centers. This incorporation is functional to encourage students' study and training schedules. These Centers are owned sports facilities by the State or by independent bodies and they aim at providing for athletes the best possible conditions for training, including the counseling support to cope with critical situations/transitions. Additionally, the Career Assistance Program (CAP) develops an assistance program for the athletes through flexible measures in educational (especially for student-athletes of high school) and employment contexts.

In Spain there is the status of an *Élite Athlete*. The condition for being an *Élite Athlete* is to have internationally represented Spain in the junior or senior categories of any sports. Athletes who request it are included in the annual report of Superior Council of Sport, drawn up in collaboration with the Spanish Sports Federations and with the Autonomous Communities, if present.

In addition, some current regulations facilitate athletes who wish to reconcile University education with a professional sports career. In fact, several Universities have flexible programs tailored to the athlete's sporting needs.

Moreover, the Spanish legislation declared that at the workplace, Élite Athletes enjoy flexible work conditions, which allow them to reconcile work with technical-sporting preparation.

The Spanish Olympic Committee (COE) is the promoter of some initiatives for the recruitment of athletes to employ in the working sector. The first one concerns the award of scholarships to facilitate the integration of elite athletes into the work system (in sports or not) through adequate training for athletes and technicians. The second one concerns the economic support provided to athletes in difficulty by the Spanish Olympic Athletes Association (ADO). The third one concerns the activities of the aforementioned Adecco Foundation together with a further program called Relay Program. An initiative called Banco del Deporte (Sport Bank) provides for an employment office for elite athletes who are looking for a job after their sports career (152).



**IV - EDUCATIONAL SYSTEM  
IN ITALY AND SPAIN**



## IV - EDUCATION SYSTEM IN ITALY AND SPAIN

### 4.1. THE ITALIAN EDUCATION SYSTEM

The Italian education system is mainly a State Public System, even if there are private institutions. State schools are directly financed by the State, while private schools receive State contributions according to annually established criteria by the Ministry of Education.

Due to school autonomy, schools define curricula, expand the educational offer and organize teaching. Each school draws up its own 'Three-year educational offer plan' (Three-year educational offer plan - PTOF), which contains the organizational and functional core of the school's life every three years.

#### 4.1.1. Phases of the school system

The Italian education and training system includes kindergarten, primary, secondary, post-secondary and higher education (fig. 2).

Early Childhood Education and Care (ECEC) is divided into: early childhood education services (0 to 3 years) and infant schools (3 to 6 years). These two types of schools are not compulsory and there are public and private options.

#### 4.1.2. Compulsory education

Compulsory education starts at age of 6 and ends at age of 16. It covers the entire first cycle of education and the first two years of the second cycle.

### 4.1.3. First cycle of education

The first cycle of education is compulsory and consists of primary and lower secondary education.

Primary education begins at the age of 6 and lasts for 5 years. Lower secondary education starts at age of 11 and lasts for 3 years.

Within the first cycle, students move from one level to the next one without exams. At the end of lower secondary education, they enter upper secondary education after having passed the State exam.

### 4.1.4. Second cycle of education

The second cycle of education begins at the age of 14 years and includes two different schoolings:

- a. Secondary education; various types of senior high schools offer different high school curricula, such as the classical , scientific one, linguistic one, human sciences one and sports curricula, etc. Moreover, Professional high school offers technical and professional curricula. In general, the senior high school curricula lasts mostly 5 years; some professional high schools may last also three years. Upon the completion of upper secondary education, students who successfully pass the final exam receive a certificate that enables them to enter higher education;
- b. The Regional Vocational Training System (IFP); it offers three-year or four-year courses organized by accredited training institutions or by upper secondary schools. At the end of the regional courses, learners receive a qualification that allows them to access second level regional professional courses.

#### 4.1.4.1. High School sports curriculum

The sports high school is included in the scientific high school curriculum as an option aimed at deepening the motor and sports sciences and one or more sports



disciplines. This study is part of a cultural framework aimed at acquiring knowledge and methods of mathematics, physics and natural sciences as well as the economic and legal ones.

Through this curriculum, the student acquires knowledge and develops the necessary skills to identify the interactions between the different forms of knowledge, physical and sports activity and the culture of sport.

Upon passing the State exam, the scientific high school diploma is issued with the indication of "Sports Section". The diploma is integrated with the certification of the skills acquired by the student during senior schooling. The diploma allows to access universities and institutes of higher artistic, musical and dance training, as well as higher technical education and training courses.

#### *4.1.4.2. Innovative Italian didactic experimentation for the high-level student-athlete*

Regarding needs related to the sports career of the enrolled high-level student-athletes in the State and private secondary education institutions in the national territory (training, competitions, mobility), the Ministry of Education has recently launched an innovative didactic experimentation. This provides for the drafting by the class council of the "Personalized Training Project" which consists of a training plan dedicated to the didactic and sporting needs of the student-athlete. This project refers to one or more internal tutors (who are identified by the Class Council) and to an external project referent (sports tutor) reported by the sports organization / Sports Federation or Associated Sports Disciplines / Professional League of reference of the athlete. The objective of this training plan is to systematize effective actions that promote concretely the right to study and the educational success of students who practice high-level competitive sports.

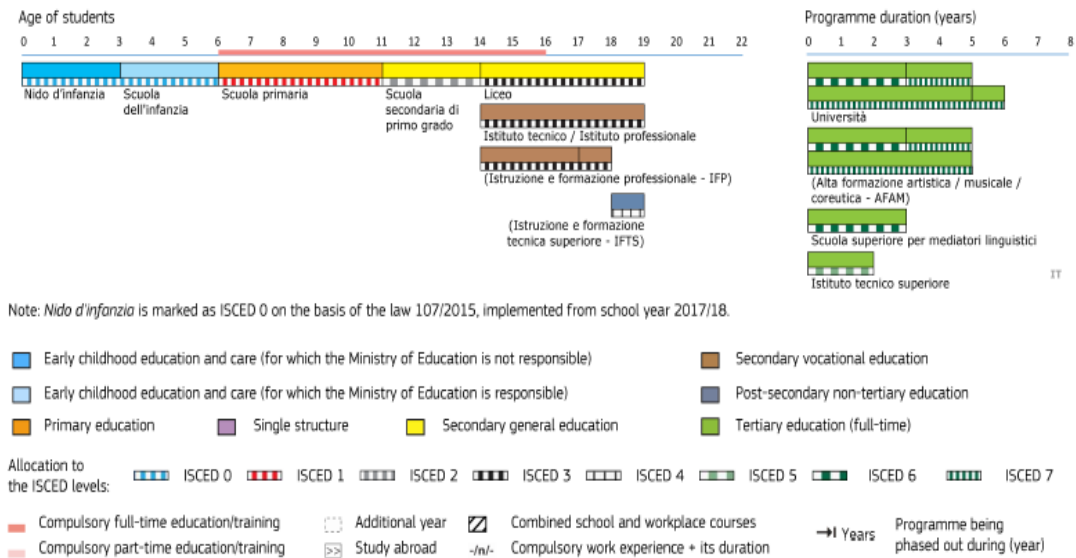
To that end, educational institutions can adopt all didactic and methodological flexibility forms (support of digital technologies, timing, methods of verification and evaluation) that allow the student-athlete to combine school needs with the commitments of a sports career without compromising quality and result.

#### 4.1.5. Higher education

Italy and Spain are included in the European Higher Education Area. Launched in 1999 with the Bologna Process, the higher education reform system involved 46 countries in the European area with the aim of making more compatible and comparable, competitive and attractive for European students' national systems.

Higher education is offered by the University. The Italian university system is organized in three cycles: Bachelor's Degree (1st cycle); Master's Degree (2nd cycle) and Research Doctorate (3rd cycle) (143). A different academic qualification is awarded at the end of each cycle. In addition, also the institutes of High artistic, musical and dancing training - AFAM, the High Schools for Linguistic Mediators – SSML and Higher Technical Institutes - ITS offer qualifications of third level.

Figure 2. Italian education System (Eurydice 2020/21).



## 4.2. THE SPANISH EDUCATION SYSTEM

In Spanish schools the educational competences belong to the General Administration of the State (Ministry of Education and Vocational Training) and to the Autonomous Communities, if present (Departments for Education).

The central education administration enforces the Government's general guidelines about education policy and regulates key elements or aspects of the school system.

Regional education authorities implement regulations and have executive and administrative powers for the management of the education system in their territory. Moreover, schools have the pedagogical, organizational and management autonomy of their resources.

### 4.2.1. Phases of the school system

The Spanish education and training system consists of kindergarten, primary, secondary, post-secondary and higher education (fig.3). Pre-primary education is up to 6 years of age. Early Childhood Education and Care (ECEC) is split into: early childhood education services (0 to 3 years) and infant schools (3 to 6 years). These two types of schools are not mandatory and there are public and private options.

### 4.2.2. Compulsory education

Compulsory education starts at 6 years old and ends at 16. It covers the entire first cycle of education and it is divided into two phases: Primary education and the Compulsory Secondary Education (ESO).

### 4.2.3. First cycle of education

This level of education is free and is provided in publicly funded schools. It is divided into two cycles: the primary education from 6 to 12 years that lasts 6

years and the Compulsory Secondary Education (ESO), aged 12-16 that lasts 4 years. At the end of this stage, students receive their first official certificate - the compulsory lower secondary education certificate - that allows them to enter upper secondary education or the world of work.

#### **4.2.4. Second cycle of education**

Upper secondary education is provided in secondary schools and is not compulsory. It consists of two academic years usually aged from 16 to 18 years. This proposes two possibilities:

- a. the Bachillerato (general category);
- b. the intermediate vocational training in language, arts and sports education (professional category).

Upon completion of upper secondary education, students who pass the final exam successfully receive a certificate (Bachiller) that enables them to enter higher education or world of work. The Técnico certification, is also provided by integrated vocational training institutions and national reference bodies. Moreover, the reforms of the vocational training offer provide for the attendance at basic vocational training cycles, which can be followed by students aged between 15 and 17 years.

#### **4.2.5. Higher education**

Higher education includes undergraduate and vocational studies. The Spanish university system is organized in three cycles: Bachelor's Degree (1st cycle); Master's Degree (2nd cycle) and Research Doctorate (3rd cycle). Further degree courses last 4 years plus one year of final specialization (Master).

A different academic qualification is awarded at the end of each cycle.

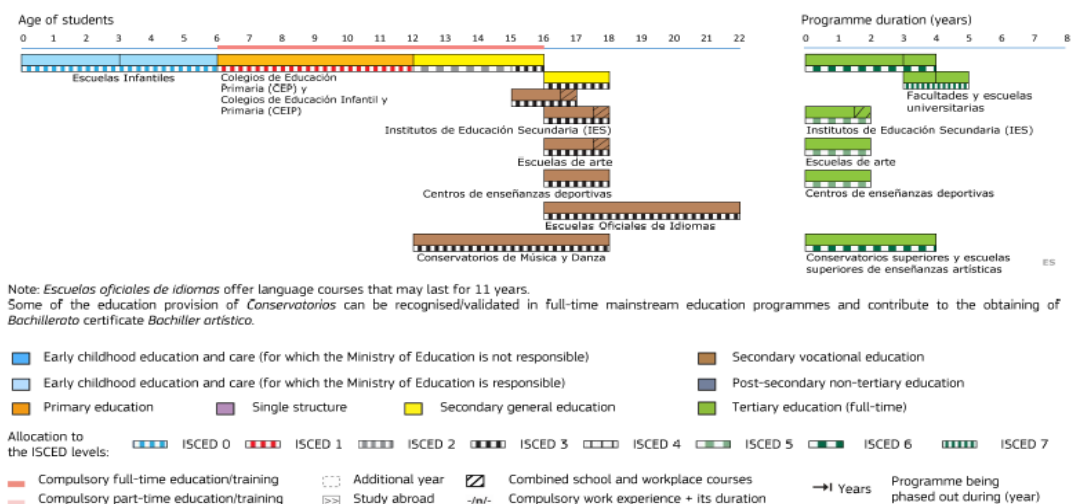
Higher education is provided by universities and advanced vocational training is supplied by the same institutions that offer intermediate vocational training. The latter allows students to carry out professional work directly.

The Spanish non-university higher education includes:

1. language higher education, by including the teaching and learning of several languages at levels A1, A2, B1, B2, C1 and C2 according to the Common European Framework of Reference for Languages (CEFR). These studies are provided by official language schools;
2. arts higher education, by including elementary music and dance education, vocational arts education and advanced arts education. These studies are provided by several specific schools, based on each type and level of education;
3. sports higher education, that is organized in intermediate and advanced training cycles and is delivered by the same institutions that provide professional training.

At the end of these courses, the title of Técnico Superior is obtained, which allows those ones who wish to access certain university courses related to their field of specialization directly, without any admission test.

Figure 3. Spanish education System (Eurydice 2020/21).





**V - ITALY AND SPAIN  
IN THE SOCIO-CULTURAL  
EUROPEAN CONTEXT**





## **V - ITALY AND SPAIN IN THE SOCIO-CULTURAL EUROPEAN CONTEXT: HEALTHY LIFESTYLES, PHYSICAL ACTIVITY AND SPORTS HABITS**

### 5.1. HUMAN DEVELOPMENT INDEX

Italy and Spain are two European countries located in the Mediterranean coasts. A neo-latin culture and language and the Catholic religion profession characterize them both.

Further indicators to compare the two countries concern aspects that have an impact on the quality of life, such as the Human Development Index (HDI). This one refers to the basic components of human development: longevity, knowledge (literacy rate and school population) and standard of living (gross national product per capita). HDI is calculated with the mathematical average of the normalized indices for each one of the three dimensions and it is generally proposed as the best measure of a nation's development (153). HDI is 0.892 for Italy and 0.904 for Spain (154), which are very close to the typical value of countries with high industrial development.

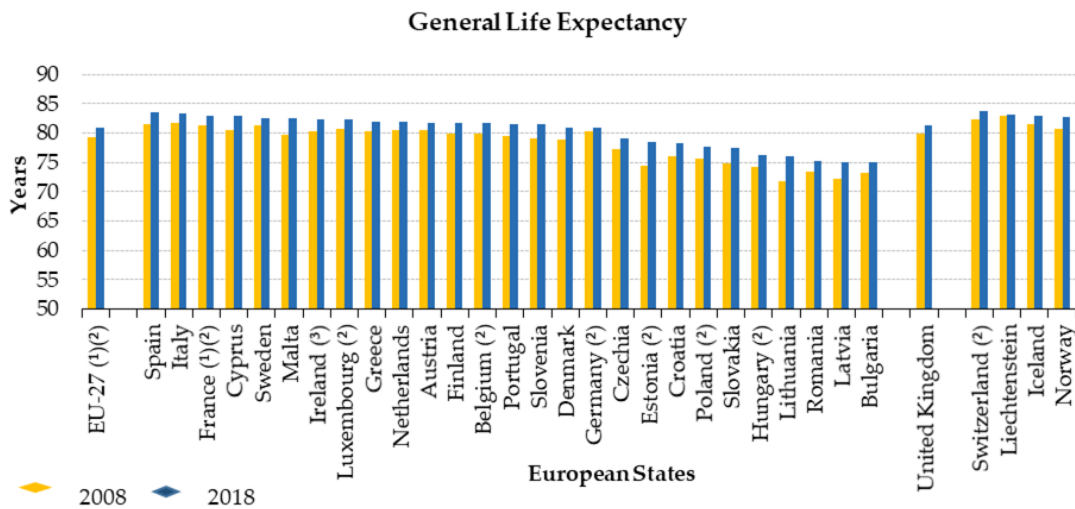
### 5.2. QUALITY OF LIFE INDICATORS

Eurostat (155,156) published quality of life indicators that measure the multidimensionality of progress in society. These ones refer to conditions that contribute to life satisfaction, such as work, health status, social relationships, leisure time, education level, environmental quality, safety and governance.

Recently in European Union (EU) the number of healthy life years at birth (which are defined as disability-free life expectancy) was estimated at 65.1 yrs. The same value was displayed for women, while it was 64.2 yrs. for men. Particularly,

the healthy life years of Spanish women was 70.4 yrs. and the men's one was 69.4. In Italy the same indicator was attested at 68.6 for women and 68.1 yrs. for men. In addition, in European people the total life expectancy was approximately 77.5 % for women and 81.8 % for men. Furthermore, the general life expectancy was 81.0 in EU, but it was higher in Spain and Italy, respectively 83.5 and 83.4 (fig.4). Moreover, Eurostat stated that the people aged 16-29 yrs. who perceived their health as very good or good was on average 91 % in EU, and 95 % both in Italy and in Spain (fig.5). Additionally, life satisfaction was in general evaluated 7.3/10 in Spain and Europe, while it was 7.1/10 in Italy. Another indicator detected by Eurostat (155,156) concerned the population with tertiary education; it was 32.8% in the EU, 20.1% in Italy and 39.7% in Spain. Furthermore, an interesting correlation emerges from many European States: the higher the educational level and income are, the greater the perception of one's health as good or very good is.

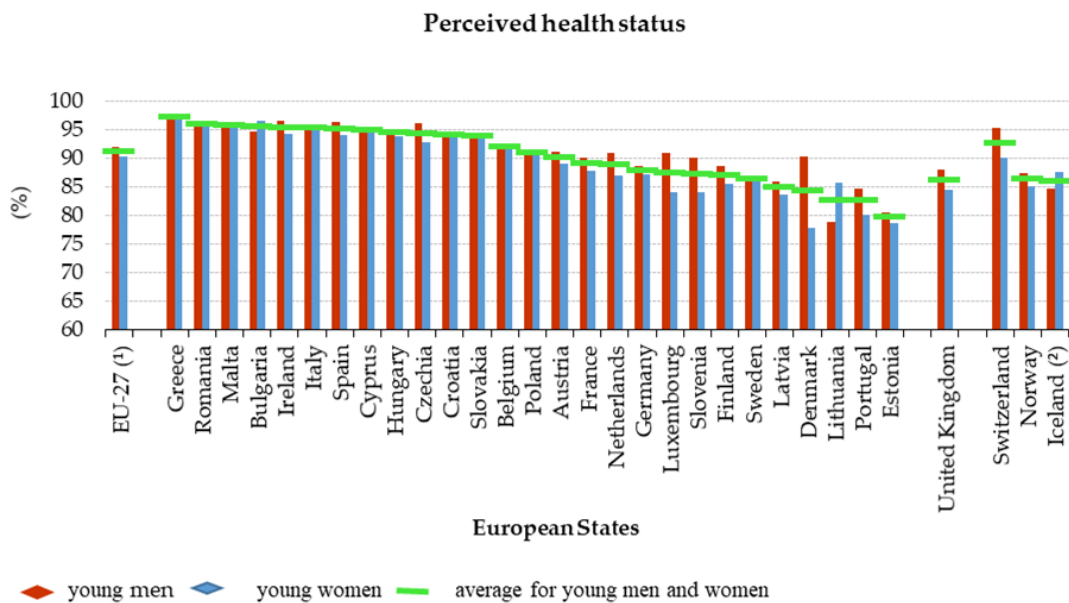
Figure 4. Life expectancy at birth in EU; comparison between 2008 and 2018.



(1) 2018: provisional. (2) Break in series. (3) 2018: estimate.

Source: Eurostat 2019 (online data code: demo\_mlexpec)

**Figure 5.** European young people aged 16-29 years who perceive themselves to be in good or very good health, by sex, 2018



(1) Estimate. (2) 2017. Source: Eurostat 2019 ( data code: hlth\_silc\_01)

### 5.3. LIFESTYLES BY AGE, GENDER AND EDUCATIONAL LEVEL IN EUROPEAN PEOPLE

Eurostat statistical surveys showed that the average of European overweight people is 53%, while in Italy it is 46% and in Spain it is 54%. The highest percentage of overweight people is 65% in Croatia and Malta and a common outcome revealed that in all European countries the men were more overweight than women were.

Furthermore, in comparison with the age group, the lowest percentage of overweight people was found in young people between 18 and 24 years (25%), while the highest was (66%) in people between 65 and 74 years (table 6).

