Module 3. Technological Training Devices and Competition-Specific Preparation

Introduction

Sport as a collective construction is one of the social phenomena that has had the greatest growth and impact in the 20th Century. The explosion of Information and Communications Technologies (ICTs) as well as Online Devices in the 21st Century has brought about major changes to how everyday life is perceived. The Internet has changed everything.

Bringing together High Athletic Performance and Technology is a new way of understanding and being part of the training and competition processes, regardless of the role we play in the sports community.

If we add the huge impact brought about by the generational diversity in current environments, the role of women in the 21st Century and avant-garde educational paradigms, we can only conclude that the High Athletic Performance formula has changed. What's more, it has very little to do with the formulas used not that long ago.

New disciplines such as eSports, young online Gamers, consoles, mobile applications, simulators, cameras, software, social networks and so on are all part of High Athletic Performance today.

To understand how athletes today are being trained and prepared specifically for sports competitions, that is young millennials and generation Z, we have to understand that they have grown up in an environment radically different from that of previous generations that now lead and accompany them. Growing up on the streets of your neighborhood is not the same as growing up on the living room couch. Experiencing reality face-to-face is not the same as experiencing the world through multiple screens. It isn't better or worse, it is just different.

Young gamers (a "gamer" is a person who spends several hours a day playing video games online on consoles and Internet devices) in their own words say that these games are "part of their identity". Gamers that are part of the labor market and/or sports environments. Gamers whose daily activities have given rise to a distinction between "traditional sports" and "eSports" (which have their own tournaments, formal competition formats, and professional players).

That is why today we have "traditional football" and "FIFA 16 for Xbox, PlayStation, etc.", just to give an example. This may sound like science fiction to some coaches today.

Both couples and elite performance communities are brought together thanks to “disciplines” such as League of Legends, Counter Strike, GTA V, Asphalt 8, Heroes of the Storm, World of Warcraft, Rocket League, Pixel Dungeon, Clash of Clans, and others.

Technology is transforming all of our lives day by day and High Athletic Performance is no exception. The kitchen is ready; the ingredients have been prepped. Now is the time for the "chefs" to turn this 3.0 environment into the desired gourmet dish.

Unit 3.1 Training Phases Integrated into Technological Devices for High Athletic Performance

"As millennials we have developed multi-tasking skills and we want our jobs to be our hobbies. We are not committed to a company but we invest heavily in our own careers, we want to do our jobs well and we want to do them in collaboration with others". Millennials are independent. They will not be tied to any organization but rather they follow their own personal projects within a company (Mosqueira, 2015).

The paragraph above clearly summarizes the way a large number of people who make up High Athletic Performance communities think and feel. To address the huge gap between generations and to manage such diversity we need to have some psychological skills:

- Cognitive Flexibility: the ability to address a situation from different perspectives and approaches.
- Acceptance of Change: the ability to avoid internal shock when faced with dynamic scenarios.
- Communication Expertise: an expert communicator understands that a message is predominantly for the person receiving it and therefore, content and format need to be adapted depending on the recipient.
- Strategic Thinking: the ability to plan the way forward and consider the process from a global perspective.

Technological Devices for High Athletic Performance are the instruments that make all this possible in today's world and according to the preferences of the main actors in such environments. Next, we will describe some of the main contributions of devices such as consoles and mobile applications, headphones, simulators and cameras linking each one with some of the psychological training phases developed throughout the course.

3.1.1 Video Game Consoles – Mobile Apps and Attentional Focus Training – Modeling and Shaping Abilities

How long will it take for electronic or "eSports" to become official Olympic disciplines? The answer to this important question can be found in the following comments made by the eGames organizers of the Rio 2016 Olympic Games:

"During the event, eGame players from all over the world will compete for a gold, silver or bronze medal representing their countries. So far, some of the countries that will participate in the first eSports Olympics are Canada, the United States, Brazil, and the United Kingdom. However, the eGames Committee has promised to include more

countries in future events. The teams will be made up of players of both sexes who are 18 or older". (Oramas Monzón, 2016).

