SPORT, DUAL CARRIERS AND EDUCATION: THE E-LEARNING WAY

Paolo Bouquet¹, Andrea Molinari²,³

¹Department of Information Engineering and Computer Science- University of Trento (ITALY)
²School of Industrial Engineering and Management, Lappeenranta University of Technology (FINLAND)
³Department of Industrial Engineering - University of Trento (ITALY)

Abstract

As addressed in the EU Recommended Policy Actions in Support of Dual Careers in High-Performance Sport, athletes involved in professional sports activities often face challenges to combine their sporting ambitions with education. Very demanding, intensive training sessions and competitions at home or abroad can be hardly combined with a sufficient involvement in academic activities, not only in terms of results but especially in levels of motivation, commitment, resilience, and responsibility from the athlete. A possible solution could be the support provided by e-learning services, which most of the Universities have in operation today. Unfortunately, the standard e-learning services are forged for “regular” students, not for people never attending courses, never participating to the social life of the University, never reading push or pull information academic life coming from the different sources, never having contact with respective coursemates. This paper presents E.DU.CA (Education for DUal Carriers), a project from the University of Trento whose aim is to customize an already existing Virtual Community System to the needs of this category of students, to support and stimulate their academic carriers through a set of innovative services that will try to solve the above problems. The project, on this basis, wants to design and deliver these services for a broader category of users, i.e., working students, that present very similar (if not identical) problems and whose support from Universities is not so high as it should be.

1 INTRODUCTION

Sporting practice is now universally recognized as a fundamental element of human, social and relational growth, as an element of socialization and expansion of the subject's experiential sphere, particularly in the development of soft-skills. In the University systems of many countries (including Italy) there is no real plan to exploit this educational aspect of the sport, which instead continues to be perceived as a (good) way to pass the time after studying or working. By contrast, the skills that can be developed through practice and sports experience are crucial to completing the training of our students. The University of Trento (UNITN) is investing consistently to consolidate and improve its inter / national leadership as a reference point for those who want to combine sport and university study. Combining time and resources needed for both activities is not always possible for students, it is even less so for those who do sport at a professional level, or who for sports reasons must take time away from studying and attending classes. It should also not be forgotten that the practice of sports is indicated by many studies as a factor not only of physical and psychological well-being but also as a factor that improves the level of employability of a graduate and - on equal terms - of better economic conditions. Suitable services and tools are therefore needed to make the University of Trento more and more attractive for this large catchment area, not only geared towards top sportsmen but anyone who wants to see their sports and wellness activities supported and stimulated.

The objective of the paper is to present E.DU.CA – E-learning for DUal Carriers, a project launched in 2018 to consolidate the national and international leadership of UNITN in these contexts, offering new services that put our University at the forefront in a strongly promoted area both nationally and at European level, with agreements and guidelines in this direction signed both at national and EU level. The project aims to provide the University with a series of technological and training solutions that can become national and international models on two distinct but integrated levels: a) support for the dual career of elite athletes (TopSport, UniTeam, and TopTeam programs), b) the strategic use of sport in soft skills training projects for a large part of the student population.
The project is also based on the assumption that some of the solutions that will be developed for student-athletes may in the future be extended to other categories of students who present similar difficulties, starting with working students. This also requires the creation of push-based services that inform and guide the student in the daily questions of interaction with the academic institution. Indeed, one of the major problems reported by top athletes is their lack of physical presence in the daily life of the University, feeling this as a very high risk of withdrawal of an academic carrier, or at least a barrier that is often more complex than the learning part itself.

There is another aspect that is added to the technological aspect in the project, i.e., a strong organizational support to these dual career students [5], given that many athletes are penalized not only on the aspects of study, but they are penalized mainly because of the difficulty of finding / asking for the right thing at the right moment, which can range from a trivial administrative aspect to the simple presence of an intermediate test defined by the teacher in the classroom. Respect to the Dual Carrier concept, “The Commission’s support for dual careers will ensure that young sportspeople receive an education and/or professional training alongside their sports training. It will also help European athletes perform well and compete at a high international level while reducing the number who drop out of school, university and sport.” In this line, the E.DU.CA project presented in this paper aims at facilitating these sportspeople to complete their academic studies, providing the technological support to remove some of the obstacles that complicate their permanence inside the University.