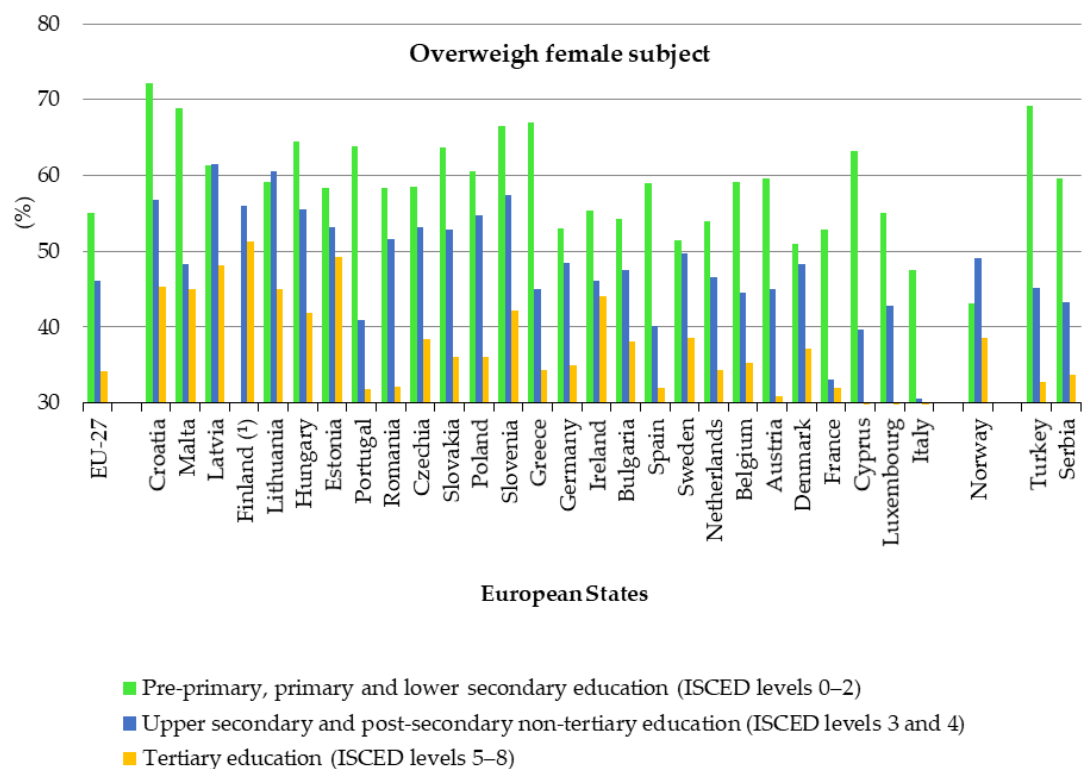
Table 6. Percentages of overweight population by gender and age in 2019

	Males	Females	Total						
	18 years or over	18 years or over	18 to 24	25 to 34	35 to 44	45 to 64	65 to 74	75 years or over	
EU	60.2	45.7	52.7	25.0	39.3	49.7	59.8	65.7	59.3
Belgium	56.2	44.6	50.2	26.2	36.2	49.0	57.3	62.6	52.7
Bulgaria	64.3	46.3	54.9	23.2	37.2	48.8	63.4	70.2	62.6
Czechia	69.8	50.6	60.0	20.9	43.3	57.8	68.7	76.4	67.8
Denmark	57.8	43.3	50.4	26.0	40.0	50.1	59.6	57.6	50.5
Germany	60.7	46.5	53.5	28.2	40.8	52.3	60.0	66.1	57.4
Estonia	61.7	52.3	56.7	26.5	35.9	51.5	67.0	75.7	67.8
Ireland	62.3	46.4	54.4	39.7	52.1	52.9	61.5	59.7	57.5
Greece	66.8	49.1	57.6	23.4	39.7	50.4	66.0	74.7	68.8
Spain	61.7	45.9	53.7	25.1	37.4	49.6	60.4	68.3	66.0
France	52.9	42.0	47.2	22.3	37.8	43.7	53.9	57.2	53.6
Croatia	73.2	58.5	64.8	27.3	45.1	59.8	69.3	78.7	70.0
Italy	55.3	37.1	45.7	18.0	31.2	39.7	49.9	58.8	55.0
Cyprus	59.4	40.8	49.8	23.5	32.7	49.2	61.6	65.7	64.7
Latvia	60.1	56.9	58.3	22.3	38.9	52.4	67.8	73.5	71.7
Lithuania	60.2	53.9	56.8	20.1	40.0	48.2	69.1	74.0	65.5
Luxembourg	58.5	38.4	48.4	24.1	36.5	46.7	56.9	62.5	57.1
Hungary	67.3	53.3	59.9	31.3	43.9	55.4	68.4	76.4	67.3
Malta	71.0	58.0	64.8	38.6	56.6	66.1	73.3	73.7	72.5
Netherlands	55.1	45.1	50.0	25.0	39.4	49.8	57.4	60.2	54.3
Austria	60.6	44.1	52.2	27.2	39.0	48.3	59.9	66.4	58.7
Poland	66.9	50.2	58.1	26.6	43.4	55.3	67.8	73.7	65.4
Portugal	60.9	51.5	55.9	27.6	38.9	52.3	62.9	70.4	63.6
Romania	66.9	50.9	58.7	25.4	42.8	55.4	70.2	72.3	62.3
Slovenia	66.3	49.8	58.1	26.1	42.7	53.3	66.1	72.9	68.8
Slovakia	67.3	50.5	58.7	23.8	42.0	58.0	68.3	77.3	73.0
Finland	62.5	55.8	59.0	30.4	45.9	58.9	65.9	69.1	65.7
Sweden	57.1	45.7	51.3	27.5	39.7	50.3	60.9	60.1	52.4
Norway	57.7	43.3	50.6	28.2	40.8	50.9	61.0	57.6	49.2
Serbia	62.7	45.0	53.6	24.1	42.1	51.8	62.4	65.1	53.8
Turkey	59.8	57.8	58.8	26.9	44.8	65.1	74.3	73.3	59.8

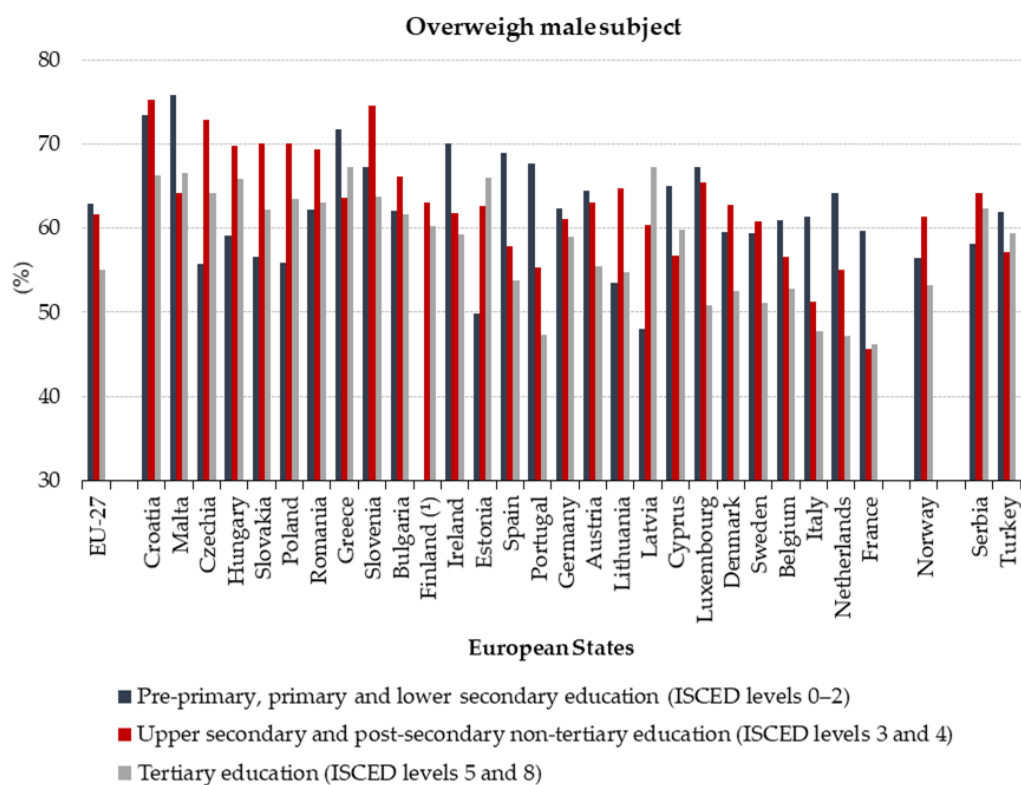
(1) Estimate. (2) 2017. Source: Eurostat 2019 (data code: hlth\_silc\_01)

Additionally, an interesting correlation between overweight and educational attainment was found. The percentage of overweight people decreases as much as the level of education increases both in females and males: the 59% of overweight people had a low level of education, the 54% an average education, and the 44% a tertiary education. The figures 6 and 7 show respectively the percentage of European females and males who are overweight by educational level.

Figure 6. Percentage of females who were overweight, by educational level, 2019



(†) 2019 data not available for ISCED levels 0-2. Source: Eurostat (online data code: hlth\_ehis\_bm1e) - adapted

**Figure 7.** Percentage of males who were overweight, by educational level, 2019

(†) 2019 data not available for ISCED levels 0-2

Note: population aged 18 and over. Ranked on the overall proportion of men who were overweight

Source: Eurostat (online data code: hlth\_ehis\_bm1e) - adapted

#### 5.4. PHYSICAL ACTIVITY RECOMMENDATIONS

The World Health Organization (157) states that in order to be "physically active", adults should practice moderate physical activity from 150 to 300 minutes or strenuous activity for 75 - 150 minutes, or equivalent combinations of the two modalities a week. In addition, the WHO recommends to carry out sessions of cardio-respiratory exercises for at least 10 minutes. Moreover, all those who carry out continuous work that requires considerable physical effort are also considered physically active, regardless of the amount of physical activity they conduct in their

free time. Furthermore, all people who carry out a moderate/intense physical activity in their free time, also in workouts of 10+ minutes (without reaching the weekly levels recommended by the WHO), or do not practice any physical activity in their free time, but carry out continuous work that requires a moderate physical effort are defined as "partially active". Finally, individuals who are not engaged in any physical activity in their free time or that occasionally perform sedentary or moderate or heavy work are classified "sedentary".

In addition, children and adolescents should practice moderate/vigorous physical activity and muscle strengthening exercises at least 3 times a week to perform an average of 60 minutes of daily movement during the week. Definitely, a reduction of the time spent in conditions of inactivity is generally recommended in all age groups to increase physical activity (157).

##### 5.5. THE PHYSICAL ACTIVITY TREND IN EUROPE

Despite the relevant benefits of physical activity, there is a large trend among the population around the world to decrease total daily physical activity. One third of the world's adult population does not reach recommended levels of physical activity (157). This is consistent with Guthold (158) who stated that in 2016, globally, more than 80% of school-age adolescents aged 11 to 17 were not engaged in any physical activity according to WHO recommendations. Furthermore, the 46% of adults in Europe are not physically active, although the highest percentage of people who exercise regularly is in Finland (69%), Sweden (67%) and Denmark (63%) (22).

Table 7 shows some important results regarding sports practice in Europe. In line with the global trend, men play more sports than women do and the week/frequency of sports decreases with the age. Moreover, a further link related to the level of education, socio-professional category and income emerged (lower levels correspond to fewer sporting activities).

**Table 7.** Sports frequency of European people (percentage) by gender, age, education, socio-professional category, income (Eurobarometer n. 472, 2018).

	Regularly	With some regularity	Seldom	Never	Don't know
EU28	7	33	14	46	0
<b>Gender</b>					
Men	8	36	16	40	0
Women	7	29	12	52	0
<b>Age</b>					
15-24	9	53	14	24	0
25-39	6	40	19	35	0
40-54	7	32	17	44	0
55 +	8	22	9	61	0
<b>Gender and Age</b>					
Men 15-24	12	59	14	15	0
Men 25-39	6	45	21	28	0
Men 40-54	6	35	20	39	0
Men 55+	8	22	12	58	0
Women 15-24	6	47	14	33	0
Women 25-39	4	36	17	42	1
Women 40-54	7	29	14	50	0
Women 55+	7	21	8	64	0
<b>Education (End of)</b>					
15-	6	14	7	73	0
16-19	6	27	15	52	0
20+	9	43	17	31	0
Still studying	10	63	11	16	0
<b>Socio-professional category</b>					
Self-employed	7	39	18	36	0
Managers	7	46	20	26	1
Other white collars	4	40	19	37	0
Manual workers	6	29	16	49	0
House persons	5	18	10	67	0
Unemployed	10	26	14	49	1
Retired	8	20	9	63	0
Students	10	63	11	16	0
<b>Difficulties paying bills</b>					
Most of the time	4	19	11	66	0
From time to time	5	24	15	55	1
Almost never/ Never	8	37	14	41	0



Additionally, Eurostat (155) showed that the average of the European population who practices aerobic exercise a week is attested at 44.4%. There were large differences related to this variable: the minimum value was 4.9% for Romania while the value was above 70% for the northern countries, such as Finland, Sweden, Norway and Austria. Table 8 shows the weekly sports and physical commitment of European people during a typical week.

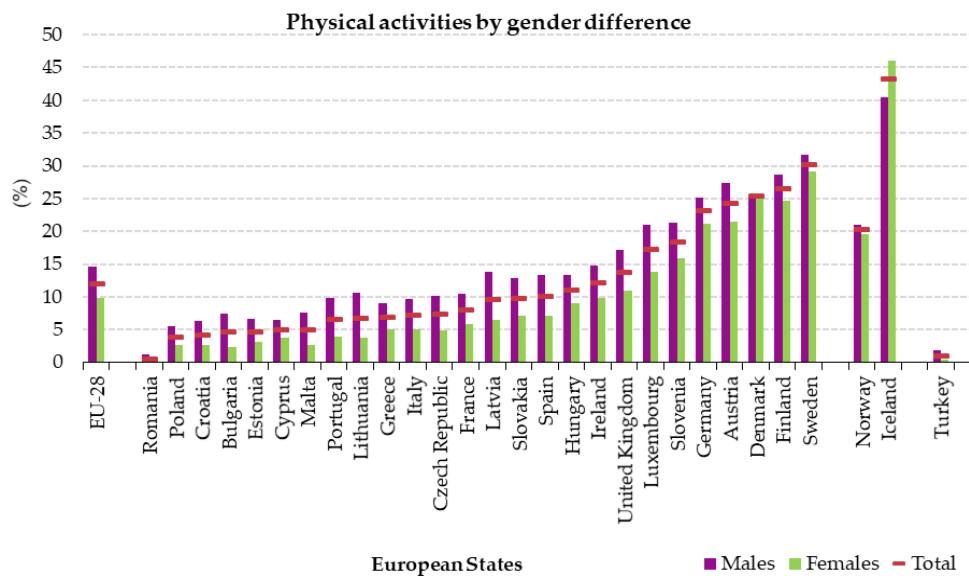
Table 8. Percentage of people aged 15+ performing health-enhancing aerobic and muscle-strengthening physical activities in a typical week (2014).

	Aerobic sports	Cycling to get to and from place	Walking to get to and from place	Muscle-strengthening
EU-28 (*)	44,4	19,7	78,4	24,2
Belgium	:	:	:	:
Bulgaria	10,8	10,0	91,4	10,5
Czech Republic	34,7	35,5	92,2	19,3
Denmark	73,8	47,1	79,1	48,3
Germany	65,7	32,3	77,7	44,1
Estonia	35,2	24,2	80,1	15,4
Ireland	45,8	13,6	86,2	34,3
Greece	22,8	9,0	81,2	12,6
Spain	46,3	10,5	81,7	14,9
France	49,0	12,0	70,9	23,7
Croatia	21,6	30,2	85,7	9,6
Italy	25,5	16,5	74,3	13,9
Cyprus	38,8	2,2	16,5	9,1
Latvia	38,6	23,0	89,3	21,7
Lithuania	24,1	19,2	76,5	13,2
Luxembourg	65,4	17,4	88,6	36,8
Hungary	33,5	40,4	84,7	23,7
Malta	51,8	3,9	73,0	8,0
Netherlands	:	:	:	:
Austria	72,0	24,9	81,0	44,3
Poland	22,0	26,6	84,9	7,7
Portugal	35,0	5,8	60,7	13,0
Romania	4,9	12,8	99,0	1,9
Slovenia	54,7	34,2	83,1	37,5
Slovakia	33,7	33,3	89,2	16,6
Finland	74,1	25,9	82,7	52,8
Sweden	71,3	32,7	82,2	51,6
United Kingdom	57,3	8,3	70,8	27,3
Iceland	70,3	13,1	56,2	57,3
Norway	70,0	26,6	66,0	35,7
Turkey	7,5	5,3	75,5	3,3

(\*) Estimates. Note: no available data for Belgium and the Netherlands. Source: Eurostat

In the European States a series of initiatives have been launched recently in each state to contrast the insufficient physical activity level among people. First of all, the realization of the Physical activity factsheets for Member States of the WHO European Region, which on the basis of different indicators that took into consideration different themes (International recommendations /guidelines, sport, health, education, social and work environment, etc.) has published a detailed report (159,160). Secondly, the EU Physical activity guidelines have been published based on the recommendation of the Council of the European Union to promote HEPA in all sectors (European network for the promotion of health-enhancing physical activity). In addition, in each country the National policies and action plans encourage the promotion of physical activity and participation in sporting activities. In relation to gender difference, figure 8 shows the prevalence of physically activity in males than in females in each respective country.

**Figure 8.** Percentage of people aged 15+ and over performing health-enhancing aerobic and muscle-strengthening physical activities in a typical week, by sex, 2014



Note: no available data for Belgium and the Netherlands; ranked on the total share of persons performing non-work-related physical activity. Source: Eurostat (online data code: hlth\_ehis\_pe9e)

## 5.6. ITALIAN POLICY FOR HEALTHY LIFESTYLE

In 2006, on request of the Italian Ministry of Health the Istituto Superiore di Sanità (ISS) put in place a continuous surveillance program in adults on the main behavioral risk factors and preventive measures, that is included in the National Prevention Plan (2014-2019 and 2020-2025). This plan promotes prevention interventions aimed at reducing risk factors for people's health and the adoption of correct lifestyles. The aforementioned project was named Progressi delle Aziende Sanitarie per la Salute in Italia - Progress by local health units towards a healthier Italy (Passi).

From the last Passi survey (2017-2020) it emerged that in Italy 47% of the population is "physically active", 23% "partially active" and 30% "sedentary". Furthermore, it was found that sedentary lifestyle increases with the age (from 26% in people of 18-34 years to 35% in those of 50-69 years) in women and people with a more disadvantaged socio-economic status or with a low level of instruction.

## 5.7. SPANISH POLICY FOR HEALTHY LIFESTYLE

The Superior Council of Sport with the collaboration of the Ministries of Education, Health, Consumers and Social Services implemented the global plan for physical activity and sport in the decade 2010-2020 to increase the level of sports and physical activity and to reduce the rates of sedentary lifestyle, overweight and obesity, particularly among children and adolescents. Moreover, in 2010-2020 the Spanish government promoted a National Physical Activity Awareness Campaign by supporting a series of campaigns across the country supported by various public and private bodies, in order to promote an active life and healthy habits among all groups and sectors of society. Furthermore, the Ministry of Health and the Spanish

Federation of Municipalities and Provinces provide annual funds for projects aimed at promoting physical activity, including "Towards healthy routes".

According to the National Health Survey in Spain (2017), the percentage of people aged 15+ who practice regular physical activity in their free time increased from 22.4% (2012) to 25.9% (2017). The same survey showed a reduction in sedentary people aged 15+, which from 44.4% in 2012 decreased to 37.8%. In relation to the gender variable, the percentage of regularly engaged males in physical activity in their free time is higher than females' one (33.5% vs 20.4%). Furthermore, in relation to age, the percentage of people who exercise regularly in their free time decreases as they get older. The aforementioned variables are in line with the European trend, as the increase of practice of physical activity is in relation to income. The percentage of active practitioners is 25.6% in the first quintile of income and 40.2% in the fifth one (Istituto Nacional de Estadística, 2017). On the contrary, the sedentary lifestyle is inversely proportional to income. In the first quartile of income, the percentage of sedentary is 38.4% vs 25.4% of the fifth one. About 70% of Spanish people aged 15-34 are physically active; by getting older this percentage drops to about 62%. According to the world trend, males are more active than females are.

## **VI – THE RESEARCH**



## VI - THE RESEARCH

### 6.1. JUSTIFICATION

The aim of this study comes from the observation of an important phenomenon in young people during school age: the early dropout from sports activities. This event refers to the athletes that, during their education stop their sporting careers prematurely, before reaching their peak performance.

Since that practicing sports promotes physical, mental and socio-emotional health (161) in young people, these ones should practice it as long as possible. On the other hand, the early abandonment of sports activity interrupts the benefits of physical exercise for an optimal psychophysical development as well as it compromises the ability to identify talents in sport (1).

As sport and school in young people aged 14-18 represent two fundamental and relevant educational contexts, this study focused on functional learning skills that are cross-boundary in these two domains and that can support students-athletes in dealing with critical situations and transitions phases in their life. The hypothesis is grounded on the association of these skills with the participation / abandonment of sports of youths. To have comparative data of young people of the same age, the study was carried out in Spain and Italy. Although these two countries have geographical, socio-cultural and economic similarities, their education systems present different schools curricula and organization. These differences in high school curricula could affect sport persistence/dropout.