The Rio eGames were designed as a parallel event and as complementary to the traditional fields of play. Today they are peripheral to the Olympic Games, but in the near future they may be an official part of them and they could even become the central focus of such events, or even have their own venue displacing the existing traditional Olympic games.

The previous paragraphs make us think about the impact of video games in their current formats of consoles and devices such as telephones, tablets, notebooks, computers, etc. Mobile applications were created to enhance and improve on-line technologies for everyday life, and in this case, adapt them to physical activities and sports.

Every sports organization involved in a learning process should analyze in depth the importance of consoles as supporting teaching resources. For thousands of young people today their first experience with a sport is not precisely on an actual field of play. They have their first experience on a console where they play the digital versions of the sports that the creators of such video games practiced on grass, cement, wood, or water fields.

Not long ago future athletes were inspired by their idols when they went to the game to see them play in the first division of their clubs, or when they listened to the radio, read an article, or perhaps, watched a game on TV. Today, millions of people of any age, sex, or culture "are" their idols on their consoles and applications.

They no longer need to imagine what it would be like to do what Messi does. They can "become" Messi on their consoles, they can play in the "skin" of LeBron James, they can win or lose as many times as they like and restart a tennis match "embodying" Federer. They can even create the dream version of their dream athlete by clicking on a key and play "being" that avatar athlete.

Why can a console be a major teaching tool nowadays? The answer is in the method for teaching and consolidating skills called "Modeling and Shaping Abilities".

This process allows an athlete to adopt sports models on his console and imitate the manner in which they perform certain technical and tactical motor patterns. This means that he will be able to shape his sports performance based on his models.

Playing on consoles allows you to observe the execution of motor patterns by virtual elite athletes (modeling) and then copy those executions on the physical playing field (molding).

In this way, a console can stimulate high motivation levels in an athlete by associating virtual playing activities with actual training.

These devices, both consoles and mobile applications designed for high performance, can also help train various attentional focuses, which according to R.M. Nideffer (1981 cited by Diego and Sagredo, 1992), are the result of two variables: attentional scope and direction. Therefore we have the following 4 focuses and each has a main goal is described by a key word.

- Broad External: assessment.
- Broad Internal: analysis.
- Narrow Internal: preparation.
- Narrow External: performance.

To summarize, during practice sessions and competitions an athlete has to face these 4 psychological operations hundreds of times: when defending or attacking "x" situation, for example, the athlete has a fraction of a second to assess the situation, consider all possible responses, set up the best one, and execute it. By playing sports games and using the corresponding applications the athlete will be able to train each attentional focus.

Finally, we will give some examples of mobile applications designed to link a coach's work to an athlete's performance. Nowadays training plans and coaches are available on mobile phones which can be used at will by athletes, whether they are professional or amateur, or if they compete officially or unofficially.

The article published in Revista Noticias (2015) shows the wide variety of online possibilities that exist for both athletes and the general public to train their motor skills:

Adsen

This App offering sets of 8 minute exercises stands out for its simplicity, innovation, and efficacy.

Each training session is programmed to tell you how many times a week and for how many weeks you have to use it before you can go on to the next level. Adsen provides a list of exercises for training. Each exercise is explained in an excellent video.

The App has a simple and intuitive interface and easy access to each set of exercises and the demonstration videos. You can set up your preferences and save your exercise plan to have it on your device all the time.

Runkeeper

Runkeeper is the App preferred by millions of people who love jogging, walking, hiking, or cycling. This App records all your exercise routes in your Android GPS. It will keep full statistics of your heart rate, distance and time covered, and calories burned. If you use headphones you can get the statistics, progress reports, and training instructions during your runs, and also listen to music at the same time.

With Runkeeper you can also measure your heart rate with any of the many sensors available. You can take pictures of the run to share or save as well. This App also keeps a

detailed record of your activities so that you can see how you are doing.

A common features of these Apps is that you can post your statistics, training achievements and training plans on Facebook and Twitter for your friends. Additionally, you can get detailed reports of your activity level, calories burned, weight lost, and many more statistics.