2 DEFINING THE SCOPE: SPORT IN THE EU ECONOMY AND THE RELEVANCE FOR EDUCATION

From many perspectives and different analysis, sport is much more than just «sporting activities». Inside the 2007 White Paper on Sport [6], the European Commission announced that a fundamental objective of the following years, in collaboration with the Member State, will be to develop a European statistical method for measuring the economic impact of sport as a basis for the construction of national Sport Satellite Accounts, which could in time lead to a European Satellite Account for sport. Accordingly, the EU Working Group and Sport and Economics, set up by EU Sport Ministers in 2006, developed a common joint definition, the “Vilnius Definition of Sport”, as the basis for the collection and production of data for the compilation of a Sport Satellite Account. This definition can be considered composed of three different items:

- a statistical definition: "Sporting activities" as defined in NACE* 92.6 Rev. 1.1 [6]
- a narrow definition: all activities which are inputs to sport plus the previous statistical definition
- a much broader and complete definition: all activities which require sport as an input plus the previous narrow definition

We find other interesting definition of “sport” that put the emphasis on the quality of this human activity. In 2015, the UNESCO came to a definition of sport: «... physical activity and sport form part of humanity’s intangible heritage ... Every human being has a fundamental right to physical education, physical activity, and sport ...». In 2000, Nelson Mandela said Sport has the power to change the world. It has the power to inspire. It has the power to unite people in a way that little else does.”

If we look like a sport in a policy perspective, in [8] we find that «... Sport can play an important role in driving the development of regions and cities. [...] Sport not only helps to keep us fit and healthy. It has the power to strengthen communities, and supports us in building more inclusive societies»

Also from an economic point of view, the figures reported in Fig.1 present the sport-related GVA of the EU-27 countries, in million Euro and the shared respect to the EU GVA [7] Furthermore, it must be considered that these figures do not include the (positive) impact on the healthcare system, and the impact of volunteering.
So, Sport makes a significant contribution to the EU economy (the GVA is equivalent to agriculture plus fishery plus forestry sectors combined), Sport is a growing industry and is resilient to economic cycles, and finally, Sport is labor intensive, so it leads to jobs creation (Fig.2)

In line with the above considerations, the University of Trento started a set of initiatives to increase the sports activities within the students that are enrolled to the various offered degrees. The most relevant activities for our argumentation are the following:

- creation of an app for self-organization of workouts/events
- Lifestyle self-monitoring and analytics
- academic credits for sports activity & volunteering

The last initiative is related with the adaptation of an existing distance learning platform with services created to support the participation of élite athletes (top athletes) to the academic life in a general sense, helping them as much as possible to be part of the academic community even when they are away because of training and/or competitions. In the next chapter, we will present the main characteristics of the existing platform, and in the following chapter, we will present the additions and new services developed.

3 A VIRTUAL COMMUNITY SYSTEM FOR DUAL CARRIERS

In the academic year 1999/2000, the Faculty of Economics of the University of Trento decided to have a software system able to enrich its traditional teaching as an extension on the Web. The first aim was to settle the increasing number of teachers’ personal web pages into a single platform. To pursue this result it was necessary to have a Learning Management System (LMS), capable of supplying a virtual environment able to support the educational courses of the Faculty. The resulting system started to function from the second half of 1999 and during this period, the system counted approximately 1,200,000 accesses and online satisfaction surveys showed a very high level of user satisfaction. Being quite traditional LMS, in 2002 some observation convinced us to redesign the software:

- The needs for cooperation within the academic environments is extending to all the activities that constitute the context in which didactic takes place, not just to the specific “lecture”;  
- Models of teaching/learning (such as learning by problems, learning by projects, cooperative learning, and their combinations) can hardly be connected to the e-Course, especially when the software directly represents the metaphor of traditional courses;
- The organizational didactic scenario changed with new regulations made by academic institutions, and these changes inevitably reflected on the LMS functionalities. It is important to note that these types of changes are usually the result of a debate process in which both elements of cooperation and negotiation interact;
- The didactics of a university are not built only as a set of studies and tests, but these activities are inevitably intertwined with the university’s organization and its information system;
In an academic context, not everything concerning teaching: for example, the entire faculty is more than a container of degree courses and a degree course is more than a container of lessons.

To answer these (and other) needs, another founding paradigm was needed, with at least four basic characteristics:

1. Provide services not necessarily related to educational settings, but generalized services open to different forms of collaboration communities;
2. Provide the possibility for enrolled users to perform different tasks under different roles inside different communities, thus allowing, for example, the application of different instructional strategies like an ante-literam flipped-classroom approach;
3. Suitability to support cooperation processes among different roles of users, not only students or teachers;
4. Possibility of mapping the organizational structure and roles of the educational institution inside the system, thus preserving roles and responsibilities of the different users.

The answer to these characteristics was lying in a new collaboration paradigm emerging with the first social networks and with the collaboration platforms available through the Internet, i.e., the concept of virtual community. The system that arose, called On-Line Communities (COMOL) [1], was delivered in 2003. The collaborative approach [2][3] has been a very strong incentive for us to develop this platform; the philosophy that led us to rebuild the system is to allow the exchange of users’ experiences within a virtual environment and within well-defined areas known as “communities”. This approach is very different, for example, from the traditional one available in other LMSs. Our work started before the boom of web 2.0 [4], that has now invaded and changed the way people think and build services on the net. The main characteristics of a community could be summed up as follows:

- Each Community offers many services to registered users that have different roles/permissions inside the community
- The services are general applications that enable the users to communicate in a synchronous and asynchronous way, to publish contents, to exchange files, to coordinate events, etc.
- Services offered by a community are activated by a manager of the community according to the needs, and the users of a community can use them with different rights and duties.
- Rights/duties in the community are different from rights/duties for the services
- Communities can be aggregated into larger communities with hierarchic mechanisms and infinite nesting levels. Communities can also be aggregated in an arbitrary way into larger communities disregarding the possible position of a hierarchical structure, in a sort of “transversal” link that overcomes the concept of “hierarchy” and follows the idea of “mesh”. Thanks to these features, a complex but powerful mechanism of propagation of services/roles/permissions/rights/duties can be set among communities of the same branch or of different branches.
- All users are recognized by the system and by the community: people external to the system can see public part of the community (services, material, contents, etc.) only if managers allow this (ex. a blog of one community could be opened to external contributions)
- Services can take advantage of the “mesh” structure of Online Communities to provide some interesting though non-existing features, like “transversal wikis”, or “merged blogs”. One blog, in fact, can be the “fusion” of all the blogs of children communities, or a wiki can take the definition transversally from all wikis in related communities.
- Last but not least, a VC is a container for collaboration processes not limited to educational activities, but for any collaboration activity needed in an organization. Research teams, recreation groups, friends, meetings, conferences, secretariats, the board of directors, colleagues, next to social dinner, anything could be an aggregation of people around a scope that can take advantage of the virtual spaces offered by the Virtual community.

The core of the application is composed of some abstract entities, i.e., VCs as an aggregation of people to which some communication services are available in order to obtain certain objectives. With this approach, it could be possible to represent all the hierarchical relationships between different types of educational communities (such as Faculties, educational Paths, Degrees, Courses, etc.), like any other relationship among communities inside organizations.
4 THE E.DU.CA PROJECT: PRELIMINARY RESULTS

Little or nothing exists today to use TELs to support those who practice sports at various levels[11][12], and therefore divides their time between study and sport, often sacrificing the study (eg professional or semi-professional athletes) or sport (with often unintended consequences on the student's physical and mental health)[10]. The project therefore wants to give a strong impetus to the various initiatives related to sport in UNITN through the creation of new TEL services designed and created for those who want to dedicate time to sport, at a professional or personal level, and extend them to those who need to follow didactic activities that take place at a distance, in remote places or with subjects simultaneously dispersed in different places.