## 6.2. OBJECTIVES

The main focus of this study was to explore the association between different types of dropout from sport in adolescents and strategic learning skills.

Other objectives analyzed:

1. the cross-countries sports dropout rates in two different contexts (Italy and Spain) by gender, age, nationality and school curriculum;
2. the association between early sport dropout and strategic learning skills by gender, age, nationality and school curriculum;
3. the role of persistence in/change to another sport as predictive in the dropout phenomenon;
4. the sport type practiced (individual or team) and its impact on the dropout phenomenon;
5. the years practiced in individual/team sports before dropping out;
6. the motivation to support sport persistence/abandonment.

The analysis of these factors that could have a potential impact on the process of sport dropout could highlight relevant factors and identify strategies tailored to sport dropout prevention.

## 6.3. MATERIALS AND METHODS

The research work was planned over three years and organized in subsequent steps. The study in the initial phases was aimed at an in-depth bibliographic research on the subject of investigation. Then, after having identified the most suitable tools to reach the research objective the data was collected. In order to carry out a preliminary pilot study that highlighted the main objectives of the research, the data was analyzed and processed on a smaller sample of 614 students. Subsequently, the data processing was completed on the whole sample



of 2452 students to present the definitive results obtained. The specific actions performed during each phase and year are shown in table 9.

**Table 9.** Organization of research plan in phases, times and actions.

Time Phases	1° year			2° year			3° year		
The analysis of educational needs	literature review								
	elaboration of the research project								
		identification of data collection							
			translation and adaptation						
			validation tools Italy/Spain						
			giving of the quest.						
			student self-assessment						
The data analysis				entering the data collected in the software		data processing			
Results and conclusions							analysis and comparison data of N 614		
							analysis and comparison data of N 2452		
							identify useful elements to contrast the dropout		

#### 6.4. RESEARCH DESIGN

The research hypothesis was tested in an exploratory manner, with the descriptive research method and by looking for associations with a cross-sectional design (162). The different sections concerning participants, instruments, procedures and data analysis that were highlighted, described the investigation process in detail.

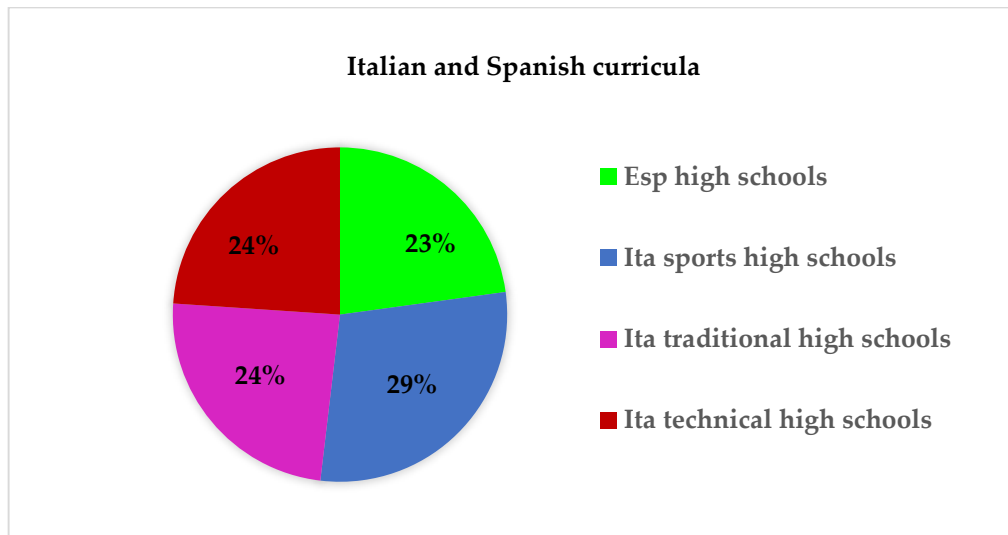
#### 6.4.1. Participants

Participants were sampled in a stratified manner, by identifying purposefully different types of high schools and urban areas of the cities of Rome (Italy) and Murcia (Spain) before sampling. Both are large cities located in a central and a southern region of their respective countries, close to the Mediterranean coast. To reduce possible influences determined by the socioeconomic status of the students participating in the research, school structures operating in districts characterized by a prevailing middle social status were included in the study.

All participants were screened and selected on the basis of three criteria: age (14 to 18 years); high school students; eligible senior high school curriculum. The Spanish participants attended the compulsory secondary school (ESO - that is the unique eligible curriculum until compulsory school) and the upper secondary education. The senior high school lasts 2 years and are not compulsory. Spanish upper secondary school students can choose three options of general curriculum concerning the Bachillerato, such as humanities and social sciences, science, arts. In contrast, Italian students have the option to choose among different schools curricula that last overall five years. To the aim of this study, Italian students who attended upper secondary schools with an enhanced sports curriculum (sports senior high school), and other non-sport enhanced (scientific, applied sciences, linguistic, technical) senior high schools were recruited. In this way, it was possible to perform a cross-countries comparison between Spanish and Italian students attending enhanced non-sport senior high schools, as well as a comparison between students attending senior high school with an enhanced sport curriculum and the other traditional Italian and Spanish school curricula. Since the Italian students could attend many different types of high-school, it was deemed appropriate to recruit a larger number of Italian students rather than Spanish ones to have a representative sample for each type of eligible Italian high school (fig. 9). Thus, the whole sample consisted of 560 Spanish (301 male, 259 female) and 1892 Italian (1303 male, 589 female) students aged 14–18 years.

All the students over the age of 18 signed an informed written consent to participate in the study, while for all those under the age of 18 their parents or guardians signed the same document.

**Figure 9.** Italian and Spanish students who attended different upper secondary school.



#### 6.4.2. Instruments

Two self-assessment questionnaires were used for this research. These were administered to the students in their mother tongue after a process of forward-backward translation.

The two instruments used were:

1. Questionnaire for the Analysis of the Practice of Physical-Sports Activities (CAPAFD), that was originally developed in the Spanish language (app. 1, 2),
2. Questionnaire on Learning Strategies – reduced version (QSA-r) that was originally developed in the Italian language (app. 3, 4).

##### 6.4.2.1. Capafd

The first questionnaire, the CAPAFD (163), inquired about the motivation and training of physical-sporting activity. It has been proven suitable to collect

descriptive data on sport habits associated with different socio-demographic variables objectively reportable (163). The original questionnaire is made of eleven blocks comprising twenty-six questions targeted at people aged 15–64 years. In order to collect relevant information on sport habits and dropout to the aim of the present study, questions were focused on young people aged 14-18 yrs.

The questionnaire was adapted in two sections comprising seventeen questions and in other three sections comprising only one question. The first two sections included questions regarding information on sport dropout, sport participation and the basic variables relevant to the study. Specifically, the selected items allowed to collect information about: age, gender, type of attended school, onset/dropout age of sports activity, current/past registration to a sports Federation, sport practice/dropout, current and past sports practiced (years of practice for each type of sport practiced, if any), workout frequency (hours/days and days/week), competitive sports activity performed (if any), sport practiced in organized club/association and reasons for sports practice/abandonment. The last three sections included questions regarded those who were currently practiced sport, those who have never practiced it and those who had practiced some physical-sports activity in the past but currently no longer practices it (students had to answer only one of these sections and choose from one to three answers). This information was collected with three types of questions. Five of the 20 items were open-ended questions regarding demographic information (e.g., School attended); 5 items were closed-ended questions with dichotomous answer (yes or no; e.g., Have you dropped out of sports?); the remaining 10 items were multiple choice with from three to thirteen answers (e.g., How much time do you spend working out daily on average? What are the reasons why you practice/not practice or dropped out of a physical-sporting activity in any way?).

#### 6.4.2.2. *Qsa-r*

The second questionnaire, the QSA-r validated by Margottini (164), was about students' strategic competences for learning to self-evaluate their studying habits and/or the critical situations encountered in schoolwork.

The QSA-r estimates the perceived mastery of eight strategic skills, grouped in two dimensions of four scales each: cognitive/metacognitive (C1, C2, C3, C4) and affective/motivational (A1, A2, A3, A4). Each scale refers to a specific strategic competence (Table 10). The questionnaire is composed of 46 questions about school and homework. Twenty-one items are grouped in the four cognitive–metacognitive scales as follows: C1 (n = 6; e.g., *I try to find relationships between what I learn and what I already know*), C2 (n = 7; e.g., *I organize my study based on the time I have available*), C3 (n = 5; e.g., *I build diagrams, graphs or summary tables to summarize what I study*) and C4 (n = 3; e.g., *While the teacher explains, I get distracted*). Twenty-five items are grouped in the four affective–motivational scales as follows: A1 (n = 6; e.g., *I quickly get nervous for a question or problem that I don't understand immediately*), A2 (n = 6; e.g., *Even if I don't like the subject, I equally work hard to succeed*), A3 (n = 8; e.g., *When an oral exam goes well, I think I have done well to study hard*) and A4 (n = 5; e.g., *I feel capable of completing my study commitments successfully*). The answers were given on a four-point Likert-type scale from 1 (never or almost never) to 4 (always or almost always).

**Table 10.** QSA-r: Scales and Dimensions

DIMENSIONS	SCALES		C. $\alpha^*$
Cognitive Metacognitive	C1	Processing strategies for understanding and remembering	.74
	C2	Self-regulation strategies	.64
	C3	Graphic strategies to understand, summarize, and memorize	.71
	C4	Attention control strategies	.63
Affective Motivational	A1	Emotion management strategies	.79
	A2	Volition	.74
	A3	Causal attribution - Locus of control	.52
	A4	Perception of competence	.72

Note : \* Cronbach's alpha of Italian and Spanish students

From raw scores for each of the eight subscales, the formula  $[(\text{sum raw score} - \text{mean}) / \text{standard deviation} \times 2 + 5]$  provided the final profile of students on a nine-point standard Stanine-scale (164). For the majority of the subscales (C1, C2, C3 and A2, A3, A4), the higher the scoring was, the more positive the outcome was. Conversely, for the remaining subscales (C4 and A1), the lower the scoring was, the more positive the outcome was. Thus, the scores for C4 and A1 subscales were reversed to obtain higher scores corresponding to consistently higher functional skills through scales. According to the normative data (164), 1 to 3 are below average skill scores, 4 to 6 points are the average range and 7 to 9 are above average scores. All the stanine-transformed scores of each subscale (C1–4 and A1–4) were further transformed in dichotomous variables for the data analysis. It was attributed “0” (=no-criticality, i.e., skills above critical level) to all factors which showed a value from 4 to 9 and “1” (=criticality, i.e., skills below critical level) for value from 1 to 3. By summing up the critical values through the four affective/motivational (A1–4) subscales and through the four (C1–4) cognitive/metacognitive subscales (164), each participant could have from 0 (no critical values) to 4 (critical values in all four subscales). By basing on this sum of critical values, participants were divided in five categories of criticality (0, 1, 2, 3, 4) both in cognitive/metacognitive and affective/motivational skills.

As reported in the validation study (164) performed with 1182 students, Cronbach’s alpha ranges between 0.59–0.78 through the eight scales, with corrected item–scale correlations being mostly moderate. This Cronbach’s alpha range is deemed acceptable for tools measuring cognitive and affective constructs in learning (165). An Italian study with a larger sample of 3091 upper secondary school students (166) confirmed a similar Cronbach’s alpha range for the eight scales (0.62–0.78). In the present research, the internal consistency was computed on a sample of 1840 Italian and Spanish students ( $n = 1451$  and  $389$ , respectively). The internal consistency for the Italian version of the QSA-r was 0.66 for all four cognitive/metacognitive scales (C1–4) and 0.59 for all four affective/motivational (A1–4). For the Spanish version, Cronbach’s alpha was 0.76 for all four scales (C1–4) and 0.71 for all four scales (A1–4). Overall, Cronbach’s alpha was 0.76. The values for each scale are reported in Table 10.

### 6.4.3. Procedure

Questionnaires were administered during school time and the compilation of the two questionnaires was performed in a single session (about 20 min) to facilitate the correct matching of the tools (and data) for the same student. All students received information for filling out the two questionnaires. Data anonymity was ensured by assigning a unique numerical code to the two questionnaires and an acronym to identify the academic course.

Data collection was performed in compliance with school time constraints in order not to overload the students in the self-assessment task and not to exceed the maximum time the teachers of the participant classes agreed on. Students who affirmed that they had never played sports were excluded from the sample, as their data could not contribute to the study of the dropout phenomenon.

The first data collection was carried out from March to May 2019, while the second one from October 2019 to December 2019 by a paper-and-pencil version of the tools.

The ethics committee of the UCAM Catholic University of Murcia in Spain approved this study (CE102012).

### 6.4.4. Data Analysis

The sample (N=2452) was analyzed in two phases. The first findings have been analyzed on a subsample of 614 Italian and Spanish students (84) and afterwards overall outcomes were performed on the complete sample.

#### 6.4.4.1. *Classification of variables*

The main variable was defined as the decision to stop sport activity. In the first pilot study (84), this variable was classified as dichotomous and included the general dropout =1 and no-dropout =2 categories. In the whole sample it was categorized in three clusters, general dropout from all sports =1; no-dropout =2;

dropout from sport-specific - with continuing in another sport/physical activity =3 (46). In the sample of 614 subjects demographic variables, such as age, gender, nationality, school curriculum, sports type (individual/team) practiced in the past and persistence in sport type or change therein categories were categorized. Further variables concerning critical values of strategic learning skill were classified. In the bigger sample of 2452 students, additional variables, such as sport practiced currently and in the past, years practiced in individual/team sports in the past, reasons for persisting/quitting sport practice were also categorized.

Furthermore, in the N =614 sample, the age of the students was grouped into three categories of 14-15-16 + yrs. to have balanced groups. In the whole sample five categories of <= 14, 15, 16, 17, 18+ yrs. age were grouped.

#### 6.4.4.2. *Statistics Analyses*

In the pilot study of 614 students, descriptive statistics (167) were calculated for age, gender, nationality, school curriculum and change sport type in the past, separately for students who only declared dropout/no dropout from all sports. Further descriptive analyses in the whole sample of 2452 students were recomputed overall with the three sport dropout categories to analyze the distribution of sport dropout rates in all the already variables categorized in the previous study. The remaining categories of sport habits, such as the sport type practiced in the present and the mostly sport practiced in Italian and Spanish students, were also calculated as function of demographic variables.

The association of sport dropout with strategic learning skills was also analyzed as a function of the demographic variables (gender, age and nationality) both in N=614 and in N=2452 sample. In the complete sample, further associations between sport dropout and sport type/amount and years practiced in individual/team sports in the past and associations between strategic learning skills and school curriculum were also explored as a function of the demographic variables. To this aim, the frequency distribution of dropout rates was compared among categories of strategic skills deficits (0, 1, 2, 3, 4), as a function of gender, nationality and school curriculum. After verifying the non-normality of all the variables analyzed through the Kolmogorov–Smirnov test ( $p < 0.001$ ), to compute



both the main and associated effects, bivariate analyses were conducted with contingency tables and the chi-square test ( $\chi^2$ ). Effect sizes were also computed (Phi-coefficient,  $\phi$ , for 2x2 contingency tables and Cramer's V for contingency tables other than 2x2).

Furthermore, in the sample  $N = 2452$ , the binary logistic regression analysis was calculated to observe the effects of the demographic, high school curriculum, sports-habits and the critical values of the strategic learning skills variables on dropout phenomenon. Three different categories of dropout were classified: general dropout from all sports vs no dropout (Category 1); no dropout vs sport-specific dropout (Category 2); general dropout vs sport-specific dropout (Category 3). Analyses were computed on the demographic and sport habits jointly, on the high school curriculum and on the strategic learning skills separately. Data were processed by SPSS Statistics software (25.0; IBM, Armonk, NY, USA) (168).

## 6.5. RESULTS

### 6.5.1. Preliminary findings on the reduced sample of 614 Italian and Spanish students

In this pilot study, the descriptive statistics calculated separately for all variables are shown in table 11. In this sample, it emerged that the students dropped out of sport at an average age of  $13.4 \pm 1.6$  years, while those who did not dropout were at average age of  $15.1 \text{ yrs.} \pm .83$ .

In comparison to the male students, a significantly greater females' dropout rate was found, whereas no effect for age emerged. Findings also revealed a significant effect for nationality, with a greater dropout from sports for the Spanish students as compared to Italian ones. However, further analysis distinguishing between sport and non-sport high school curricula in the Italian sample revealed that the cross-country effect depended on the sample composition of school type, which is different in Italy and Spain. The dropout rate was negligible in Italian students attending sports high schools with enhanced curricular physical

education / sport as compared to both the Italian students attending high schools with a focus different from sport (such as scientific, applied sciences and linguistic schools) and the Spanish ones (table 11).

**Table 11.** Frequency of the students who dropped out/did not dropout of sport as a function of age, gender, nationality, school curriculum, sport type and strategic learning skills

Variables	General Drop-out N(%)	No Drop-out N(%)	$\chi^2$	df	p	Effect Size		
<b>Age</b>			4.18	2	.123	.083 <sup>a</sup>		
14 years	26 (18.4)	115 (81.6)						
15 years	31 (11.9)	230 (88.1)						
16+ years	37 (17.4)	175 (82.6)						
<b>Gender</b>			6.35	1	.012	-.102 <sup>b</sup>		
Male	45 (12.3)	321 (87.7)						
Female	49 (19.8)	199 (80.2)						
<b>Nationality</b>			13.69	1	<.001	-.149 <sup>b</sup>		
Italian	50 (11.7)	376 (88.3)						
Spanish	44 (23.4)	144 (76.6)						
<b>School curriculum</b>			1 vs 2: 45.29	1	<.001	-.326 <sup>b</sup>		
			1 vs 3: 47.38	1	<.001	-.342 <sup>b</sup>		
1. Italian: sports high schools	3 (1.4)	213 (98.6)						
2. Italian: other high schools*	47 (22.4)	163 (77.6)						
3. Spanish: compulsory secondary school	44 (23.4)	144 (76.6)						
<b>Type (individual/team) and amount of sports practiced</b>								
<b>Male</b>			13.87	2	.001	.224 <sup>a</sup>		
Only one sport	10 (8.3)	110 (91.7)						
Multiple sports of one type	13 (14.4)	77 (85.6)						
Multiple sports of different type	19 (28.8)	47 (71.2)						
<b>Female</b>			1.59	2	.450	.089 <sup>a</sup>		
Only one sport	15 (28.3)	38 (71.7)						
Multiple sports of one type	25 (21.9)	89 (78.1)						
Multiple sports of different type	6 (17.1)	29 (82.9)						
<b>Strategic Learning Skills:</b>								
<b>Cognitive/Metacognitive Scales</b>	No CL**	CL**	No CL	CL				
<b>C1</b>	63 (67.0)	31 (33.0)	361 (69.4)	159 (30.6)	.21	1	.643	-.019 <sup>b</sup>
<b>C2</b>	66 (70.2)	28 (29.8)	379 (72.9)	141 (27.1)	.28	1	.594	-.022 <sup>b</sup>
<b>C3</b>	68 (72.3)	26 (27.7)	339 (65.2)	181 (34.8)	1.82	1	.177	-.054 <sup>b</sup>
<b>C4</b>	38 (40.4)	56 (59.6)	247 (47.5)	273 (52.5)	1.60	1	.206	-.051 <sup>b</sup>
<b>Affective/Motivational Scales</b>								
<b>A1</b>	69 (73.4)	25 (26.6)	428 (82.3)	92 (17.7)	4.09	1	.043	-.082 <sup>b</sup>
<b>A2</b>	34 (36.2)	60 (63.8)	236 (45.4)	284 (54.6)	2.74	1	.098	-.067 <sup>b</sup>
<b>A3</b>	56 (59.6)	38 (40.4)	371 (71.3)	149 (28.7)	5.20	1	.022	-.092 <sup>b</sup>
<b>A4</b>	62 (66.0)	32 (34.0)	417 (80.2)	103 (19.8)	9.40	1	.002	-.124 <sup>b</sup>

a = Cramer's V; b =  $\phi$ -coefficient; \* Scientific, applied sciences, linguistic senior high school

\*\*No CL: no criticality (below critical level) = "0"; CL: criticality (above critical level) = "1" (dichotomous variables)

A further analysis conducted on sport habits showed that a lack of persistence in the same (individual/team) sport type was predictive of higher dropout rates in males. The highest dropout rates emerged when the change was not between similar sport types (same-individual or same-team sport), but between various sport types (different-individual or different-team sports), as reported in table 11. A non-significant reverse trend was observed in females, who more often showed dropout from sport when they persisted in the same sport or individual/team skill sport type (table 11). Furthermore, the most important result that concerned an association of dropout rates with affective–motivational strategic learning skills was found and is displayed in table 11. These skills are associated with dropout rates independently of gender and age, but interactively with nationality.