BMI Calculator

BMI Calculator is very simple to use. You can calculate your Body Mass Index (BMI) to find out what weight range you are in.

You just have to enter your weight and height and you will get your Body Mass Index, your weight category, and also your ideal weight range.

The calculations can be done in metric and imperial units. You can switch between kilograms and pounds, feet, inches, and meters with just a click.

Endomondo Sports Tracker

Endomondo is the ideal App for running, cycling, walking, and any other displacement activity. It can track any of your outdoor sports activities including, duration, distance, speed, and calories.

It is easy to operate. You enter an activity manually and obtain audio information every mile or kilometer while you perform the exercise. Endomondo also tracks your heart rate.

As is common with many modern Apps you can post your sessions on Facebook and see your friends' most recent sessions. You can set the application so that it automatically pauses when you are not moving because it is compatible with ANT+ sensors for speed, rhythm and heart rate, and can be integrated with the Smart Watches by Sony Ericsson such as the Smart Extra.

Strava

Strava tracks your cycling training and races using GPS. You allows you to follow the routes you have created or found and watch your map of activities as they play out in real time. You will get statistics such as distance, pace, speed, increase in altitude, and calories burned.

This App collects data from your heart rate through HxM sensors via Bluetooth Zephyr and keeps personal records. It also shows your position compared with that of your friends, local athletes and professionals.

With Strava you will be able to find your friends, share your activities on Facebook and Twitter, and post your exercise pictures to Instagram.

Runtastic

Runtastic is an App for runners and it will definitely meet their expectations. Runtastic uses GPS to track running, jogging, cycling and walking activities. The App has excellent design and navigation as well as new optimized functionalities. With Runtastic you can set up training maps in real time. It has integrated GPS and progress monitoring. It keeps a diary of your personal training sessions with all the metrics and detailed maps of your records using Google Maps.

Runtastic goes further and uses Earth View to show your training activities in 3D. You can also set up your Voice Coach to help you better understand the graphs and data.

Among other functions, you can share your activities on Google+, Facebook and Twitter. It is also fully integrated with AndroidWear allowing you to see the statistics and details of your session on your wrist.

Sports Tracker

This is another top App designed for running sports. You can turn your telephone into your personal trainer as millions of users have already done. One of Sports Tracker's main strengths is social integration. You can analyze your results and share your training data and pictures with your friends.

You can keep your training sessions in your personal diary to do a follow-up of all your data, from calories burned to average training speed. The maps help you calculate the time and distance covered in each training session.

You can also hear voice recorded information while you are exercising and discover new routes, roads, and adventures with your phone. Sports Tracker will automatically save a copy with detailed maps and displays of your data, your friends' training sessions, and much more.

Another operating system, in this case IOS, also offers mobile applications for amateur and professional athletes. According to Rebato's study (2011):

Easy to 5K: This application follows the C25K or "couch to 5 kilometers" running plan, by which a person can run 5 kilometers in two months by alternating walking and jogging exercises. This application is very well implemented and has many options.

Weightbot: Running and exercising is wonderful. However, if our goal is to lose weight, it is a good idea to check it on the scale on a daily basis. Weightbot makes this possible and very effectively. This company created other major applications such as TweetBot or Pastebot. Weightbot was carefully designed and the price is very affordable for an App that works so well.

All in one Fitness: One thousand different exercises conveniently classified and labeled according to various levels. It focuses mainly on gym activities. It also has an interesting device to measure progress and body diameter. This App is quite complete and has a nice design.

Personal Trainer: intended for physical exercises that can be done at home. It features two nice trainers. The best part is that the different tests have been clearly classified according to time and effort, in addition to other factors.

Lose It: Good exercise should be accompanied by good eating habits. This App can also be helpful for monitoring special medical diets.

100 Pushups: It is similar to Easy to 5k but in this case the goal isn't to run 5 kilometers but rather to do 100 pushups without stopping. Not an easy challenge! It includes a very complete program to be followed three times a week.