As said, COMOL is a platform entirely created internally, consolidated but in continuous evolution, which feeds on new stimuli thanks to the various applied research projects[9]. Furtherly, the daily practice with very high numbers of users (about 16,000 UNITN members, more than 20,000 registered in PAT, about 50,000 companies of the Trento Chamber of Commerce, etc.) makes COMOL actually an enterprise-class web platform, with almost 500,000 single accesses every year.

Through this project, we want to extend the current services, or create new ones, in order to support students with the aforementioned peculiarities. The dual carrier students are interesting for our experimentation because they represent a wider class of potential students, i.e. a) students that frequently out of office b) students that are not able to attend training events and in particular exams, but also laboratories or workgroups c) students that are not able to follow the administrative life related to one’s career. In this wider category of students that can benefit from E.DU.CA deliverables, we can, therefore, include all the working students. Below is a list of new services that will be added to COMOL:

- online student's registration to exams, events, meetings with the contemporary creation of a video-conferencing session with all and only the participants to that event;
- adaptation of existing services for the delivery of MOOCs (Massive Open Online Course) specifically created for these students, so with special elements that will count the time used in a different way and with different rules respect to what MOOC platforms (like Coursera or EDX) normally do. These services will provide complete management of the lifecycle of a MOOC, available for any project of interdepartmental or university interest, supporting the initiatives of the sports office in favoring career projects for students who follow these paths in the various Departments. This implies the provision of support services, such as the organization of shifts for MOOC tutors, or the possibility of booking direct assistance sessions, or the semi-automatic composition of FAQ based on the questions entered in the forums. These services can also be extended to those who in general find themselves in the condition of not being able to be at the same time or in the same place as the training event (Erasmus students, participants in other exchange activities abroad, students who take part in business games, marketing games, workgroups, local laboratories, etc.)
- services to allow remote examinations together with the related administrative processes, like for example remote student’s identification, visual check of the absence of any auxiliary material in the remote room, and any other element (for example, double webcam) able to provide legal validity to the (remote) exam session.
- push information on regulations, schedules, appointments, examinations, administrative deadlines, etc. taken from an RSS feed available from certified sources, other UNITN platforms or applications (like for example the ERP where all grades, exams’ date are recorder)
- self-organizing study communities to support remote students, without any intermediation of teachers, where students are allowed to manage any aspect and where most of the services are focused on providing educational material to the participants
- Online tutoring with the possibility (similar to the remote exam) to book the service, to see the agenda of the tutor, to share materials only for that session, etc. The online tutor service for athletes will support them in everyday activities that are trivial, but essential and therefore particularly difficult to manage for those who do not physically attend University spaces. The contents of this virtual assistant could be coordinated with research projects already existing in the University on virtual assistants, or use open and free tools already available. Certainly, it is the most challenging component of the project, but probably the one that will solve most of the practical problems of student-athletes (and not only). The idea here is to create a chatbot with a domain ontology that will provide domain-related answers to questions supplied by athletes and
related to a knowledge base that will be created by indexing feeds and news coming from heterogeneous data sources.