As shown in table 12, this pattern of differences was more pronounced and significant in the Italian students with a progressive increment in dropout rates from none to all critical values, and less pronounced and non-significant in Spanish students. Cognitive–metacognitive skills were non-discriminant for sport dropout rates both in Italian ( $p = 0.102$ ) and in Spanish students ( $p = 0.872$ ).

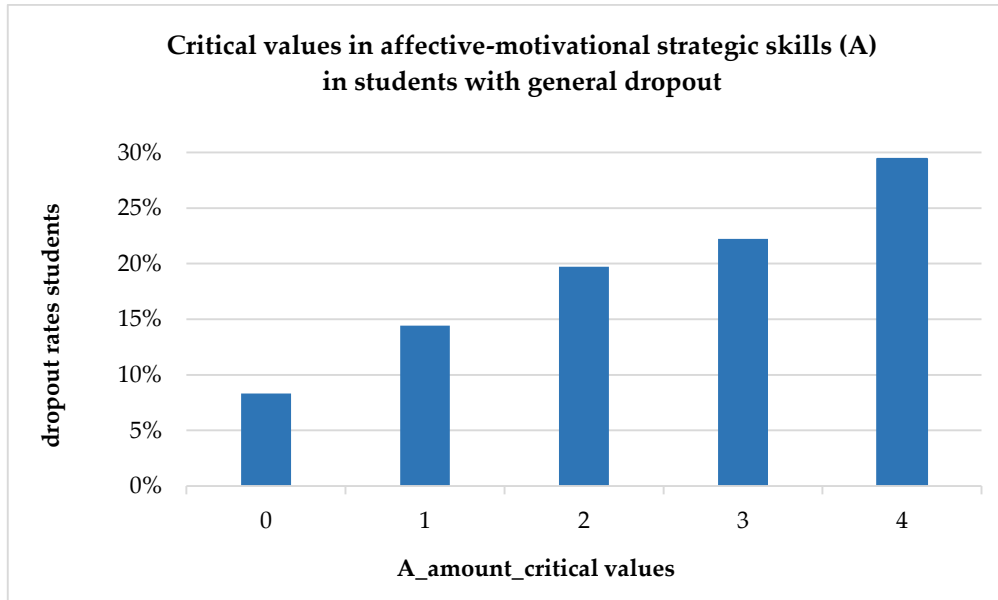
**Table 12.** Frequency of the students who dropped out of sport as a function of the amount of critical values in affective-motivational strategic skills.

Sample	Amount of critical values					Total N (%)	$\chi^2$	df	p	Effect Size
	0 N (%)	1 N (%)	2 N (%)	3 N (%)	4 N (%)					
<b>Italian</b>	8 (6.2)	16 (10.7)	12 (14.1)	11 (22.9)	3 (21.4)	50 (11.7)	11.50	4	.021	.164 <sup>a</sup>
<b>Spanish</b>	6 (15.3)	15 (23.1)	16 (28.1)	5 (20.8)	2 (66.7)	44 (23.4)	5.31	4	.256	.168 <sup>a</sup>
<b>Total</b>	14 (8.3)	31 (14.4)	28 (19.7)	16 (22.2)	5 (29.4)	94 (15.3)	13.83	4	.008	.150 <sup>a</sup>

a = Cramer's V

The overall association model presented in figure 10 showed an increase in the frequency of the students who dropped out of sport with the number of critical values in affective–motivational strategic learning skills ( $\chi^2=13.82$ ,  $p=.008$ , Cramer's  $V=.150$ ).

**Figure 10.** Percentages of Italian and Spanish students with general dropout from all sports as a function of critical values in affective-motivational strategic learning skills (A).



## 6.5.2. Findings on the complete sample of 2452 Italian and Spanish students

### 6.5.2.1. Dropout rates as function of demographic variables and high school curriculum

On whole sample, the descriptive statistics calculated for all variables separately in students that dropped out of all sports (general dropout), did not dropout and those that dropped out of a sport-specific but re-engaged themselves in another sport or physical activity (sport-specific dropout) are reported in table 13. Students dropped out of sport overall at an average age of  $13.9 \pm 2.0$  yrs. and those who did not dropout were at an average age of  $15.6 \pm 1.3$  yrs.

A significant effect for age emerged whereas findings showed that after 16 yrs. the general dropout from sport increases progressively, as well as the sport-

specific dropout does after 14 yrs. Additionally, in the subsample of 17 yrs. old, the dropout from sport-specific with continuing in another sport is wider, compared to other age clusters (table 13). Moreover, a gender effect revealed a meaningfully greater general and sport-specific females' dropout from sport in comparison to the male students was found. Other findings showed a significant effect for nationality with greater general dropout from all sports for the Spanish students compared to the Italian ones. As reported in table 13 a reverse trend emerged in the Italian students who more widely dropped out of sport-specific in comparison to the Spanish ones.

Further analysis conducted on dropout rates as a function of Italian and Spanish high school curricula is reported in table 13. The associations of general dropout/no-dropout/sport-specific dropout with sport/non-sport Italian and Spanish high school curricula revealed that the cross-country effect was influenced by the different school type that is operating in Italy and Spain.

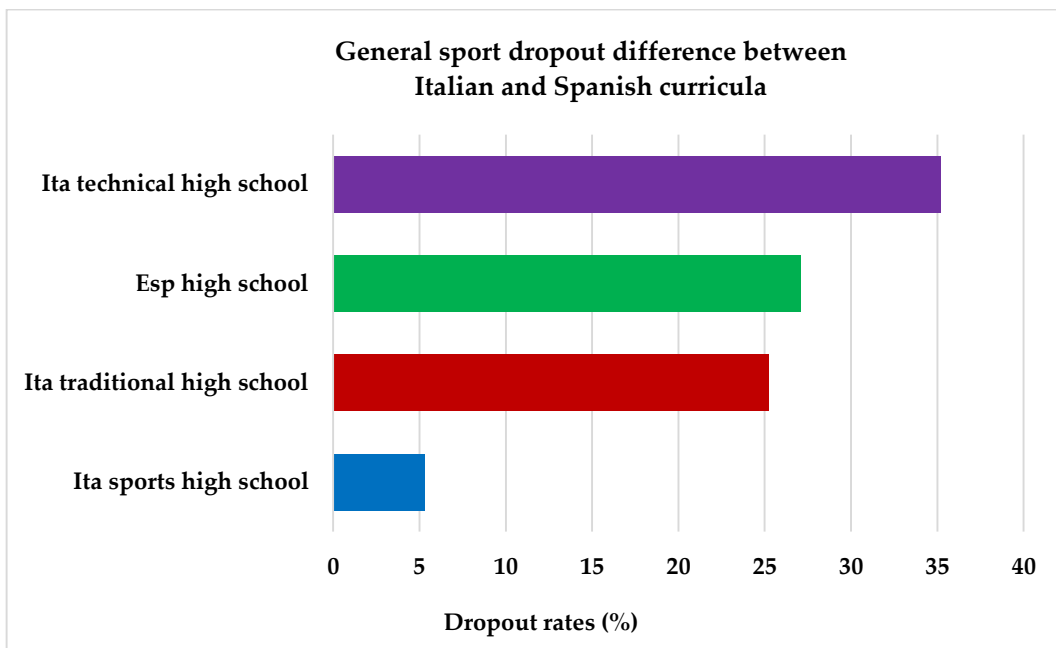
**Table 13.** Frequency of the students with general/ no-dropout/sport-specific from sport as a function of age, gender, nationality, school curriculum.

Variables	General Dropout N (%)	No Dropout N (%)	Sport-specific dropout N (%)	$\chi^2$	df	p	Effect Size
<b>Age</b>				52.76	8	< .001	.104 <sup>a</sup>
14 years	113 (21)	405 (75.1)	21 (3.9)				
15 years	116 (18.3)	467 (73.5)	52 (8.2)				
16 years	124 (22.1)	384 (68.3)	54 (9.6)				
17 years	110 (23.1)	313 (65.8)	53 (11.1)				
18+ years	84 (35)	134 (55.8)	22 (9.2)				
<b>Gender</b>				21.26	2	< .001	.093 <sup>a</sup>
Male	320 (20)	1164 (72.6)	120 (7.5)				
Female	227 (26.8)	539 (63.6)	82 (9.7)				
<b>Nationality</b>				13.09	2	.001	.073 <sup>a</sup>
Italian	395 (20.9)	1328 (70.2)	169 (8.9)				
Spanish	152 (27.1)	375 (67)	33 (5.9)				
<b>School Curriculum</b>				271.91	6	< .001	.235 <sup>a</sup>
<b>high schools</b>							
1. Italian sports	38 (5.3)	650 (91.2)	24 (3.3)				
2. Italian traditional *	150 (25.2)	360 (60.7)	83 (14)				
3. Italian technical	207 (35.2)	318 (54.1)	62 (10.5)				
4. Spanish compulsory** and upper secondary school***	152 (27.1)	375 (67)	33 (5.9)				

<sup>a</sup> = Cramer's V; \* Scientific, applied sciences, linguistic senior high school; \*\*Eso; \*\*\* Bachillerato (humanities and social sciences, science, arts), intermediate vocational training (language).

As shown in figure 11, the dropout rate in Italian students attending sports high schools was neglectable compared to both the Italian students attending high schools with a different focus from sport (such as scientific, applied sciences, linguistic and technical schools) and in the Spanish ones ( $\chi^2 = 271.91$ ,  $p < .001$ , Cramer's  $V = .235$ ).

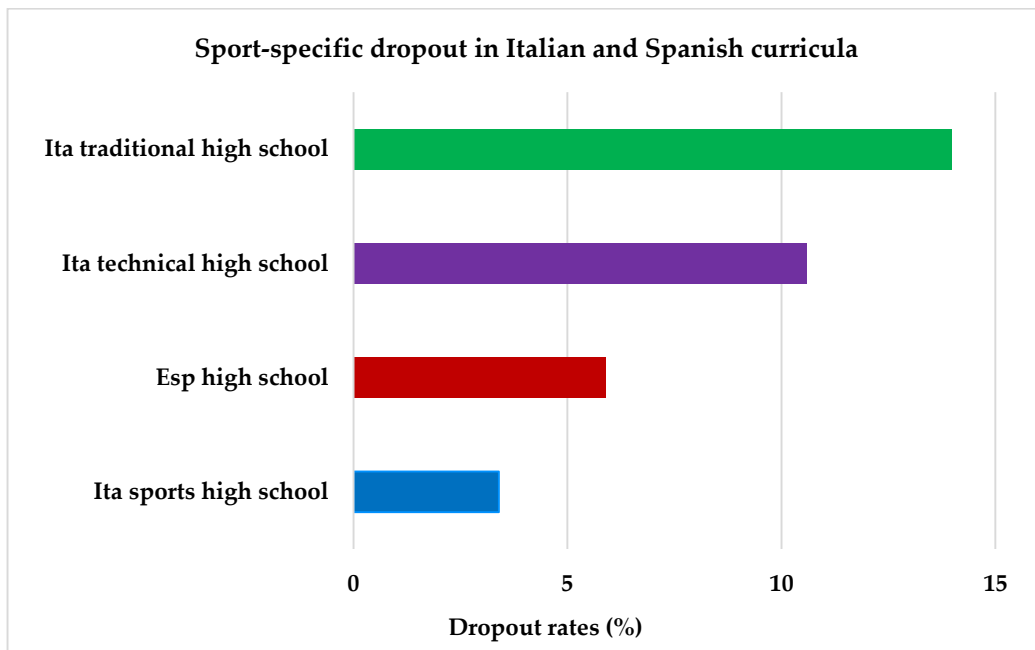
**Figure 11.** Cross-country effect of general dropout from sport comparing sport and non-sport high schools curricula



On the other hand, a higher general dropout from all sports emerged in the Italian students who attended no-sport technical curriculum compared to the other no-sport high school curricula. Moreover, as reported in figure 12, further findings showed that a greater dropout from sport-specific emerged in the Italian students who attended traditional high school, compared to the other Italian students who

attended both sports and technical high schools and the Spanish ones ( $\chi^2=56.59$ ,  $p<.001$ , Cramer's  $V=.152$ ).

**Figure 12.** Cross-country effect of sport-specific dropout comparing sport and non-sport high schools curricula



#### 6.5.2.2. Amount, years and type of sport practiced currently and in the past

As shown in table 14, an analysis performed on current sports practice revealed a significant gender effect with a higher frequency of males practicing only team sports, compared to those practice only individual sports. A reverse trend emerged in females, who showed a higher frequency in the individual sports rather than in the team ones. A non-significant effect emerged in age and nationality (table 14).

**Table 14.** Absolute frequencies and percentages of the type of sport (individual/team) currently practiced as function of age, gender and nationality.

Variables	Only Individual N (%)	Only Team N (%)	$\chi^2$	df	p	Effect Size
<b>Sports currently practiced</b>						
<b>Age</b>			4.15	4	.386	.047 <sup>a</sup>
14 years	232 (21.5)	192 (23.3)				
15 years	287 (26.6)	228 (27.7)				
16 years	243 (22.5)	196 (23.8)				
17 years	221 (20.4)	147 (17.8)				
18+ years	96 (8.9)	61 (7.4)				
<b>Gender</b>			153.03	1	<.001	-.284 <sup>b</sup>
Male	604 (56)	682 (82.8)				
Female	475 (44)	142 (17.2)				
<b>Nationality</b>			.666	1	.415	-.019 <sup>b</sup>
Italian	841 (78)	655 (79.4)				
Spanish	238 (22)	169 (20.5)				

a = Cramer's V; b =  $\phi$ -coefficient.

Table 15 reports the most practiced types of sports by Italian and Spanish students. While soccer is the most practiced sport by both Italian and Spanish males, tennis is practiced more by the Spanish ones than by their Italian counterparts. On the other hand, the males in Italy practice more swimming and boxing/kick-boxing than the ones in Spain do, where both the males and the females practice more athletics than the ones in Italy do. Overall, both the males and the females in the two countries usually practice fitness activities. A wider preference emerged in volleyball, dance and gymnastics for the females.



**Table 15.** Mostly practiced sport type by Italian and Spanish, male and female students.

SPORT TYPE	ITA		ESP	
	M	F	M	F
	N %	N %	N %	N %
<b>Swimming</b>	99 (8.8)	61 (12.9)	8 (2.8)	24 (12.4)
<b>Tennis</b>	50 (4.4)	24 (5.1)	29 (10.1)	10 (5.2)
<b>Fitness</b>	188 (16.7)	80 (16.9)	37 (12.9)	36 (18.7)
<b>Volleyball</b>	31 (2.8)	66 (14)	16 (5.6)	23 (11.9)
<b>Dance</b>	10 (0.9)	46 (9.7)	2 (0.7)	30 (15.5)
<b>Soccer</b>	389 (34.6)	17 (3.6)	98 (34.1)	6 (3.1)
<b>Basket</b>	81 (7.2)	14 (3)	24 (8.4)	5 (2.6)
<b>Athletics</b>	33 (2.9)	17 (3.6)	13 (4.5)	12 (6.2)
<b>Martial arts</b>	73 (6.5)	29 (6.1)	15 (5.2)	10 (5.2)
<b>Artistic/rythmic gym</b>	5 (0.4)	47 (9.9)	11 (3.8)	7 (3.6)
<b>Boxing /kick boxing</b>	67 (6)	12 (2.5)	6 (2.1)	1 (0.5)

Further analysis conducted on sport practice in the past as a function of gender and nationality are reported in table 16. It showed a significant effect with a higher general dropout rate in both the males and the females who only practiced team sports in the past, although in males the difference between “only team” sports and the “individual/team” sport categories was negligible. In addition, a higher sport-specific dropout both in the males and in the females who practiced “individual/team” sports emerged.

Moreover, additional findings revealed a significant effect for the Italian students with greater general dropout for those who only practiced team sports compared to those who only practiced individual sports or both individual/team. Furthermore, the Italian students who practiced both individual/team sports revealed a wider sport-specific dropout rate compared to the other clusters. In contrast, a non-significant effect emerged in the Spanish students who practiced both individual/team and only individual sports with a negligible general dropout rate difference. In addition, the sport-specific dropout was higher in the Spanish ones who practiced individual/team sport type, as well as in the Italian ones (tab.16).

**Table 16.** Frequency of students with general/ no-dropout/sport-specific from sport as a function of type of sport practiced in the past.

Variables	General Dropout N (%)	No Dropout N (%)	Sport-specific dropout N (%)	$\chi^2$	df	p	Effect Size
<b>Type (individual/team) of sports practiced in the past</b>							
<b>Male</b>							
				99.46	4	.000	.192 <sup>a</sup>
Individual/team	172 (29.1)	338 (57.2)	80 (13.5)				
Only individual	75 (13.2)	470 (82.9)	22 (3.8)				
Only team	59 (30.9)	115 (60.2)	17 (8.9)				
<b>Female</b>							
				16.72	4	.002	.106 <sup>a</sup>
Individual/team	59 (33.5)	88 (50)	29 (16.4)				
Only individual	139 (24.4)	335 (63.7)	52 (9.9)				
Only team	16 (42.1)	21 (55.2)	1 (2.7)				
<b>Italian students</b>							
				93.28	4	.002	.168 <sup>a</sup>
Individual/team	193 (29.6)	360 (55.2)	99 (15.1)				
Only individual	138 (16.3)	648 (76.8)	57 (6.8)				
Only team	55 (35.7)	86 (55.8)	13 (8.4)				
<b>Spanish students</b>							
				1.72	4	.787	.044 <sup>a</sup>
Individual/team	38 (33.3)	66 (57.9)	10 (8.7)				
Only individual	76 (30.4)	157 (62.8)	17 (6.8)				
Only team	20 (26.6)	50 (66.6)	5 (6.6)				

<sup>a</sup> = Cramer's V

Effects of dropout rates as a function of years of sport practiced in the past before dropping out were also analyzed and reported in table 17. The data showed both a greater general and a sport-specific dropout in males who practiced mainly team sports, compared to those who practiced mostly individual sports or equivalently individual/team sports. In contrast, a non-significant effect emerged in females who showed a neglectable difference between both general and sport-specific dropout rates in "equivalent years in individual/team" and "prevalent years in team sports" categories. Moreover, a significant effect emerged in the Italian students with a higher general and sport-specific dropout in "prevalent years in team sports", compared to the other years of practice categorized.

Conversely, a non-significant effect emerged in the Spanish students with a slight difference of general dropout in "prevalent years in team sports", in

comparison to “prevalent years in individual sports”. Furthermore, a higher sport-specific dropout emerged in those who had been practicing equivalent years in individual/team sport compared to the other practice years categorized (tab.17).

**Table 17.** Gender and nationality differences in general/no-dropout/sport-specific dropout rates as a function of years of sport type practiced in the past before dropping out.

Variables	General Dropout N (%)	No Dropout N (%)	Sport-specific dropout N (%)	$\chi^2$	df	p	Effect Size
<b>Years practiced in individual/team sports in the past</b>							
<b>Male</b>							
				60.19	4	.000	.111 <sup>a</sup>
1. Equivalent years in individual/team sports	24 (28.6)	51 (60.7)	9 (10.7)				
2. Prevalent years in individual sports	143 (17.1)	637 (76.3)	54 (6.4)				
3. Prevalent years in team sports	129 (32.4)	219 (55)	50 (12.5)				
<b>Female</b>							
				4.45	4	.348	.055 <sup>a</sup>
1. Equivalent years in individual/team sports	10 (35.7)	14 (50)	4 (14.2)				
2. Prevalent years in individual sports	178 (27.8)	393 (61.4)	69 (10.8)				
3. Prevalent years in team sports	24 (36.3)	33 (50)	9 (13.7)				
<b>Italian students</b>							
				49.69	4	.000	.124 <sup>a</sup>
1. Equivalent years in individual/team sports	29 (30.5)	56 (58.9)	10 (10.5)				
2. Prevalent years in individual sports	227 (19.5)	834 (71.6)	103 (8.8)				
3. Prevalent years in team sports	120 (33.5)	187 (52.2)	51 (14.2)				
<b>Spanish students</b>							
				3.17	4	.529	.061 <sup>a</sup>
1. Equivalent years in individual/team sports	5 (29.4)	9 (52.9)	3 (17.6)				
2. Prevalent years in individual sports	94 (30.3)	196 (63.2)	20 (6.4)				
3. Prevalent years in team sports	33 (31.1)	65 (61.3)	8 (7.5)				

a = Cramer's V.