Cyclometer GPS: Cyclometer is an interesting alternative for those who are interested in cycling. Using your phone GPS and iPhone sensors it allows you to measure all types of data.

3.1.2 Headphones - Underwater Headphones and Repetitive Practice in the Presence of Distractions

According to Buceta (1998), the transitional stage in athletic training called Repetitive Practice is the "consolidation of precision skills and effort" through repetition with the appropriate frequency and volume to achieve automation.

In traditional training formats this phase involved sessions where the same exercise focusing on a particular technical move was repeated over and over again. This meant that clear instructions were required to achieve optimal results during this training phase:

- Athletes could anticipate situations.
- Show them the benefits of repetition and the models for such repetition.
- Reward attempts instead of the results of the repetitions.

Repetitive exercises are key in athletic training, although they are monotonous *per se*. With the technology revolution which has benefited High Athletic Performance as described

above, formats which allow athletes to completely assimilate training can be notably improved. These formats include all devices, applications, and other instruments. In this section we will focus briefly on earphones and headphones, both for land and water sports.

Two of the main distractions that must be overcome in High Athletic Performance are:

- The athlete's thoughts (when they are inappropriate and/or excessive).
- External "noise" at the sports venue where the activities are carried out (fans cheering, external images, and sounds related to the sport itself).

Therefore, High Performance Athletes have to train psychologically to choose the focus of each moment and to be able to concentrate on that focus. If this is achieved, the athlete can prioritize the corresponding execution and ignore everything else that does not add any value to it.

Both headphones and underwater headphones are perfect devices to achieve such goals. When they are connected online to specific applications these devices help with an athlete's attention training.

If the setting for perfect execution of a motor pattern is activated in the application, the athlete will be listening to a tutorial through his earphones/headphones with specific ideas and steps about "how to execute" the action. An athlete can therefore train the management of his thoughts when executing the action as well as practice the actual physical action over and over again until he consolidates this skill.

Headphones are important as tutors that help an athlete stay focused on only the ideas that he should have during execution. An athlete's thoughts are the main distraction that prevent him from performing as he should.

All the same there is an aggregate effect when an athlete is already used to the various execution formulas that he repeats during this training phase. If the sounds that simulate external "noise" are activated, the athlete will be able to repeat the required technical or tactical motor pattern focusing on the corresponding execution, ignoring what is not relevant and focusing his thoughts only on what the earphones/headphones indicated he should focus on.

In this way, we can divide repetitive practice for attention training into two main parts:

1. First, when the technological devices indicate to an athlete what he SHOULD focus on.
2. Then, a second moment when technological devices indicate to an athlete what he SHOULD NOT focus on.

3.1.3 Simulators as a Rehearsal for Competitive Conditions

Exposure to Competitive Conditions is a transitional phase in athletic training defined from a psychological perspective as "habituation to a competitive situation" (Buceta, 1998). It involves practicing in similar conditions to the competition before it takes place.

In order to do that it is necessary to have a clear idea of the key factors required to optimize this phase:

- Practice with situations similar to competition.
- Develop demanding training sessions.
- Developing emotional self regulation training plans.
- Practicing how to deal with external hostility, poor performance and/or opponent's high performance.
- Training towards optimal levels of frustration tolerance.

In traditional training processes prior to the emergence of technology devices, many trainers used to carry out this stage in the field of play making a mock-up of what could happen during the competition both on and off the field of play. This was craft work and quite praiseworthy of course, but it was limited by the resources available.

Today, technology applied to High Athletic Performance improves on past practices and makes it possible to provide athletes with a scenario which is almost identical to the competition conditions. These devices are called simulators.

Commercial and military aeronautics, for example, were pioneers in the creation of simulators that would allow pilots and crew members to train in various situations that could occur during the actual course of their functions/missions. This precedent was very helpful for High Athletic Performance.

Disciplines such as car racing and other similar sport activities use specific software to allow pilots and future pilots to train using a simulator. Such is the case of Agustín Canapino, now a 26 year old professional pilot who won the 2007 Megane Trophy (when he was only 17) among other track records.