- Services available to registered users for conducting remote exercises with some other member of the same community, collect results and comments or personalized feedback from the other community’s members;
- Services that support the students to comply with administrative obligations, through a personalized agenda updated in push mode that will help to organize their time and physical activities. This will be delivered through social extensions that exploit virtual communities and related services (doodle, reservations, VC, sharing documents, forums, bulletin board, messaging, etc.)
- Deliver innovative training practices (eg serious games, business games), in order to run the game in an environment that before and after acquire the analytics necessary for the trainers
- Record lectures when the top athletes cannot be present in video format, possibly using a SCORM format with audio/video integration, notes, and comments from the other members of the community. These services that allow to follow lessons remotely, or see the video recordings coordinated with content and audio/video track, have already been used in COMOL. In this context, the working group has already developed considerable experience at the international level, both in the context of European projects (whose experimentation is currently underway in UNITN) and for European institutions (European Institute Of Technology – EIT) and international (IEEE - Institute of electrical and electronics engineers);

The COMOL team provides twenty years of international experience in TEL services, from the methodology to the training planning to the platform to the supply. Some undeniable competitive advantage factors converge at UNITN:

- University at the top of international sports - innovation - university studies;
- receptive and active territory with many initiatives, and is internationally recognized for its success with the 2013 Winter Universiade;
- lack of competition regarding training courses for athletes where e-learning, as specified by the EU directive, is an essential implementation tool.
- presence of Sport Office and Placement Office support (for soft skills) and UNISPORT / TOPSPORT / Top-team projects

The investment made on E.DU.CA has other returns for unitn. COMOL is active both in UNITN and in many other public and private institutions, so services created for E.DU.CA will be available to other partners and other situations. COMOL is entirely developed internally in UNITN, without any dependencies or additional costs from external suppliers. among other things, COMOL has already been used in combination with sport communities, for collateral activities also during the XXVI WINTER UNIVERSIADE, held in our region in 2013, as well as for various events, masters, external training courses, initiatives in which virtual communities were needed to support the activities.

As regards a second group of objectives, namely the development of innovative training objects (eg MOOCs, serious games, Business games, laboratory materials, tools for the collaboration of workgroups, etc.) on issues related to soft skills, the proposal is to create advanced training objects that are used on athletes to experiment distance learning services made with high-quality teaching materials. Using sports as a theme and training metaphor, these MOOCs will be transversal to the various UNITN specializations, will allow them to integrate what the individual academic programs are unable to do on these issues and thus support the Placement Office in soft skills training initiatives. The MOOC will be introductory and will serve to test and measure user satisfaction and applicability.

The effects of the project are varied and at various levels: for example, the dispersion of top team sports students who cannot follow the lessons due to frequent transfers, training, international commitments, etc., or those students who during their university career could change team and therefore should leave for logistical reasons UNITN.

This type of innovative services to support study programs is also connected with the territory and with recent initiatives of the educational path in high schools related to sport, such as the so-called “Sports High Schools” and the various activities of facilitation of higher paths for sports. The attractiveness of an athlete who in high school has followed these paths, even at the national level, and who then decides to join UNITN to pursue his sporting interests and at the same time obtain a University degree is evident.
5 CONCLUSIONS

The paper presented E.DU.CA, a project of the University of Trento for dual-carriers students, that aims to support top-sport athletes with a set of technological services that will help them to proceed in their academic carriers. There are many ambitious objectives in the project, started in June 2018. First of all, the quality of the activities carried out, in particular, the quality of the training and quality of the organization that will support these athletes, through integration between administrative tasks and teaching activities, in a bidirectional sense, in order to benefit the student and the administration. Another expected outcome from this project is the increase in the reputation of UNITN, thus attracting students who practice sports at various levels, offering integration between sport, innovation, and research. This attractiveness, whose increase comes from working and study conditions and the opportunity for individual growth also through the possibility of exercising in quality sports facilities, implies also the creation of strong partnerships with economic and academic partners, like for example sports clubs (of any level) that stimulate their athletes to join UNITN given the possibilities of dual-carrier offers. At the moment, we have this kind of agreements with the two professional teams of the city, playing the respective Italian premier leagues of Basketball and Volleyball. Together with these technical and organizational aspects, there is also a well-defined objective related with the promotion of well-being practices among students, not only by facilitating top athletes but above all by rooting the idea of sport as an element of well-being in all students. All these ambitious objectives will be hopefully achieved thanks to organizational flexibility and management efficiency, a crucial element for sports students, and with a set of new technology services based on a virtual community platform.

REFERENCES