A further analysis on dropout rates as a function of change/persistence in sport type practiced in the past before dropping out was also performed. The results reported in table 18, showed that the dropout rates increased in the male students who changed multiple sports of different type but not in those ones who

practiced multiple sport of one type. Conversely, a different trend emerged in females with the dropout rates very similar between those ones who were persistent in “only one sport” (individual/team) and those ones who changed “multiple sports of different type”. This latter effect was predictive of higher sport-specific dropout as it was in males. In addition, a further analysis showed a significant effect of general and sport-specific dropout from “multiple sports of different type” in Italian students, but did not in Spanish ones. A non-significant reverse trend was observed in the Spanish students with a wider general dropout from all sports when they persisted in only one sport (individual/team). Moreover, in opposition to Italian students, the practice of “multiple sports of one type” in Spanish students was predictive of sport-specific dropout (table 18).

**Table 18.** Gender and nationality differences in general/no-dropout/sport-specific dropout rates as a function of change/persistence in sport type practiced in the past before dropping out.

Variables	General Dropout N (%)	No-Dropout N (%)	Sport-specific dropout N (%)	$\chi^2$	df	p	Effect Size
<b>Change type (individual/team) and amount of sports</b>							
<b>Male</b>							
Only one sport	83 (17.5)	373 (78.7)	18 (3.8)	68.41	4	< .001	.159*
Multiple sports of one type	53 (18.2)	216 (74.4)	21 (7.2)				
Multiple sports of different type	170 (29.1)	334 (57.1)	80 (13.7)				
<b>Female</b>							
Only one sport	70 (33.7)	129 (62)	9 (4.3)	23.05	4	< .001	.125*
Multiple sports of one type	86 (24)	227 (63.5)	44 (12.3)				
Multiple sports of different type	58 (33.1)	88 (50.2)	29 (16.6)				
<b>Italian students</b>							
Only one sport	90 (17.8)	394 (77.9)	22 (4.3)	75.52	4	< .001	.151*
Multiple sports of one type	105 (21)	345 (69.2)	48 (9.7)				
Multiple sports of different type	191 (29.6)	355 (55)	99 (15.3)				
<b>Spanish students</b>							
Only one sport	63 (35.8)	108 (61.3)	5 (2.8)	13.77	4	.008	.125*
Multiple sports of one type	34 (22.8)	98 (65.7)	17 (11.4)				
Multiple sports of different type	37 (32.4)	67 (58.8)	10 (8.8)				

\* = Cramer's V

6.5.2.3. *The binary logistic regression analysis with demographic variables and sport habits on dropout categories*

Binary logistic regression analysis was performed to calculate the impact of demographic variables and sports habits on sport dropout categories. The models of analyses classified over 70% of cases in all dropout categories. Analyses showed a significant effect in the students with general dropout vs no-dropout (Category 1), [N analyzed =1887, N missing =363;  $\chi^2(6) = 97.41$ ,  $p < .001$ , Nagelkerke's R-square =.073 (7.3 %)]. Thus, the gender (.617), persistence in “only one sport” (.576), change in “multiple sports of one type” (.558) and sport type practiced in the past (.550) variables, showed to be significant predictors of general dropout phenomenon. Also the age (-.190) was significant and revealed a moderate effect. Furthermore, the nationality was marginally significant (.299), whereas gender effect showed a stronger impact on the dropout category 1 (app. 5).

Moreover, a similar significant effect emerged also in the students with no-dropout vs sport-specific dropout (Category 2), [N analyzed = 1568, N missing = 337;  $\chi^2(6) = 99.25$ ,  $p < .001$ , Nagelkerke's R-square =.115 (11.5 %)]. Therefore, the gender (-.640), persistence in “only one sport” (-1.468) and sport type practiced in the past (-.619) variables, showed a moderate impact on dropout category. In this dropout category (2) the nationality was non-discriminant (.256), change in “multiple sports of one type” (-.476) was marginally significant while the age (.269) showed a meaningful effect on the dropout process (app. 6).

Furthermore, the students with general vs sport-specific dropout (Category 3), findings revealed mainly non-discriminant effects [N analyzed = 721, N missing = 28;  $\chi^2(6) = 27.32$ ,  $p < .001$ ; Nagelkerke's R-square =.054 (5.4 %)]. Only the persistence in “only one sport” (-.902) variable was significant while nationality (.464), was marginally significant with a stronger effect on dropout phenomenon (app. 7).

*6.5.2.4. The binary logistic regression analysis with high schools curricula on dropout categories*

Further analysis was performed with binary logistic regression to calculate the impact of different high schools curricula on sport dropout categories. The models of analyses classified over 70% of cases in all dropout categories. The students with general dropout vs no-dropout (Category 1), a significant effect emerged [N analyzed = 2250, N missing = 0;  $\chi^2(3) = 246.65$   $p < .001$ ; Nagelkerke's R-square = .155 (15.5 %)].

Thus, Italian sport (1.936) and technical (-.474) high school curricula showed to be significant predictors of the dropout phenomenon. The sport one revealed a stronger impact, whereas Italian traditional high school curriculum was non-discriminant (-.028), (app. 8).

Further significant effects emerged in no-dropout vs sport-specific dropout (Category 2), [N analyzed = 1905, N missing = 0;  $\chi^2(3) = 86.41$   $p < .001$ ; Nagelkerke's R-square = .090 (9 %)]. Therefore, Italian sport (-.869), traditional (.963) and technical (.796) high school curricula showed an effect on dropout category, whereas Italian traditional was the strongest predictor of sport-specific dropout (app. 9).

Moreover, in the general vs sport-specific dropout (Category 3) a significant similar effect emerged [N analyzed = 749, N missing = 0;  $\chi^2(3) = 23.09$   $p < .001$ ; Nagelkerke's R-square = .044 (4.4 %)]. Thus, Italian sport (1.068) and traditional (.936) high school curricula showed an effect on dropout category, whereas technical high school was non-discriminant (.322) and the sport one revealed to be a stronger impact factor on sport-specific dropout (app. 10).

*6.5.2.5. Dropout rates and strategic learning skills association as function of age, gender, nationality and school curriculum*

As reported in table 19, an association was found of general and sport-specific dropout rates with affective–motivational strategic learning skills.

**Table 19.** Frequency of students with general/no-dropout/sport-specific dropout rates from sport as a function of critical values of strategic learning skills.

Variables	General Dropout <i>N</i> (%)		No-Dropout <i>N</i> (%)		Sport-specific dropout <i>N</i> (%)		$\chi^2$	df	p	Effect Size
<b>Strategic Learning Skills</b>										
Cognitive/Metacognitive										
Scales	No CL**	CL**	No CL	CL	No CL	CL				
C1	276 (22.1)	258 (22.5)	872 (69.9)	790 (69)	99 (7.9)	96 (8.3)	.262	2	.877	.010*
C2	360 (21)	174 (25.7)	1213 (70.7)	449 (66.4)	142 (8.2)	53 (7.8)	6.30	2	.043	.051*
C3	370 (23)	164 (20.9)	1100 (68.4)	562 (71.8)	138 (8.5)	57 (7.2)	2.95	2	.228	.035*
C4	211 (18.3)	323 (26)	855 (74.4)	807 (65)	83 (7.2)	112 (9)	25.61	2	.000	.103*
Affective/Motivational										
A1	393 (20.2)	141 (31.2)	1387 (71.4)	275 (61)	160 (8.2)	35 (7.8)	25.77	2	.000	.104*
A2	191 (18.4)	343 (25.3)	768 (74)	894 (66)	79 (7.6)	116 (8.5)	18.66	2	.000	.088*
A3	130 (19.8)	404 (23.2)	478 (72.7)	1184 (68.2)	49 (7.4)	146 (8.4)	4.54	2	.103	.044*
A4	369 (20.7)	165 (27)	1266 (71.2)	396 (64.6)	143 (8)	52 (8.4)	10.72	2	.005	.067*

\* = Cramer's V;

\*\*No CL: no criticality (below critical level) = "0"; CL: criticality (above critical level) = "1" (dichotomous variables)

As shown in table 20, these skills are associated with general and sport-specific dropout interactively with gender and nationality and independently of age. This pattern of association showed a more pronounced and significant progressive increment in general dropout rates, from none to all critical values in males and in Italian students.

Conversely, a less pronounced and non-significant effect in females and in Spanish students was found (table 20). The sport-specific dropout was non-discriminant in all categories. Further analysis showed a non-significant effect for sport dropout rates in cognitive–metacognitive skills both in Italian ( $p = .049$ ) and in Spanish students ( $p = .777$ ) and both in males ( $p = .138$ ) and in females ( $p = .223$ ).

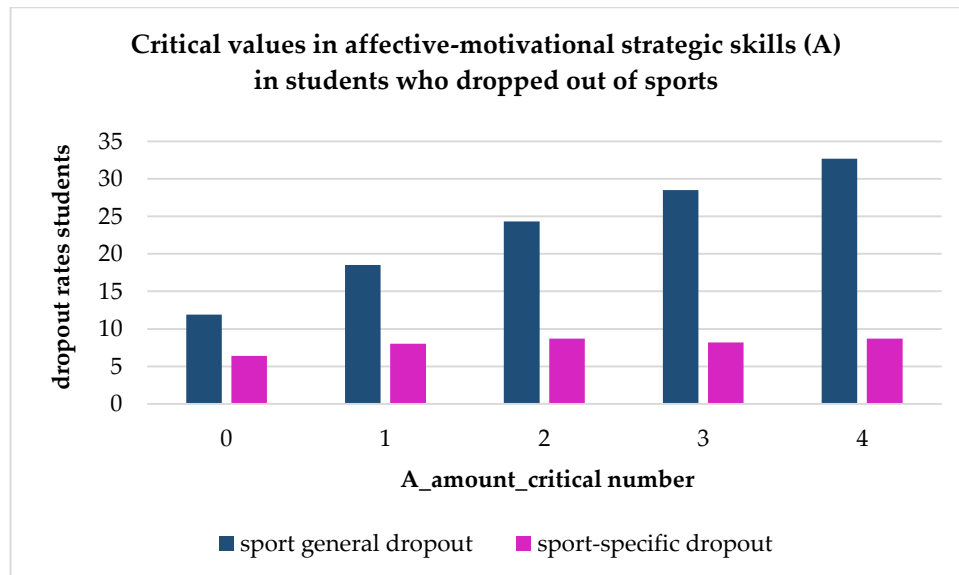
**Table 20.** Frequency of students who dropped out of sport associated to critical values of strategic learning skills as a function of gender and nationality.

Sample	Amount of critical values in affective-motivational skills (A)					Total N (%)	$\chi^2$	df	p	Effect Size
	0 N (%)	1 N (%)	2 N (%)	3 N (%)	4 N (%)					
<b>Gender</b>										
Male	11 (8)	90 (16.9)	111 (20.1)	82 (28.2)	16 (30.1)	310 (19.8)	35.03	8	<.000	.106*
Female	15 (18.5)	64 (21.6)	88 (33)	39 (29.1)	18 (35.2)	224 (27)	17.03	8	.030	.101*
<b>Nationality</b>										
Italian	15 (9.2)	107 (16.5)	141 (23.3)	95 (27.8)	28 (31.1)	386 (20.9)	47.84	8	<.000	.114*
Spanish	11 (20)	47 (26)	58 (27.2)	26 (31.7)	6 (42.8)	148 (27.1)	8.30	8	.404	.087*

\* = Cramer's V

As reported in figure 13 the overall association model showed an increase in the frequency of students with general dropout and in the number of critical values in affective–motivational strategic learning skills. This effect was less pronounced in students with sport-specific dropout ( $\chi^2=42.29$ ,  $p<.001$ , Cramer's  $V=.094$ ).

**Figure 13.** Percentages of Italian and Spanish students with general and sport-specific dropout from sport as a function of critical values in affective-motivational strategic skills (A).

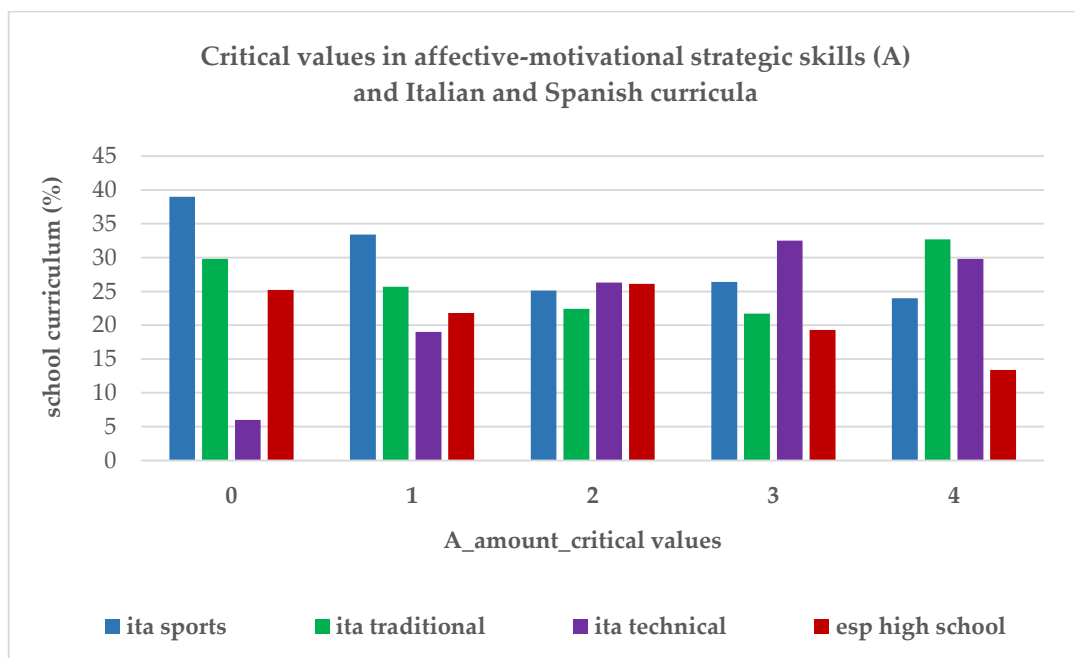




Additionally, further analysis of strategic learning skills associated with school curriculum was conducted. Findings revealed that these skills were associated interactively with both the Italian and the Spanish school curriculum. The overall association model shown in figure 14, displayed that the Italian students who attended sport high school curriculum presented a less pronounced increase from none to all critical values in affective-motivational strategic learning skills, in comparison to the students of the other Italian schools.

Conversely, the highest increase from none to all critical values was found in students who attended Italian technical high school, while a homogeneous trend of critical values emerged in Italian traditional high school. From the comparison of Spanish school curricula with all Italian ones, a discontinuous trend emerged whereas Spanish students showed a lower progressive increase of critical values in the highest categories of deficit ( $\chi^2=93.77$ ,  $p<.001$ , Cramer's  $V=.114$ ) (fig.14).

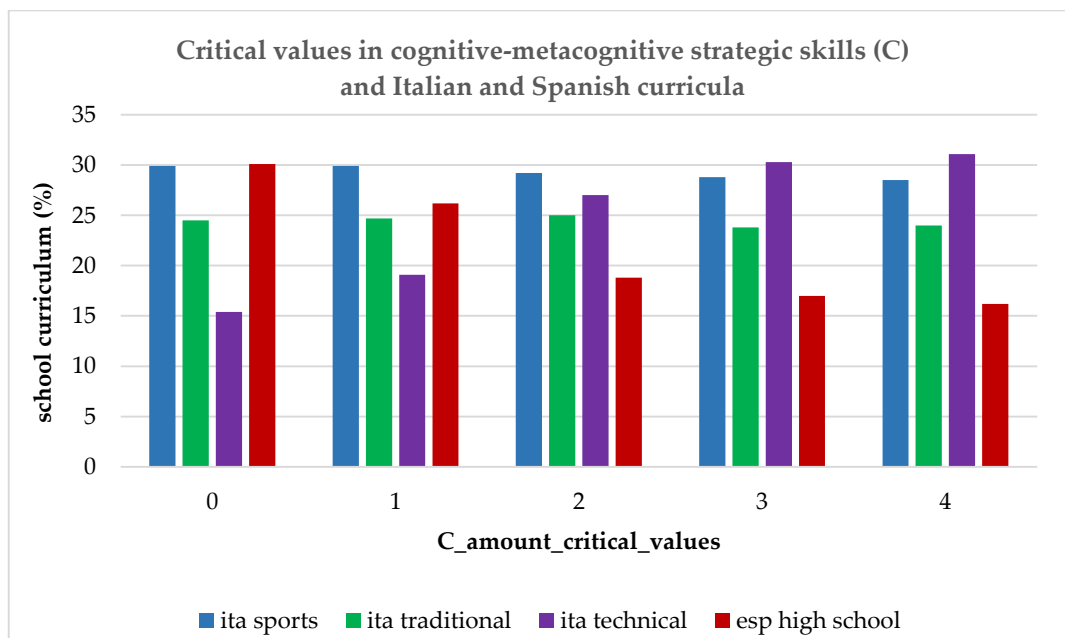
**Figure 14.** High school curricula as a function of critical values in affective-motivational strategic learning skills (A).



Moreover, further effects emerged in the association of cognitive-metacognitive strategic learning skills and the Italian and Spanish school curricula. Findings revealed a homogeneous trend of deficit from none to all critical values of these skills in the students who attended both the Italian sport and no-sport traditional curriculum, in comparison to the Italian ones who attended the technical high school (fig.15). In the last one, a progressive increment of deficit in the categories from none to all critical values of cognitive-metacognitive skills was found.

In contrast, a reverse trend of increase of critical values in all categories emerged in Spanish school, the lower the number of critical values was and the higher the frequency of students was ( $\chi^2=62.08$ ,  $p<.001$ , Cramer's  $V=.093$ ) (fig.15).

**Figure 15.** High school curricula as a function of critical values in cognitive-metacognitive strategic learning skills (C).



In addition, further analysis of the association of cognitive-metacognitive strategic learning skills with high school curricula as function of gender was performed (table 21). The findings revealed a significant effect in males and a progressive trend of deficit of cognitive-metacognitive skills from none to all critical values, that was more pronounced in the students who attended technical high school and less evident in the sports high school.

**Table 21.** Frequency of Italian and Spanish students with sport and no-sport high curricula as function of critical values in strategic learning skills.

Sample	Amount of critical Values in Strategic Learning Skills						$\chi^2$	df	p	Effect Size
	0 N (%)	1 N (%)	2 N (%)	3 N (%)	4 N (%)	Total N (%)				
<b>School Curriculum high schools</b>										
<b>Cognitive-metacognitive Skills (C)</b>										
<b>Male</b>										
Italian sports	65 (26.8)	132 (29.4)	119 (27.5)	91 (29.4)	40 (30.3)	447 (28.6)	32.11	12	< .000	.083 <sup>a</sup>
Italian traditional *	57 (23.5)	108 (24.1)	109 (25.2)	67 (21.7)	31 (23.4)	372 (23.8)				
Italian technical	52 (21.4)	114 (25.4)	134 (31)	107 (34.6)	43 (32.5)	450 (28.8)				
Spanish compulsory and upper secondary school	68 (28)	94 (21)	70 (16.2)	44 (14.2)	18 (13.6)	294 (18.8)				
<b>Female</b>										
Italian sports	74 (33.1)	83 (30.5)	72 (32.5)	24 (26.7)	4 (18.1)	257 (31)	23.85	12	.021	.098 <sup>a</sup>
Italian traditional *	57 (25.5)	70 (25.7)	54 (24.4)	28 (31.1)	6 (27.2)	215 (26)				
Italian technical	20 (9)	24 (8.8)	42 (19)	14 (15.5)	5 (22.7)	105 (12.7)				
Spanish compulsory and upper secondary school	72 (32.2)	95 (35)	53 (24)	24 (26.7)	7 (31.8)	251 (30.3)				
<b>Affective-motivational Skills (A)</b>										
<b>Male</b>										
Italian sports	53 (38.7)	182 (34.1)	138 (25)	63 (21.7)	11 (20.7)	447 (28.6)	72.32	12	< .000	.124 <sup>a</sup>
Italian traditional *	40 (29.1)	134 (25.1)	118 (21.4)	64 (22)	16 (30.1)	372 (23.8)				
Italian technical	12 (8.7)	126 (23.6)	175 (31.8)	116 (40)	21 (39.6)	450 (28.8)				
Spanish compulsory and upper secondary school	32 (23.3)	91 (17)	119 (21.6)	47 (16.2)	5 (9.4)	294 (18.8)				
<b>Female</b>										
Italian sports	32 (39.5)	95 (32)	67 (25.1)	49 (36.5)	14 (27.4)	257 (31)	30.07	12	.003	.110 <sup>a</sup>
Italian traditional *	25 (30.9)	79 (26.7)	65 (24.4)	28 (20.9)	18 (35.2)	215 (26)				
Italian technical	1 (1.2)	32 (10.8)	40 (15)	22 (16.4)	10 (19.6)	105 (12.7)				
Spanish compulsory and upper secondary school	23 (28.3)	90 (30.4)	94 (35.3)	35 (26.1)	9 (17.6)	251 (30.3)				

a = Cramer's V; \* Scientific, applied sciences, linguistic senior high school; \*\*Eso;\*\*\* Bachillerato (humanities and social sciences, science, arts), intermediate vocational training (language)

On the other hand, in Spanish males emerged a reverse trend: the lower the number of critical values was, the higher the frequency of students was. On the contrary, a non-discriminant effect emerged in females (table 21).