In order to explain the impact of technology simulators in Agustín Canapino's training and career let's review information from Wikipedia and an article by Xavier Prieto Astigarraga published on February 27, 2009 in La Nación, which states the following:

"Despite his father being one of the most prestigious racing car mechanics in Argentina, he was never interested in his son getting involved in car racing because he didn't think there was a future in it. Tired of not getting his father's attention, Agustín visited one of his

highly regarded neighbors racing pilot Marcos Di Palma. After a long conversation, Di Palma convinced Alberto Canapino to let Agustín try driving a race car. Having only trained with simulation games and with no previous experience (not even driving regular cars) Agustín managed to convince everybody when he drove a Renault Mégane prepared for competition. His debut in car racing was at the 2005 Mégane Trophy when he drove a similar car prepared by Claudio Pfening. At 15 he was the youngest driver to compete in that category for the first time."

"I learned with computer simulators. I have been "training" with them since I was five years old. Obviously, as with all technology devices, simulators have improved a lot, and when I was 12 or 13 I started to play for real", recalls Agustín.

-Did you compete in international circuits or just in Argentina?

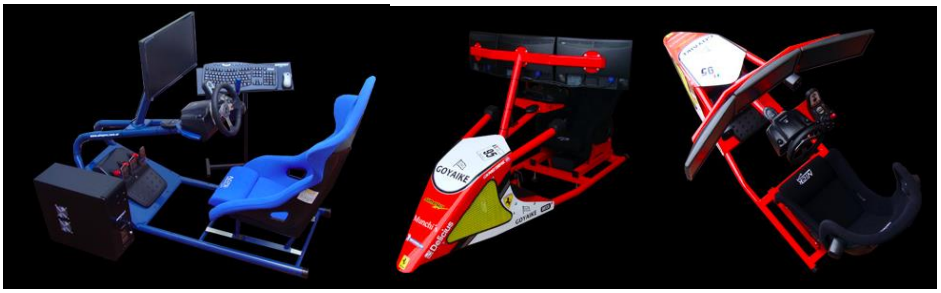
-Usually we play Formula 1 games, such as GP4, which are from abroad. I used to make it harder by racing in the middle of all the cars to have more fun. Sometimes I won, but it was not easy. And then I got access to the Internet.

And then Agustín Canapino appeared on the actual race tracks where it is the real thing, where the very best are rewarded and idols are born. He is not doing bad at all - in four seasons and at the beginning of this one he was the TC champion, won the Mégane Cup and his debuts in TC (3rd in Mar de Ajó) and Top Race (4th in Concordia). But, of course, he dreams of being a TC champion someday.

-Where do you see yourself in five years?

-I have no idea. Four years ago I was just playing my computer..."

Below are some simulator models currently used in Exposure to Competitive Conditions training (www.simpro.com.ar)



Source: www.simpro.com.ar

Source: www.simpro.com.ar

3.1.4 GoPro Cameras and Pre-Competition-Specific Preparation

Specific preparation for pre-competition is the last transitional stage in athletic training from a psychological perspective (Buceta, 1998). According to Buceta, this can be defined as "the selection and fine tuning of the appropriate resources." Selecting from all training and leaving only what is necessary for the next competition. To optimize this stage we need to:

- Define objectives and performance goals.
- Define concrete achievement strategies.
- Developing undemanding training sessions.
- Keep in mind the sports psychology principle: "the closer it is the less exposure".

This stage is short and should be implemented to achieve appropriate motivation levels and the required pre-competition emotional self-regulation. The guidelines for this stage are to create a positive harmonious environment when the keys to execution have been internalized.

Once again, technological devices can enhance training. In this case, we will briefly describe some benefits of using GoPro cameras.

These cameras can be attached to the athlete´s body, allowing him to make a recording from the athlete's perspective of what he is executing, which can be recorded or shared in real-time. In this way, we can "see" what the athlete is experiencing from his own perspective. This is important for training related to:

1. Distances in the disposition of tactical motor patterns in opposition team sports.
2. Individual execution in water sports.
3. Understanding the experience of extreme sports athletes.
4. Reviewing key executions pre-competition from an athlete's perspective.