Most importantly, the association of critical values of affective–motivational strategic learning skills with high school curricula was found. As reported in table 21, a significant effect revealed that both Italian males and females who attended a technical high school showed a progressive trend from none to all of critical values in comparison to both the other Italian and Spanish curricula.

#### *6.5.2.6. The binary logistic regression analysis with strategic learning skills on dropout categories*

Binary logistic regression analysis was performed to calculate the impact of strategic learning skills on the sport dropout categories. The models of analyses classified over 70% of cases in all dropout categories. A significant effect in the students with general dropout vs no dropout emerged (Category 1), [N analyzed= 2196, N missing =54;  $\chi^2(8) = 87.76$   $p < .001$ ; Nagelkerke's R-square =.058 (5.8%)] with a higher impact of A1 (-.085) and A2 (.072) affective-motivational factors on dropout phenomenon (app. 11). Moreover, the C4 cognitive-metacognitive factor was marginally significant (-.052). Conversely, a non-significant effect in the students with no dropout vs sport-specific dropout was displayed (Category 2), [N analyzed=1857, N missing =48;  $\chi^2(8) = 4.52$ ,  $p = .807$ ; Nagelkerke's R-square =.005 (0.5%)] (app. 12). Additionally, further findings (Category 3) revealed a marginal effect in the students with general vs sport-specific dropout [N analyzed= 729, N missing =20;  $\chi^2(8) = 21.01$ ,  $p = .007$ ; Nagelkerke's R-square =.041 (4.1%)] with a stronger impact of A1 (-.08) affective-motivational factor on dropout process (app. 13).

### 6.5.2.7. Reasons for sport persistence/abandonment

Further frequency analysis was conducted on the reasons for the persistence/abandonment of sport practice. As showed in table 22, the first three reasons declared by students were reported. Findings revealed that “being fit” was a widely supported reason to sustain sport persistence both in males and females and in Italian and the Spanish students. Moreover, “I like to improve myself” emerged as a reason to persist in the sport practice in the Italian students and in contrast, in Spanish ones “it’s healthy” and “for fun and to pass the time” were displayed both in males and females. “Relaxing stress” emerged only in females’ sample but not in males’ whereas “I like competition” emerged only in Italian males. On the other hand, the most common reason for sport abandonment was “Lack of time” and subsequently “school commitments”. “I have other interests” is also a reason that emerged in the overall Spanish sample and in Italian females, but did not in males. In turn, only in males’ sample it emerged that “it has ceased to interest me” was a reason to dropout of sport.

**Table 22.** Absolute frequencies and percentages of reasons for persisting / dropping out of sport in Italian and Spanish students.

Reasons	ITA		ESP	
	M N (%)	F N (%)	M N (%)	F N (%)
<b>Sport persistence</b>				
I like competition	441 (15.2)			
For fun and to pass the time			89 (13.3)	62 (13.5)
I like being fit	412 (14.2)	171 (13.3)	110 (16.4)	66 (14.4)
I like to improve myself	448 (15.5)	210 (16.3)		
It's healthy			97 (14.5)	69 (15)
Relieving stress		235 (18.2)		69 (15)
<b>Sport abandonment</b>				
I have other interests		45 (11.5)	28 (18.9)	32 (13.9)
It has ceased to interest me	112 (15.2)		22 (14.9)	
Lack of time	140 (19)	89 (22.8)	39 (26.4)	65 (28.1)
School commitments	150 (20.4)	95 (24.4)		47 (20.3)

## 6.6. DISCUSSION

### 6.6.1. Factors associated with the process of dropout from sport

In this study, the main goal was to evaluate the association between early dropout from sports - general and sport-specific - and strategic learning skills relevant to both sport and academic career in Spanish and Italian students who attended senior high school. It was expected that a low (critical) value in the strategic learning skills functional to academic performance could be a factor related to the early sport dropout and, conversely, that a high value of these skills could be related to the persistence in sport.

In addition, both sports-enhanced and other no-sport Italian and Spanish high school curricula were analyzed to check if an increased focus on sports could be an impact factor on dropout phenomenon from sports or persistence in it. Furthermore, behavioral habits in the sports practiced (current and past), years of persistence in a given sport, or switching to another sport - of similar or different type and reasons for persisting/abandoning sports, were also analyzed as covariates of sport persistence and of the different types of dropout (general and sport-specific). In addition, the individual and joint role of gender, age, nationality and high school curricula with the strategic learning skills, the persistence in/changing sports and the years practicing with the different types of sports (team, individual and individual/team) were analyzed. The results of this study are largely consistent with the literature and add new information on the importance of strategic learning skills, functional in other domains associated with the dropout sport process.

## 6.6.2. Dropout phenomenon in Italian and Spanish students' effects:

### 6.6.2.1. Age

A significant effect emerged in age compared to the first results found in the previous study conducted on the subsample of 614 Italian and Spanish students (84). Likely the whole sample size (N=2452) allowed a complete analysis of the different age clusters and their comparison. The findings of this study revealed that young people dropped out of sport mainly during their teenage years ( $13.9 \pm 2.0$  yrs.), whenever the peak of abandonment increased during adolescence (169). Likewise, this trend confirmed the outcome emerged in the pilot study performed on the smaller subsample and it was consistent with previous literature (38, 42, 170, 171). In addition, according to Carlman, Wagnsson, and Patriksson's study (46) a further outcome revealed overall that the percentage of older students dropped out of sport more widely in the general sport domain, rather than in the sport-specific one, although a remarkable sport-specific dropout in the 17-year-old subsample was found. However, a certain agreement with the reported evidence in the study by Eime et al. (172) on similar tendency of older students (11+ years) to dropout of sport-specific, allows to frame this trend emerged in this study in a reference theory. Searches stated that for older adolescents being physically active it might be a necessity related to maintain optimal health. For this reason, some youth may decide to dropout of sport but to continue being active in another less strenuous sport or physical exercise and aimed at maintaining a correct lifestyle and having fun (173). This tendency is confirmed by several studies that displayed that the sports practiced in adolescence are positively associated with participation in adulthood (174, 175). This suggests that to dropout of a specific sport but to continue in other organized and non-organized ones can be a guarantee of persistence over the years.

An opposite trend emerged in Carlman, Wagnsson, and Patriksson (46) who stated that in their sample, sport-specific dropout was highly represented in those who dropped out before the age of 11yrs., and that this effect decreased in older

than 13 yrs. students. Also Butcher et al. (176) affirmed that among the students who dropped out of sports, the 70% continued later in one or more sports. This difference in results is likely due to the age of the sample – from 11 to 15 yrs. in the aforementioned studies and 14 to 18 yrs. in this study. Perhaps, the younger age of the sample warranted a greater mobility among youth who switched multiple sports due to sampling years to try different sports (177, 43).

Conversely, in adolescence (specializing and investment years, 13 – 15 and 16+ respectively), people who started playing a new sport beyond the need to have fun, want to feel competent and achieve successful performances. These factors foster the self-motivation and persistence in the sport practice over time (178). When that does not happen, the youth tend to switch sports to perform successfully at a less intense level with less pressures and demands to manage (46).

#### 6.6.2.2. *Gender*

An additional significant effect highlighted a wider general and sport-specific dropout in females than in males. This broader sport dropout in females than in males confirmed the result of the first pilot study and it is in line with evidences reported by some authors (179, 172, 180, 181, 173). They stated that males were more active than females and that these ones had the tendency to change/quit sports showing higher dropout rates over time (182). However, this result is in disagreement with Carlman, Wagnsson, and Patriksson's study (46), where no gender effect on both general and sport-specific emerged. Likely, over the sampling years, the mobility process to find the most appropriate sport is similar in both males and females and this ensures the engagement in sport activity in both gender clusters (183).

On the other hand, females' tendency to be less active than the males is confirmed as a global gender difference (158). Additionally, many adolescent females are not attracted by the competitive nature of sports. They often do not perceive themselves as competent enough (184) to aspire to have a role in a team (185) and prefer to change sport type to find more socializing situations over the years (172). Moreover, the enjoyment in females seems to be the most important factor for ensuring persistence in sports practice rather than the perception of



competence, in opposite to what was found in males' patterns (186). Further research should also explore the role of gender stereotypes in sport dropout in relation to the closest environment (father, mother, sibling, friends), because it seems that female adolescents receive less encouragement to practice sport than males do (187, 188). Additionally, the self-perceptions of one's value in reference to sport performance and the construction of gender identity with the gender characteristics of a sport should be investigated (189, 190, 191).

#### 6.6.2.3. *Nationality / school curriculum*

A significant effect for nationality was found and it confirmed what was emerged in the pilot study. Since there are no other comparable findings in the literature on sports dropout in Italian and Spanish students, this effect can be explained through the comparison between Italian and Spanish school curriculum. In the two cross-country studies, the results showed a less pronounced dropout in the sports high school rather than in the other Italian and Spanish high schools. The sports high school is currently a curriculum that was started up in Italy but it is not comparable with other curricula in Spain. This is one of the reasons that could explain why, among the Italian students of this sample, that largely included students in the sports senior high school, sports dropout was less pronounced than it was among the Spanish counterparts. This finding suggests that the sports high school curriculum may have a favorable impact on sports persistence. Further research should address the hypothesis that targeted methodological strategies in this high school curriculum could help student-athletes to pursue their dual careers (147). In addition, by comparing Italian high schools with no-sport curriculum, a higher general dropout in the students who attended technical school emerged, while a greater sport-specific dropout emerged in those who attended traditional high schools. Most likely, the scholastic obligations and pressing demands of the traditional Italian high school foster the students to dropout of competitive sports (192, 182) and choose to re-engage in other sports activity at less stressful levels. On the other hand, during adolescence the athlete may also experience the transition to elite sport (193, 194, 195, 196). This phase is experienced as a very stressful event (197) to deal with, especially when it is combined with school obligations (198).

These life changes represent highly critical moments for an adolescent and can lead to school and sport burnout and consequently to early dropout both in school and sport domain (199, 200, 201, 131).

#### 6.6.2.4. *Sports habits*

According to Bradley, McMurry, Harrell, and Deng (202), a result of this study revealed that males exercise more in team sports, compared to females who practice more the individual ones. Moreover, in line with Mateo-Orcajada et al. (187), Azevedo et al. (203) and Hill and Cleven (204), further results of this sample showed that males choose more challenging, intense, power/contact-sports such as football, basketball, boxing/kick boxing and in contrast, females prefer non-competitive and no-contact sports such as gymnastic, dance, volleyball, swimming and other fitness activities. These results showed a general tendency for males to choose traditionally male-related sports (more aggressive) and for females to choose female-related ones (softer and kinder). This is consistent with literature (205, 206), which displayed that some sports are identified as masculine/feminine because they are characterized by the prevalence of some motor skills over others (e.g., strength/power vs. flexibility/balance, respectively) and by sport-specific characteristics (e.g., extreme sports/risk vs. less physical engagement/more socializing, respectively). Furthermore, gender-related preferences are present through all domains of life from early age and this may orient the sport choice by childhood until adulthood (207). Since these gender-related interests/preferences may change over the years, to understand and to track them could enhance the participation and adherence of adolescents in sports (208). Furthermore, targeted strategies would be needed to encourage sports participation in “gender-neutral sports” (opposite-gender sports) and this could foster a more balanced approach to sports both in males and females (209, 210).

A further result of this study revealed some differences between males and females in both Spain and Italy concerning adolescents’ sports preferences. In any case an orientation towards gender-related traditional sports was confirmed as a whole. The most practiced sports were very popular and widely practiced by the population globally although some differences were found in both countries such

as tennis in males and gymnastic in females. This difference is consistent with some researchers (187) who stated that the influence of factors that differ in country and in society at sociocultural/socioeconomic level and environmental influences might affect the sports practice and have an impact on sports habits. In addition, other interpersonal and intrapersonal factors, such as parents/relatives, age, gender, motor skills level, perceived competence (211, 212, 213, 214, 204) and one's socially recognized gender identity (215) may influence the preference and the choice of practicing sports during adolescence.

A further result of this study showed that team sports practiced in the past were interactively associated with gender and this was consistent with Butcher et al. (176) and Rottesteiner et al. (216) findings. According to Rottesteiner et al. (216) female subjects showed a wide dropout rate from team sports due to issues linked to socialization (social recognition and low self-perception of competence) and to a lack of integration in teamwork. On the other hand, the sport-related factors mostly associated with the process of dropping out of team sports are very common and they may be related to the team climate, the relationship with the coach and with significant others (parents, teammates, siblings), (42). Furthermore, some researchers (217, 218) affirmed that the most abandonments are characterized by problems with the coach and a negative coaching style. Although coach-related issues are common as much as in individual sports, also Barnett et al. (219) stated that programs focused on improving the coach-athlete relationship reduced the dropout rate in baseball players.

A further significant association of the team sports and general dropout with nationality was found, although the larger number of Italian students recruited in this study could account for the higher dropout rate in this cluster. Since there are no cross-country studies in Italian and Spanish adolescents, it is not possible to compare these results directly. Further research could be addressed to investigate the impact of different socio-cultural contexts on sports habits. Likewise, an additional finding revealed overall a greater trend of sport-specific dropout in individual/team sports cluster in all the sample categories. This result confirms that to practice multiple sports (sport diversification) is not linked to permanent dropout, but rather it orients and promotes a higher performing sport choice that

may lead to effective sport specialization and investment in the sport career over time (19).

Further results of this study showed that in Italian males and Italian students, years of sports activity practiced mainly in team sports were significantly associated with higher dropout rates than in the other two categories of sports (individual and individual/team). This confirms the outcome of this study that showed a higher dropout from team sports. These findings disagree with Sabiston et al. (220), who stated that the prolonged participation in team sports is a protective factor against the depressive symptoms, compared to the experienced one both in an individual sport and/or in a jointly practiced individual and team sport. Moreover, the socializing nature of the team sport provides opportunities for social interaction and promotes the acquisition of life skills (221, 222) and this impacts positively on mental wellbeing, especially in adolescence. In addition, identity and social acceptance (223), self-esteem (224), sense of social responsibility towards others (225), shared goal attainment (226) and emotional self-regulation (227) contribute to improve health-related quality of life (228). Despite these positive characteristics, the problems of affiliation and team management may become negative factors affecting sports participation and persistence (229). Indeed, Barnett et al. (219) stated in their study focused on coach-athlete interactions, that team successes/in-successes were not significantly associated both in the basketball players who quit, and in those who returned. Conversely, it emerged that the main critical issues linked to climate team were related to team-building. In summary, the results of this study revealed a wider preference for team sports both in the current practiced sports and in the past practiced ones, although these led to the dropout process.

On the other hand, the few addressed studies do not allow direct comparisons between sport types (team, individual, and individual/team) associated with sport dropout (42, 229). Indeed, most of these studies included the reasons linked to abandonment of sport as the main mediation factors to analyze the impact of sport type on the dropout process. Further research should be addressed to study the association between team sport, individual sport and individual/team sports jointly practiced with the dropout rates. Moreover, to include the individual and joint role of demographic (age, gender, nationality),

social (role of significant others) and sports habits (years of practice and level of sport) variables as the mediation factors may help to understand better the sport dropout phenomenon.

A further aim of this study was to analyze students' sports habits in persistence in/switching to another sports type as an impact factor in the dropout process. A gender effect confirmed the results emerged in the previous study. Males showed a lack of persistence in the same sport practiced (individual/team) and this was widely associated with general and sport-specific dropout. During the sampling years (about 12 years of age), the sports practice is oriented towards fun and the search for the most suitable sport. This enhances motivation and sustains participation (230). Later, in adolescence (specialization and investment years), the persistence in sport for males is linked to the achievement of personal goals and successful performance. This develops motivation, pursuit of individual interest and capacity to re-engage in sport (230). It is likely that performance-oriented sports practice motivates males to persist in sporting activity as long as they succeed in excelling and winning (67). On the other hand, the greater the enjoyment in sporting competitions is, the greater the increase in enjoyment in sport training and in persistence in sport over time are (231).

An opposite trend emerged in females, who showed a negligible difference of dropout rates between "only one sport" and "multiple sports of different type" categories. Females have a more process-oriented approach than a performance-oriented to sport and a stronger motivation to learn different skills (232). This might make females more persistent in sport practice if they practiced different types of sports without a primary performance goal. Moreover, the gender effect detected in sport-specific dropout could be due to the search for new fun and socializing sports activity for females and challenging/performing for males (187, 203, 233). On the other hand, females might dropout more than males do also due to a weak perception of their own competence associated with the sport demand and pressure (35). In fact the females who perceive themselves as athletic are more likely to maintain participation in sports (234).

A further nationality effect showed some differences in Italian and Spanish students' sports persistence. Although the socio-cultural contexts of Spain and Italy present similarities, the difference in the adolescents' sports habits can affect the

dropout from sport definitively/no-definitively. Spanish students are more persistent in the practice of only one/multiple sports of only one type. It seems that they are more oriented to play sport for fun and for passing the time and this keeps high interest and motivation (235). Conversely, a lack of persistence in the same sport suggests that the sport experience is neither gratifying nor stimulating and this leads to a loss of interest (236). However, this could be also related to the context (237) and the technical and methodological choices of the coach (43). On the other hand, especially in adolescence, different interests/needs to experience other roles and activities may change the priorities and lead to choices that cause sport dropout even if the sport experience was positive (216).

#### *6.6.2.5. Early sport dropout and strategic learning skills association*

The descriptive analyses performed on the covariation factors (demographic variables, high school curriculum, sports habits) that could have a potential impact on the sport dropout process, highlighted relevant elements to the study of this phenomenon. However, the most important result of this study concerned the association between the different types of sport dropout and strategic learning skills in the non-sport domain. Indeed, an association between the sport dropout and the affective-motivational dimension emerged, but not in the cognitive-metacognitive one and this confirmed the results of the previous pilot study (84).

The lack of literature on strategic learning skills associated with sport dropout does not allow direct comparisons. However, a certain agreement with the reported evidence on similar skills and maladaptive sport conducts (burnout profiles) allows for the framing of the object of this study in a reference theory. A condition of sport/school exhaustion related to chronic stress can identify a burnout profile. Since sport and school burnout have been studied together (131), it is hypothesized that the burnout process in the two domains may be due to a lack/insufficient level of personal competences common/similar to the strategic learning competences focused in the present investigation. This suggests a parallel between some competences, such as the resilience similar to the concept of volition, addressed in the present study, and the phenomenon of burnout in sport that has points in common with the sport dropout investigated here. Evidences from the

literature show that a low level of resilience-related skills (131), a high level of anxiety (48) and a low perception of competence (47) are related to a higher risk of dropout from sport. The critical level of these skills represents a risk factor comparable to the critical value of affective-motivational strategic learning skills found in this study. In contrast, the athletes with an internal locus of control are more likely to exercise regularly (238), feel that their skill level is appropriate and tend to be more independently motivated towards their sport than the athletes who dropout are (239).

In any case, the association between affective-motivational dimension and sport dropout found in this study was wider in the general dropout rates and less pronounced in the sport-specific. This leads us to hypothesize that students with sport-specific dropout could have a higher level of strategic skills that allowed them to re-orient personal choices, to re-engage in another sport activity and to be persistent in it after having dropped out.

Further association between affective-motivational strategic learning skills and school curriculum revealed a higher number of criticality values in affective-motivational skills in students attending technical high schools and this confirmed the higher dropout rates in this type of high school emerged in this study. In contrast, a lower dropout rate in students attending sport high school showed a lower number of criticality values. These results present similarities with a previous Italian study (240), which stated that Italian students attending traditional high school are more persistent in the sport practice than those who attend technical high schools, although the study did not consider the sport high school. This suggests that strategic learning competences may be a linking element within these associations and be functional as protective factors in preventing sport dropout. Moreover, these results are consistent with Zimmermann (101) and Muñoz-Bullón and Sanchez-Bueno (241), who affirmed that sport and school performance are connected. Therefore, when the students' dropout of sport, they do not benefit from the positive effects of sport on school performance (23, 242).

Further associations between affective-motivational and cognitive-metacognitive strategic learning skills and the school curriculum as a function of gender emerged only in the students attending Italian technical school, but not in the other Italian high schools and the Spanish ones. Since cognitive-metacognitive

skills are significantly associated only with the school curriculum but not with dropout process, this suggests that, the type of curriculum of senior high school may be directly linked to the process of the development of these skills. In contrast, as affective-motivational strategic learning skills are associated with the sport abandonment process, these ones may be a relevant and functional impact factors in more domains.

On the other hand, this is consistent with Zimmermann's theory (101) who declared that the self-regulative processes present similarities in more settings where people experience themselves. In addition, the development of affective-motivational strategic learning skills can have a positive impact on some functional aspects of the learning processes (101). Specifically, the development of these skills improves the ability to select the most effective learning objectives and strategies and the decision-making process to monitor and evaluate the progress achieved. The enhancement of these skills allows to commit and to persist over time to achieve goals successfully (54). Not to be able to know how to cope with life transitions in sports, as well as in school and work, can foster maladaptive behaviors and have a negative impact on sports habits (35). The improvement of the learning processes fosters positive sports experiences and this may promote and support long-term sports participation and contrast the phenomenon of early dropout. Moreover, the results of this study are in line with the literature that shows that self-management of socio-cognitive strategies (e.g., goals, plans and acts), similar to the competences addressed in this study, can operate as mediators in the association between self-efficacy and physical activity / sports training in order to achieve goals and promote sporting persistence (135). Furthermore, personal characteristics, personality traits, orientation capacity and willpower are factors that contribute to cope successfully with critical situations, such as dropping out of school or pursuing a sports career (3, 243).

Since the lack of literature on strategic learning skills associated to different school curriculum does not allow direct comparisons, further researches should investigate other potential socio-cultural factors of mediation that can lead to these differences. Furthermore, Spanish and Italian students attend an unlike educational time due to a different school system and have a various school transition time. Some of the Spanish students recruited in this study were at the



end of compulsory secondary school (ESO) which lasts for four years; others attended bachillerato senior high school, lasting two years. The Italian students attended senior high school that lasts for five years. This diversity in the school curriculum could have an unlike influence/pressure on young adolescent students and activate personal resources and coping strategies (244, 245), functional to face future-oriented choices. This concept is consistent with Monteiro et al. (35) who affirmed the necessity to pay particular attention during periods of change that young experience, also during sport transitions. Indeed, huge conflicts can also occur during the persistence in sport practice and not only in schooling. The cross-sectional studies comparing the different type of Italian and Spanish schools could help to understand the effect of wider critical values of strategic learning skills emerged in technical high schools but not in other Italian and Spanish schools. This result could be due to the structure of the curriculum or to the low capacities level of the students who choose it or to other socio-economic and cultural factors. On the other hand, some studies (240) reported that the cultural status of parents influences both the level of life expectancy and the persistence in sport. Indeed, a higher cultural level of the family affects the length of the educational path, the pursuit of academic achievement and sport persistence (240). This suggests that students attending Italian technical schools could have a low-medium family cultural background in comparison with their peers attending other high schools.

These results encourage studies aimed to investigate the association between strategic skills and dropout from sport and with school curricula in a longitudinal manner. Basing on the cross-sectional evidence presented in this study, it can be hypothesized that to develop personal skills common to the sport and school contexts may be crucial to achieve successful performance in both domains. In the same way, a functional potential of strategic skills and personal resources may prevent the maladaptive consequences, such as the burnout and the dropout as a behavioral aspect of a broader maladaptive profile.

In line with Camiré, Trudel, and Forneris (246), it is hypothesized that to acquire useful skills in both sport and school contexts, a functional setting common to both domains may be favorable. Since these are interconnected (131) and the strategic learning skills addressed in this study are transferable and general (101, 54), their integration into the learning processes would be appropriate (247). This

process, started at the early school age, may help to capitalize on these skills throughout life and to achieve performance goals in sport as well.

Further results showed that the strategic learning skills and dropout rates were interactively associated with nationality and gender but not with age. These data suggest that other covariation factors may intervene in the sport dropout process of males and females and Italian and Spanish students. This last aspect deserves an analysis of the potential intrapersonal, interpersonal, cultural and social factors that may underlie the differences observed in different countries. Otherwise, the imbalance in the sample size between Italian and Spanish male and female students might have caused an insufficient power in the case of the Spanish and the female sample, thus not allowing us to draw definitive conclusions on the differences between countries in sport dropout.

#### *6.6.2.6. Reasons for persisting/abandoning sports*

Although the identification of motivations for persisting in/dropping out of sport was not one of the main aims of this study, their identification revealed additional factors related to the persistence/abandonment of sport in adolescents.

The results of this study highlighted that the motivations in support of the sport practice were in line with previous studies (248) and confirmed a goal orientation, especially in males. According to Portela-Pino et al. (249), Moreno et al. (250) and Kilpatrick et al. (251), it seems that males are more persistent in sports if the sport practiced allows them to face challenging situations, asserts their competence and desire to win. Furthermore, in line with Rottesteiner et al. (216), Moreno et al. (250), Cockburn and Clarke (252) and Rios et al. (253), a tendency emerged in the females who engaged in sport to improve fitness and mental and physical well-being rather than for reasons aimed at competition and performance. To look for this type of sport activity could confirm the higher dropout rates in females. They often change sports to practice more relaxing and enjoyable physical-sporting activities with more opportunities to socialize, without necessarily having to assert themselves in a sport (254). This result is in line with the study of Roman et al. (182) which confirms the lack of persistence in the sports practice of females, emerged in this study. Moreover, the cross-country comparison displayed that

Spanish students revealed a healthy tendency to practice sport. This might be linked to the larger sample of Italian students, part of whom attended the sports high school where it is the primary performing objective.

In line with Carlin et al. (255), Molinero et al. (42, 256), Moreno et al. (34), “Lack of time” and subsequently “school commitments” and “I have other interests” were widely frequent reasons linked to sport abandonment. These results are consistent with Bussmann (257), Molinero et al. (256) and Pato et al. (147) and confirm that students who are also engaged in sport career find it difficult to manage their time between sport and school commitments. The lack of support in organizing training and school commitments often leads these student-athletes to dropout of their sport careers early and focus solely on school, with significant health consequences. On the other hand, during adolescence, young people are also attracted by other more fun and disengaged interests (e.g., going out with friends, having a partner). In addition, the training programs that are oriented only to results and competition and not to enjoyment (19) can also overload the adolescent with pressure and performance anxiety (43), leading him/her to early withdrawal from sport.



## **VII - CONCLUSION**



## VII - CONCLUSIONS

The complexity of the dropout phenomenon displayed that more interplaying factors of covariation, such as cultural and personal characteristics and sport habits, can contribute independently and jointly to the different types of dropout (general and sport-specific), (258). On the other hand, the factors that can lead to dropout from sport can be deal with adequate personal resources and coping strategies. These interrelationships have to be considered in order to develop targeted dropout prevention strategies from an early age. Therefore, school and sport represent appropriate and meaningful contexts (259) where young people can live relevant experiences (260).

This study showed that strategic affective-motivational learning skills are functional for learning and for both sport and non-sport life domains and can play a role in the sport dropout process in young people. Consequently, school and sports curricula should include cross-education objectives that may also include a focus on life skills in addition to discipline-specific objectives. By these experiences, young people can learn strategic learning skills as well as any other life skills that cannot be learned automatically (136). This could stimulate a greater participation of young people in sport career, optimize the performance and prevent the dropout from sport with positive consequences for the identification and the promotion of talent. Specifically, processes of self-reflection on the strategic learning skills should be encouraged in young people from an early age. This can help the student-athlete to develop self-determination and self-regulation, in order to be able to self-monitor, to evaluate the own learning progression, to orient him/herself in the study and sport and to build a successful path over time.





**VIII - LIMITATIONS AND  
FUTURE PERSPECTIVES  
OF THE STUDY**



### VIII - LIMITATIONS AND FUTURE PERSPECTIVES OF THE STUDY

This study is not without limitations, although the large sample size (N = 2452) and the stratified sampling ensured its representativeness. The homogeneity of a prevailing socio-economic status of the selected urban districts and schools was within the limits of generalizability for young people living in different socio-economic contexts. This similarity allowed attenuating the influence of the potential of the main socio-economic covariates that may typically influence young people's physical activity and sporting habits and compare differences between countries and between different school systems and their impact on sporting habits.

However, a more balanced sample through countries could allow a more consistent interpretation of the association between sports dropout and strategic learning skills and establish gender and cross-country differences. This would exclude any inhomogeneity that might have compromised the possibility to detect the strength of this association in the smaller sample of the females and the Spanish students. On the other hand, a more gender-balanced sample would also allow a more consistent interpretation of the gender effects on the sport practiced in the present/past and on the motivations for the persistence/abandonment of sport.

This study is cross-sectional and therefore does not allow to determine the causality. However, the findings encourage intervention studies, aimed at clarifying the causal relationship between the strategic learning skills and the different types of sport dropout, sport participation and school curriculum, and the role played by age, gender, nationality, type and years of sport played and motivations for persistence/abandonment. Further positive associations between the dropout and the level of competition, frequency, duration and period of training should be investigated as other interplaying covariation factors for the dropout phenomenon. Finally, this study was only conducted in two cultural contexts, Spain and Italy, and within their specific school contexts. It would be important to implement this study in the broader multinational cultural contexts.



## **IX - REFERENCES**



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# **X - APPENDIX**



## APPENDIX 1. Questionnaire CAPAFD in Spanish language.

**C.A.P.A.F.D****N° Cuestionario** .....**Cuestionario para el análisis de la motivación y la práctica de la actividad físico-deportiva (adaptado)**

*Este cuestionario, con fines de estudio, trata la actividad física y deportiva practicada por los alumnos de la Educación Secundaria Obligatoria fuera del horario escolar. Además, investiga las principales motivaciones para apoyar un deporte practicado en el tiempo y sus posibles causas de abandono prematuro.*

**Recuerda:** no hay respuestas correctas o incorrectas. **Contestas todas las preguntas con honestidad y precisión, ya que esto es muy importante.**

**1. DATOS GENERALES**

- 1.1 Edad..... años cumplidos      1.2 Género    M     F       1.3 Clase.....
- 1.4 Colegio frecuentado: .....
- 1.5 ¿A qué edad has empezado a practicar un deporte? ..... años
- 1.6 ¿Estas actualmente inscrito en una Federación y/o Asociación deportiva?      Sí     No
- 1.7 En el pasado ¿Te has inscrito en una Federación y/o Asociación deportiva alguna vez?      Sí     No
- 1.8 ¿Actualmente practicas alguna actividad física o deportiva?  
Sí , ¿cuál? .....      No
- 1.9 En el pasado ¿Has practicado alguna actividad físico-deportiva diferente de la que haces actualmente?  
Sí     No
- En caso **afirmativo** ¿cuál/cuáles? a) ..... por cuanto tiempo.....  
b) ..... por cuanto tiempo.....  
c) ..... por cuanto tiempo.....
- 1.10 ¿Has dejado de practicar deporte? Sí  a la edad de..... años, NO  (*si has respondido SI vas a la pregunta 2.6*)

**2. ACTIVIDAD FISICO - DEPORTIVA**

- 2.1 ¿Cuántas veces en los últimos 12 meses has participado a alguna competición oficial (carreras, torneos, campeonatos)?  
(Indica el número de veces para cada respuesta)
- Escolar .....  
Provincial .....  
Regional .....  
Interregional.....  
Nacional .....  
Internacional.....
- 2.2 ¿Cuántos días a la semana practicas actividad deportiva, además de la clase de educación física?  
5 días o más a la semana.....  
4 días a la semana.....  
3 días a la semana .....  
2 días a la semana .....  
1 días a la semana .....
- 2.3 En qué temporada del año estás más ocupado en tu actividad deportiva?  
En verano.....   
En invierno .....  
Es igual en todos los meses del año. ....
- 2.4 ¿Cuánto tiempo dedicas, en media, a los entrenamientos diarios?  
Más de 6 horas.....  
4/5 horas .....  
2/3 horas.....  
Menos de 1 hora / 1 hora máx.....

**2.5 En general, ¿cómo practicas la actividad física y deportiva?** (Marca tu preferencia con una x)

Por mi cuenta solo		En un centro afiliado a mi Federación deportiva con el entrenador.		En un centro deportivo con la supervisión de un técnico.	
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**2.6 De las siguientes opiniones, ¿cuál es la más cercana a tu idea de deporte?** (2 respuestas posibles)

- El deporte es salud y te permite estar en forma. ....
- El deporte es una válvula de escape.....
- El deporte permite relacionarse con los demás.....
- El deporte es una parte importante de nuestra educación.....
- El deporte ayuda a romper la monotonía.....
- NO sé .....

**2.7 ¿Qué piensas sobre la práctica deportiva?** (2 respuestas posibles)

- El deporte es solo para gente bien preparada físicamente
- El deporte es una actividad para gente que le gusta competir. ....
- La práctica deportiva es ideal para todas las personas, independientemente de su nivel de habilidad .....
- El deporte es una actividad para los jóvenes.....
- NO sé .....

**3. MOTIVACIONES A LA PRACTICA DEPORTIVA**

**SÓLO PARA AQUELLOS QUE PRACTICAN ACTIVIDAD FÍSICO- DEPORTIVA**

**3.1 ¿Cuáles son los motivos por los que practicas una actividad físico-deportiva de alguna manera?** (Puedes elegir hasta tres preferencias: indica con los números 1-2-3 las respuestas en orden de importancia)

- Me considero capaz de hacer deporte.....
- Porque mis amigos lo hacen.....
- Porque me gusta competir .....
- Para divertirse y pasar el tiempo.....
- Porque me gusta estar en forma .....
- Porque la mi familia tiene una tradición deportiva .....
- Porque me gusta superarme .....
- Porque es bueno para la salud .....
- Porque las instalaciones están cerca de casa .....
- Para conocer a otras personas .....
- Para escapar (escapar de la habitual) .....
- Para liberar el estrés .....
- Otros (especificar) .....

**SÓLO PARA AQUELLOS QUE NO PRACTICAN ALGUNA ACTIVIDAD FÍSICO- DEPORTIVA**

**3.2 ¿Cuáles son los motivos por los que no practicas una actividad físico-deportiva de ninguna manera?** (Puedes elegir hasta tres preferencias: indica con los números 1-2-3 las respuestas en orden de importancia)

- Nunca he sido bueno en deportes .....
- Por motivos económicos .....
- Por pereza y desgana. ....
- Por la dificultad de gestionar el estudio y otros compromisos .....
- Falta de apoyo familiar y de estímulo .....
- Por motivos de salud / accidente .....
- Falta de instalaciones adecuadas o dificultad para llegar a ellas .....
- La falta de tiempo .....
- Falta de interés .....
- Otros (especificar) .....

**SOLO PARA AQUELLOS QUE EN EL PASADO HAN PRACTICADO CUALQUIER  
ACTIVIDAD FISICO- DEPORTIVA PERO ACTUALMENTE NO LA HACEN**

**3. 3 ¿Cuáles son los motivos por los que dejaste de practicar deporte?**

*(Puedes elegir hasta tres preferencias: indica con los números 1-2-3 las respuestas en orden de importancia)*

- Por motivos de salud / accidente .....
- Por motivos económicos .....
- Porque tengo otros intereses .....
- Porque no obtuve resultados competitivos .....
- Porque mis amigos dejaron de practicar .....
- Porque ha dejado de interesarme .....
- Dificultad en la relación con el entrenador o con compañeros de equipo .....
- Falta de apoyo familiar y el estímulo .....
- La falta de tiempo .....
- Por compromisos escolares .....
- Falta de instalaciones adecuadas o dificultad para llegar a ellos .....
- Otros (especificar) .....

*Has terminado el cuestionario*

## APPENDIX 2. Questionnaire CAPAFD in Italian language.

**C.A.P.A.F.D**

N° Questionario.....

**Questionario per l'analisi della motivazione e della pratica dell'attività fisica-sportiva**  
Tradotto e adattato all' italiano

Il questionario, per finalità di studio e ricerca, rileva l'attività fisica e sportiva praticata dagli studenti della scuola secondaria superiore al di fuori dell'orario scolastico. Inoltre, indaga le principali motivazioni a sostegno di una pratica sportiva mantenuta nel tempo e le cause di eventuali abbandoni precoci. Ricorda: Non ci sono risposte giuste o sbagliate. **Rispondi, per favore, a tutte le domande con onestà e precisione perché questo è molto importante.**

**1. DATI GENERALI**

- 1.1 Età.....anni compiuti**                      **1.2 Sesso**    M     F                       **1.3 Classe.....**
- 1.4 Scuola frequentata:** .....  
(es. liceo sportivo, liceo scientifico, liceo linguistico, etc.)
- 1.5 A che età hai iniziato a praticare uno sport? .....anni**
- 1.6 Attualmente sei iscritto/a ad una Federazione e/o Associazione sportiva?**                      Si     No
- 1.7 In passato sei mai stato iscritto/a ad una Federazione e/o Associazione sportiva?**                      Si     No
- 1.8 Attualmente stai praticando qualche attività fisica o sportiva?**  
Si  , quale?.....                      No
- 1.9 In passato, rispetto a ciò che fai attualmente, hai praticato qualche attività fisico – sportiva?**    Si     No   
Se SI, quale? A)..... per quanto tempo .....  
B)..... per quanto tempo .....  
C)..... per quanto tempo .....
- 1.10 Hai interrotto la pratica sportiva? Si  all'età di .....anni, No  (se hai risposto SI vai alla domanda 2.6)**

**2. ATTIVITA' FISICO - SPORTIVA**

- 2.1 Quante volte negli ultimi 12 mesi hai partecipato a qualche competizione ufficiale (gare, tornei, campionati)?**  
(Indica il numero di volte per ogni risposta)
- |                     |   |
|---------------------|---|
| Scolastico .....    | 2.2 Quanti giorni a settimana pratici attività sportiva, oltre alla lezione di educazione fisica? |
| Provinciale .....   | 5 giorni o più a settimana..... <input type="checkbox"/>  |
| Regionale .....     | 4 giorni a settimana..... <input type="checkbox"/>  |
| Interregionale..... | 3 giorni a settimana..... <input type="checkbox"/>  |
| Nazionale .....     | 2 giorni a settimana..... <input type="checkbox"/>  |
| Internazionale..... | 1 giorno a settimana..... <input type="checkbox"/>  |
- 2.3 In che stagione dell'anno sei più impegnato/a nelle tue attività sportive?**
- |   |   |
|---|---|
| In estate..... <input type="checkbox"/>                           | <b>2.4 Quanto tempo dedichi, mediamente, ai tuoi allenamenti giornalieri?</b> |
| In inverno .....  | Più di 6 ore .....  |
| E' uguale in tutti i mesi dell'anno..... <input type="checkbox"/> | 4/5 ore .....   |
|   | 2/3 ore.....  |
|   | Meno di 1 ora / 1 ora max.....  |

**2.5 Generalmente in che modo pratici l'attività fisica e sportiva? (Segna con una x la tua preferenza)**

Per conto mio		In un centro affiliato alla mia federazione sportiva con l'allenatore	In un centro sportivo con la supervisione di un tecnico
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**2.6 Delle seguenti opinioni, quale si avvicina di più alla tua idea di sport? (possibili 2 risposte)**

- Lo sport è salute e ti consente di rimanere in forma.....
- Lo sport è una valvola di sfogo.....
- Lo sport permette di relazionarsi con gli altri.....
- Lo sport è una parte importante della nostra educazione.....
- Lo sport aiuta a rompere la monotonia.....
- Non so.....

**2.7 Cosa pensi riguardo alla pratica sportiva? (possibili 2 risposte)**

- Lo sport è solo per persone dotate fisicamente.....
- Lo sport è un'attività per le persone a cui piace competere.....
- La pratica sportiva è l'ideale per tutte le persone indipendentemente dal loro livello di abilità.....
- Lo sport è soprattutto un'attività per i giovani.....
- Non so.....

**3. MOTIVAZIONI ALLA PRATICA SPORTIVA**

***SOLO PER COLORO CHE PRATICANO UN'ATTIVITÀ FISICO SPORTIVA***

**3.1 Quali sono i motivi per i quali pratici in qualche modo un'attività fisico-sportiva?**

*(puoi scegliere fino a 3 preferenze: indica con i numeri 1-2-3 le risposte in ordine di importanza )*

- Mi considero capace per lo sport.....
- Perché lo fanno i miei amici.....
- Perché mi piace la competizione.....
- Per divertimento e per passare il tempo.....
- Perché mi piace essere in forma.....
- Perché nella mia famiglia c'è una tradizione sportiva.....
- Perché mi piace migliorare me stesso.....
- Perché fa bene alla salute.....
- Perché le strutture sono vicino casa.....
- Per frequentare altre persone.....
- Per evasione (fuga dal solito).....
- Per scaricare lo stress.....
- Altro (specificare).....