These are by far the best existing devices when it comes to understanding what an athlete is experiencing from his own perspective, seeing what he is seeing and experiencing what he is experiencing in real time.

Unit 3.2 Online Software for Managing Athletic Performance

In Unit 1 of this Module we described some technological devices that when used in High Athletic Performance are specifically related to one of the permanent or transitional training and pre-competition stages, from a partial perspective in each stage. In this Unit we will summarize some of the main software contributions to sports which help manage all methods intended to maximize High Performance.

However, before we address the key aspects of some online systems we will share Nora Bär's article published on June 20, 2016 in La Nación. In this article she describes some of the factors and testimonies regarding the close relationship between High Athletic Performance and applied sciences today. She emphasizes their importance in improving athletes training and training staff:

> ***Atletas de laboratorio: el deporte recurre cada vez más a la ciencia (Laboratory Athletes: sports resort more and more to science).***
>
> ***La Nación. Nora Bär. Monday, June 20, 2016.***
>
> *Elite athletes are the result of specialized and intensive work. Everything seems to indicate that although genes play their role, the millisecond that may make the difference between athletes during the Olympic Games starting on August 5, it is more likely be due to training and new technologies than to genetics.*
>
> *An investigation published in PLoS One in February 2008 by Geoffroy Berthelot and his colleagues also supports this idea. According to this study, in 1896 athletes used 75% of their capacity while today that figure is close to 99%.*
>
> *Nowadays athletes are walking laboratories. Doctor Néstor Lentini, Director of Cenard up until last December 31 says that "When we know that an athlete is healthy enough to engage in high intensity activities we carry out physical aptitude evaluations, laboratory tests and field assessments. We study them on the treadmill, stationary bike, and indoor rower (for rowing and kayaking). We measure aerobic capacity, lactic acid levels in blood, and we establish an exertion scale so that the physical trainer knows how far to go."*
>
> *A fundamental part of Olympic preparation is bio-mechanical studies. "We*

videotape them to study their movements very closely and make any necessary corrections during training", he added.

"In my sport technology is vital" Bambicha highlights. "The development of new materials affect performance to the point that the paint and design of the sails are developed by NASA engineers".

High performance is a product of effort. This is why we need to quantify parameters for decision making. Online software programs are excellent tools for such a task. Below we outline the main aspects and benefits of four types of software for Performance Management, a broad comprehensive variable:

- Online surveys about High Performance intended to detect the preferences, needs, and interests of each of the populations involved in sports communities.
- Online performance assessments for high athletic performance, to determine levels of execution at specific moments and the gaps between these executions and ideal levels.
- Online training about knowledge, attitudes and abilities so that Athletic Performance can be studied as a group of concrete behaviors that will make it possible to establish performance standards and obtain optimal development.
- Online editing of audiovisual content and their statistical inferences, in order to find out what is happening, how it is happening, and what impact it has on the final result.

In summary, High Performance today requires decisions to be based on objective data. Subjectivity and interpretation are complementary to the mother of all solutions and difficulties: the professional decision, which is objective.

3.2.1 Online Handicap Software: Detecting the Needs, Interests and Preferences of Athletes, Coaches, and Sports Communities in General, via Real-Time Online Surveys

One of the biggest problems when developing effective training and competition processes is *assuming* that we know the needs, interests, and preferences of all the actors involved in sports and *not knowing* them for sure. By definition, we cannot manage assumptions but we can manage facts, even when they are not what we are hoping for.

It was precisely the need to know what was happening within sports communities that motivated the authors of this study to develop online software, which like many others, aims to contribute to the effective management of sports performance.

The tools available online to interview trainers, administrators, athletes, parents, and members of sports entities help us obtain objective data to analyze variables in a sports community and make sound decisions based on this data.