***SOLO PER COLORO CHE NON PRATICANO ALCUNA ATTIVITÀ FISICO SPORTIVA***

**3.2 Quali sono i motivi per i quali non pratici in alcun modo un'attività fisico-sportiva?**

*(puoi scegliere fino a 3 preferenze: indica con i numeri 1-2-3 le risposte in ordine di importanza )*

- Non sono mai stato bravo/a nello sport.....
- Per motivi economici.....
- Per pigrizia e mancanza di voglia.....
- Per la difficoltà di gestire lo studio e altri impegni.....
- Mancanza di sostegno familiare e incoraggiamento.....
- Motivi di salute / infortuni.....
- Mancanza di strutture adeguate o difficoltà per raggiungerle.....
- Mancanza di tempo.....
- Mancanza di interesse.....
- Altro (specificare).....

***SOLO PER COLORO CHE IN PASSATO HANNO PRATICATO UNA QUALSIASI ATTIVITÀ FISICO SPORTIVA MA CHE ATTUALMENTE NON LA PRATICANO PIU'***

**3.3 Quali sono i motivi per cui hai smesso di fare sport?**

*(puoi scegliere fino a 3 preferenze: indica con i numeri 1-2-3 le risposte in ordine di importanza )*

- Per problemi di salute /infortuni.....
- Per problemi economici.....
- Perché ho altri interessi .....
- Perché non ottenevo risultati agonistici.....
- Perché i miei amici hanno smesso di praticare .....
- Perché ha smesso di interessarmi .....
- Difficoltà nel rapporto con l'allenatore o con i compagni di squadra .....
- Per mancanza di sostegno e incoraggiamento da parte della famiglia .....
- Per mancanza di tempo .....
- Per gli impegni scolastici .....
- Per mancanza di strutture o difficoltà a raggiungerle .....
- Altro (specificare).....

*Hai terminato il questionario !*



## APPENDIX 3. Questionnaire QSA-r in Spanish language.

**CUESTIONARIO SOBRE LAS ESTRATEGIAS DE APRENDIZAJE – REDUCIDO de M. Pellerey**

El cuestionario te quiere ayudar a reflexionar sobre el modo con el cual estás acostumbrado a estudiar y sobre los problemas que encuentras en el estudio. Respondiendo con atención será más fácil para ti y para tus docentes encontrar vías para mejorar tus resultados escolares.

El cuestionario está conformado de algunas frases enumeradas progresivamente, que describen un modo de hacer, un juicio o un estado de ánimo. Junto a cada frase te pedimos de señalar con una cruz la casilla que corresponde a la frecuencia con la que generalmente haces las cosas o experimentas sentimientos y emociones (4=siempre o casi siempre, 3=frecuentemente 2=algunas veces 1=nunca o casi nunca).

Elige, no en base a aquello que quisieras o deberías hacer o sentir, sino con base a aquello que haces o experimentas realmente. Si para alguna situación de las descritas no tienes suficiente experiencia entonces expresa aquello que con más probabilidad te describiría si te encontraras en esa situación.

NOMBRE DE LA ESCUELA.....CUESTIONARIO N.....

CLASE.....

	1. Nunca o casi nunca	2. Algunas veces	3. Frecuentemente	4. Siempre o casi siempre
1. Trato de entender bien lo que leo y reflexiono sobre ello				
2. Cuando obtengo una mala calificación me desanimo				
3. Trato de encontrar relaciones entre lo que aprendo y lo que ya conozco.				
4. Me siento capaz de terminar satisfactoriamente mis tareas escolares				
5. Me siento intranquilo durante una prueba escrita o una prueba oral incluso cuando estoy bien preparado				
6. Cuando me va bien en una prueba oral pienso que afortunadamente el docente ha preguntado algo que sabía				
7. Tomo apuntes durante las lecciones para estar más atento.				
8. Cuando empiezo a desarrollar una tarea en clase, estoy convencido de poder hacerla bien				
9. Cuando me enfrento a una prueba oral el miedo de equivocarme me perturba y así me va peor				
10. Cuando no logro hacer bien una tarea o una prueba oral pienso que la causa está en el hecho de no haber estudiado seriamente				
11. Mientras estudio me hago preguntas o busco ejemplos para comprobar si he entendido bien.				
12. Trato de encontrar relaciones entre lo que estoy estudiando y mis experiencias.				

13. Cuando no logro realizar bien una tarea o prueba oral pienso que se me ha pedido algo muy difícil				
14. Trato de ver de qué manera lo que estudio podría aplicarse a mi vida de todos los días.				
15. Cuando leo un texto señalo en el mismo las ideas más importantes.				
16. Cuando tengo que enfrentarme a una prueba oral o un trabajo escrito me pongo tan nervioso que no logro expresarme bien				
17. Cuando me va bien en una prueba oral pienso que he hecho bien en estudiar con dedicación.				
18. Organizo mi estudio dependiendo de el tiempo que tengo a disposición				
19. Cuando aprendo un tema nuevo trato de encontrar un ejemplo al cual dicho concepto o tema se pueda aplicar.				
20. Hago esquemas, gráficos o mapas para resumir lo que estudio				
21. Cuando me va bien en el estudio, pienso que depende del hecho de que soy una persona muy capaz				
22. Me pongo nervioso ante una pregunta o un problema que no entiendo inmediatamente				
23. Hago dibujos y bocetos que me ayudan a entender mejor lo que estoy estudiando.				
24. Durante el estudio y durante una lección me vienen a la mente relaciones con otros argumentos o temas ya estudiados				
25. Voy al colegio con todas las tareas hechas y las lecciones estudiadas				
26. Cuando me va bien, pienso que depende del hecho de que el trabajo a desarrollar era fácil				
27. Aunque no me guste la materia, me comprometo igual para tener éxito				
28. Cuando estudio hago algunos esquemas en otras hojas para entender y recordar mejor				
29. Ante una tarea difícil, me siento estimulado a esforzarme más				
30. Pienso que no tener éxito en el colegio depende de los dotes de inteligencia que uno tiene				
31. Termino a tiempo las tareas asignadas para la casa				
32. Aunque una tarea sea muy aburrida, trato igualmente de terminarla				
33. Pienso que la capacidad de tener éxito en el colegio depende de la constancia y del esfuerzo que cada uno pone en el estudio				

34. Estudio solo cuando tengo una prueba oral y no día a día, de manera sistemática				
35. Cuando decido hacer algo, lo termino aunque me cueste mucho esfuerzo				
36. Encuentro útil en el repaso de las lecciones utilizar dibujos, gráficos o tablas resumen contenidas en el texto				
37. Me siento seguro de lograr y obtener buenas calificaciones				
38. Si me doy cuenta de no tener tiempo para terminar mis tareas me entra el pánico				
39. Pienso que la inteligencia de una persona es algo que no puede cambiar, es un don natural				
40. Antes de estudiar compruebo cuáles son las cosas que tengo que hacer				
41. Mientras el docente explica, me pongo a pensar en otras cosas				
42. Entiendo mejor si el docente en su explicación utiliza bocetos y gráficos en el tablero				
43. Para recordar mejor lo que estudio trato de relacionar las varias ideas				
44. Mientras estudio a veces pienso en otras cosas				
45. Si estoy preparado, me siento seguro de realizar bien una tarea o prueba oral				
46. Cuando encuentro una dificultad trato de superarla, aumentando mi esfuerzo personal y concentración				

## APPENDIX 4. Questionnaire QSA-r in Italian language.

## QUESTIONARIO SULLE STRATEGIE DI APPRENDIMENTO - RIDOTTO di M. Pellerey

Il Questionario può aiutarti a riflettere sul modo in cui sei abituato a studiare e sui problemi che incontri nel lavoro scolastico. Rispondendo con attenzione potrai trovare indicazioni utili per migliorare i tuoi risultati e imparare modi più validi per studiare. Il Questionario è formato da alcune frasi che descrivono un modo di fare, un giudizio o uno stato d'animo. Accanto ad ogni frase segna con una croce la casella che corrisponde alla frequenza con cui abitualmente fai le cose o provi sentimenti ed emozioni (1=mai o quasi mai, 2=qualche volta, 3=spesso, 4=sempre o quasi sempre). Scegli in base a quello che fai o provi veramente e non a quello che vorresti o dovreesti fare o sentire. Se per qualche situazione descritta non hai sufficiente esperienza allora esprimi ciò che con più probabilità descriverebbe te stesso se ti trovassi in quella situazione.

QUESTIONARIO N.....

NOME SCUOLA .....

Classe .....

	Mai o qua si mai	Qualc he volta	Spess o	Semp reo quasi sempre
1. Cerco di capire bene quello che leggo e ci rifletto su	1	2	3	4
2. Quando prendo un brutto voto sono preso dallo scoraggiamento	1	2	3	4
3. Cerco di trovare le relazioni tra ciò che apprendo e ciò che già conosco	1	2	3	4
4. Mi sento capace di portare a termine con successo i miei impegni di studio	1	2	3	4
5. Mi sento molto a disagio durante un lavoro scritto o un'interrogazione anche quando sono ben preparato	1	2	3	4
6. Quando mi va bene un'interrogazione penso che per fortuna l'insegnante mi ha chiesto una cosa che sapevo	1	2	3	4
7. Prendo appunti durante le lezioni per stare più attento	1	2	3	4
8. Quando inizio a svolgere un compito in classe, sono convinto di poter far bene	1	2	3	4
9. Mentre sto affrontando un'interrogazione la paura di sbagliare mi disturba così vado peggio	1	2	3	4
10. Quando non riesco in un compito o in un'interrogazione penso che la ragione sia nel fatto che non ho studiato seriamente	1	2	3	4
11. Mentre studio mi pongo domande o cerco esempi per verificare se ho capito bene	1	2	3	4
12. Cerco di trovare legami tra ciò che sto studiando e le mie esperienze	1	2	3	4
13. Quando non riesco in un compito o in un'interrogazione penso che mi è stato chiesto qualcosa di troppo difficile	1	2	3	4
14. Cerco di vedere come ciò che studio potrebbe applicarsi alla mia vita di tutti i giorni	1	2	3	4
15. Quando leggo un testo segno sul testo le cose più importanti	1	2	3	4
16. Quando devo affrontare un'interrogazione o un lavoro scritto sono così nervoso che non riesco a esprimermi bene	1	2	3	4

17. Quando mi va bene un'interrogazione penso che ho fatto proprio bene a studiare con tanto impegno	1	2	3	4
18. Organizzo il mio studio in base al tempo che ho a disposizione	1	2	3	4
19. Quando imparo un nuovo concetto cerco di trovare un esempio a cui esso si possa applicare	1	2	3	4
20. Mi costruisco schemi, grafici o tabelle riassuntive per sintetizzare ciò che studio	1	2	3	4
21. Quando riesco a scuola, penso che dipende dal fatto che sono una persona veramente capace	1	2	3	4
22. Divento subito nervoso di fronte a una domanda o a un problema che non comprendo immediatamente	1	2	3	4
23. Faccio disegni e schizzi che mi aiutano a comprendere quello che sto studiando	1	2	3	4
24. Durante lo studio e l'ascolto di una lezione mi vengono in mente collegamenti con altri argomenti già studiati	1	2	3	4
25. Vado a scuola avendo fatto tutti i compiti e studiato tutte le lezioni	1	2	3	4
26. Quando riesco bene, penso che dipende dal fatto che il lavoro da svolgere è facile	1	2	3	4
27. Anche se la materia non mi piace, m'impegno lo stesso per riuscire	1	2	3	4
28. Quando studio faccio degli schemi su fogli a parte per capire meglio ricordare	1	2	3	4
29. Di fronte a un compito impegnativo, mi sento stimolato a sforzarmi di più	1	2	3	4
30. Penso che riuscire male a scuola dipende dalla poca intelligenza che uno ha	1	2	3	4
31. Faccio per tempo i compiti per casa	1	2	3	4
32. Anche se un compito mi sembra noioso, cerco lo stesso di finirlo	1	2	3	4
33. Penso che riuscire a scuola dipende dalla costanza e dallo sforzo che si mettono allo studio	1	2	3	4
34. Studio solo quando devo essere interrogato e non giorno per giorno, in modo sistematico	1	2	3	4
35. Quando ho deciso di fare qualcosa, la porto a termine anche se costa fatica	1	2	3	4
36. Trovo utile nel ripassare le lezioni servirmi dei disegni, dei grafici o delle tabelle riassuntive contenute nel testo	1	2	3	4
37. Mi sento sicuro di riuscire ad ottenere buoni voti	1	2	3	4
38. Se mi accorgo di non avere più tempo per finire il lavoro sono preso dal panico	1	2	3	4
39. Mi capita di pensare che l'intelligenza di una persona è qualcosa che non può veramente cambiare: è un dono di natura	1	2	3	4
40. Prima di studiare controllo che cosa devo fare	1	2	3	4
41. Mentre l'insegnante spiega, mi succede di distrarmi	1	2	3	4

42. Capisco meglio se l'insegnante nello spiegare usa schizzi e grafici fatti sullavagna	1	2	3	4
43. Per ricordare meglio quanto studio cerco di collegare tra loro le varie idee	1	2	3	4
44. Mentre studio, mi capita di pensare ad altro	1	2	3	4
45. Se mi sono preparato per un compito o un'interrogazione, sono sicuro di riuscire	1	2	3	4
46. Quando incontro una difficoltà cerco di superarla, aumentando il mio impegno e la mia concentrazione	1	2	3	4

**APPENDIX 5.** Binary logistic regression analysis on Category 1. General dropout from all sports vs no-dropout with demographic variables and sports habits.

<b>Variables in the equation</b>	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>df</b>	<b>Sign.</b>	<b>Exp(B)</b>
<b>Nationality (1)</b>	,299	,127	5,559	1	,018	1,349
<b>Completed years &lt;=14-15-16-17-18+</b>	-,190	,041	21,665	1	,000	,827
<b>Gender (1)</b>	,617	,119	27,066	1	,000	1,852
<b>Practice the same sport or change in indiv/team</b>			24,730	2	,000	
<b>Practice the same sport or change in indiv/team (1)</b>	,576	,129	20,016	1	,000	1,778
<b>Practice the same sport or change in indiv/team (2)</b>	,558	,141	15,705	1	,000	1,748
<b>Sport practiced in the past (1)</b>	,550	,126	19,039	1	,000	1,734
<b>Constant</b>	,111	,203	,300	1	,584	1,118

**APPENDIX 6.** Binary logistic regression analysis on Category 2. No-dropout vs dropout from sport-specific with demographic variables and sports habits

<b>Variables in the equation</b>	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>df</b>	<b>Sign.</b>	<b>Exp(B)</b>
<b>Nationality (1)</b>	,256	,214	1,431	1	,232	1,291
<b>Completed years &lt;=14-15-16-17-18+</b>	,269	,062	18,908	1	,000	1,309
<b>Gender (1)</b>	-,640	,175	13,373	1	,000	,527
<b>practice the same sport or change in indiv/team</b>			40,831	2	,000	
<b>practice the same sport or change in indiv/team (1)</b>	-1,468	,230	40,728	1	,000	,230
<b>practice the same sport or change in indiv/team (2)</b>	-,476	,195	5,938	1	,015	,621
<b>sport practiced in the past (1)</b>	-,619	,188	10,832	1	,001	,538
<b>Constant</b>	-1,523	,310	24,147	1	,000	,218



**APPENDIX 7.** Binary logistic regression analysis on Category 3. General dropout from all sports vs dropout from sport-specific with demographic variables and sports habits

<b>Variables in the equation</b>	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>df</b>	<b>Sign.</b>	<b>Exp(B)</b>
<b>Nationality (1)</b>	,464	,228	4,154	1	,042	1,591
<b>Completed years &lt;=14-15-16-17-18+</b>	,042	,065	,419	1	,518	1,043
<b>Gender (1)</b>	-,128	,193	,442	1	,506	,880
<b>practice the same sport or change in indiv/team</b>			15,730	2	,000	
<b>practice the same sport or change in indiv/team (1)</b>	-,902	,245	13,536	1	,000	,406
<b>practice the same sport or change in indiv/team (2)</b>	,050	,210	,057	1	,811	1,051
<b>sport practiced in the past (1)</b>	-,180	,196	,838	1	,360	,835
<b>Constant</b>	-1,078	,344	9,797	1	,002	,340

**APPENDIX 8.** Binary logistic regression analysis on Category 1. General dropout from all sports vs no-dropout with high school curriculum

<b>Variables in the equation</b>	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>gl</b>	<b>Sign.</b>	<b>Exp(B)</b>
<b>Sport high school vs other no-sport high school</b>			162,687	3	,000	
<b>Sport high school vs other no-sport high school (1)</b>	1,936	,193	101,063	1	,000	6,933
<b>Sport high school vs other no-sport high school (2)</b>	-,028	,137	,041	1	,840	,973
<b>Sport high school vs other no-sport high school (3)</b>	-,474	,131	13,031	1	,000	,623
<b>Constant</b>	,903	,096	88,203	1	,000	2,467

**APPENDIX 9.** Binary logistic regression analysis on Category 2: No-dropout vs dropout from sport-specific with high school curriculum

<b>Variables in the equation</b>	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>gl</b>	<b>Sign.</b>	<b>Exp(B)</b>
<b>Sport high school vs other no-sport high school</b>			69,928	3	,000	
<b>Sport high school vs other no-sport high school (1</b>	-,869	,276	9,902	1	,002	,420
<b>Sport high school vs other no-sport high school (2</b>	,963	,219	19,409	1	,000	2,620
<b>Sport high school vs other no-sport high school (3</b>	,796	,229	12,113	1	,001	2,216
<b>Constant</b>	-2,430	,182	179,163	1	,000	,088

**APPENDIX 10.** Binary logistic regression analysis on Category 3: General dropout from all sports vs dropout from sport-specific with high school curriculum

<b>Variables in the equation</b>	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>gl</b>	<b>Sign.</b>	<b>Exp(B)</b>
<b>Sport high school vs other no-sport high school</b>			22,534	3	,000	
<b>Sport high school vs other no-sport high school</b>	1,068	,324	10,874	1	,001	2,909
<b>Sport high school vs other no-sport high school</b>	,936	,236	15,744	1	,000	2,549
<b>Sport high school vs other no-sport high school</b>	,322	,241	1,790	1	,181	1,380
<b>Constant</b>	-1,527	,192	63,252	1	,000	,217

**Appendix 11.** Binary logistic regression analysis on category 1: general dropout in all sports vs no dropout with the raw scores of the cognitive/metacognitive (C1, C2, C3, C4) and affective/motivational (A1, A2, A3, A4) scales.

Variables in the equation	B	S.E.	Wald	gl	Sign.	Exp(B)
A1g	-,085	,013	40,942	1	,000	,918
A2g	,072	,020	12,371	1	,000	1,075
A3g	,026	,015	3,008	1	,083	1,026
A4g	-,015	,021	,509	1	,476	,985
C1g	-,015	,017	,810	1	,368	,985
C2g	,011	,019	,316	1	,574	1,011
C3g	-,011	,016	,456	1	,500	,989
C4g	-,052	,028	3,491	1	,062	,949
Constant	1,327	,541	6,024	1	,014	3,770

**APPENDIX 12.** Binary logistic regression analysis on Category 2: No-dropout vs dropout from sport-specific with the raw scores of the cognitive/metacognitive (C1, C2, C3, C4) and affective / motivational (A1, A2, A3, A4) scales.

<b>Variables in the equation</b>	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>gl</b>	<b>Sign.</b>	<b>Exp(B)</b>
<b>A1g</b>	,007	,020	,129	1	,720	1,007
<b>A2g</b>	-,032	,030	1,104	1	,293	,968
<b>A3g</b>	,000	,021	,000	1	,995	1,000
<b>A4g</b>	,001	,031	,002	1	,969	1,001
<b>C1g</b>	,008	,025	,107	1	,744	1,008
<b>C2g</b>	,016	,028	,319	1	,572	1,016
<b>C3g</b>	,022	,023	,948	1	,330	1,023
<b>C4g</b>	,041	,043	,943	1	,331	1,042
<b>Constant</b>	-2,727	,820	11,067	1	,001	,065

**APPENDIX 13.** Binary logistic regression analysis on Category 3: General dropout from all sports vs dropout from sport-specific with the raw scores of the cognitive/metacognitive (C1, C2, C3, C4) and affective /motivational (A1, A2, A3, A4) scales.

Variables in the equation	B	S.E.	Wald	df	Sign.	Exp(B)
A1g	-,080	,022	12,765	1	,000	,924
A2g	,036	,033	1,133	1	,287	1,036
A3g	,035	,026	1,887	1	,169	1,036
A4g	-,016	,034	,207	1	,649	,985
C1g	-,006	,028	,049	1	,824	,994
C2g	,035	,032	1,152	1	,283	1,035
C3g	,015	,026	,304	1	,581	1,015
C4g	-,013	,047	,078	1	,780	,987
Constant	-1,670	,932	3,208	1	,073	,188