That is why we will outline the main characteristics of online software "Handicap" (www.matchgd.com.ar) which can be adjusted to the particular needs of actors belonging to various sports entities. These online surveys include, but are not limited to the following items:

- Level of Satisfaction of Members and Sponsors
- Level of Satisfaction of Associates and Employees
- Level of Work Atmosphere in the Sports Entity
- Preferences, Needs and Interests of Athletes in Terms of Types of Training Sessions and Competitions.
- Preferences, Needs and Interests of Trainers in Terms of Models of Leadership, Training and Competitions.
- Preferences, Needs and Interests of Athletes' Parents in Terms of Tools to Consolidate Family/Sports Relationships
- Preferences, Needs and Interests of Administrators in Terms of Management Models according to the type of entity
- Preferences, Needs and Interests of Members in Terms of the Type of Entity They Want

In many cases, not always of course, we found that clubs, associations, federations, confederations, and sports schools had very little specific data available during individual or group interviews of various actors who belonged to different age groups, sports, competition levels, or sex. In addition, in some cases, what some actors believed was happening to other people was not actually happening.

They were trying to manage false assumptions that were the result of subjective interpretations. Therefore, in many cases the decisions made by entities did not have the desired results. For example: if the problem at a sports club was a growing dropout rate of certain age groups and this had never happened before, the interpretation of the parents was different from that of the trainers, while the administrators also had their own interpretation. The common denominator was that all actors believed that they knew the reason, but none of them were sure. They were very surprised when, after an objective survey regarding the preferences, needs, and interests of the actors who were the subject of this survey, in this case the groups with the growing dropout rate, the actual reasons were totally different from the ones stated by the other persons. Let us assume that in this case the athletes did not find what they were looking for at the club while the other persons were thinking of dropout reasons that were far from reality.

This explains why it is important to have online software available to obtain collective results in real time from individual interviews, anonymous or targeted, by using devices connected to the Internet from any location at any time.

There are many software applications that can be used in sports. "Handicap" offers the following functions:

1. Ranking in terms of attributes of the preferences, needs, and interests of the population being interviewed.
2. Ranking in terms of skills of the preferences, needs, and interests of the actors being interviewed
3. Ranking by type of audience if those surveyed were athletes, coaches, parents, leaders, etc.
4. Comparative results of concordance and dissidence levels among various populations surveyed, both in terms of attributes and competencies.
5. Results by gender, type of sport, competition level, age, position, etc.

"Handicap" offers an objective picture of an entity or part of it in terms of certain variables. This App offers objective data about an actor's perceptions from which reasonable decisions can be made. Remember that nothing is stronger than its foundations.

3.2.2 Online Performance Software: Athletes' and Coaches' Level of Skill Mastery, via Real-Time Online Performance Assessments (in 90º, 180º, and 360º formats)

Continuing with the premise of making decisions based on facts, one of the High Performance intervention models (both for team and individual sports) is related to the determination of the following:

- Ideal Behavioral Profile of each Athlete and Coach
- Actual current behavioral profile of each athlete and coach.
- Gap to breach between the ideal destination and the actual starting point.

This means that we first have to adjust the starting and ending points of the process to a visible "language", and second, address the gap using the same language. The "language" is the behaviors or actual acts performed or that should be performed by the actors involved in psychological and sport training processes.

Once we have defined the behavioral indicators that make up the profile of each athlete and coach (and their respective skills) this intervention model involves taking a detailed microscopic picture of what each participant in the process (and potentially their close environment) perceives about his performance in terms of each indicator. This self-perception of a player's performance level and comparing it with the perception of such

performance in terms of the same indicators by other actors is called performance assessment.

If it is only a self-assessment of a player's performance level, such performance assessment is called self- assessment.

When others are also evaluating the performance level of that person, it is called a 90º performance assessment if, in addition to the self-assessment the coach is also evaluating the player. It is called a 180º performance assessment if, in addition to the coach other athletes are also evaluating the player. It is called a 360º performance assessment if, in addition to the self-assessment, the athlete is evaluated by the coach, other athletes, and other actors who are qualified to evaluate the indicators in question.

An example of an athlete's behavioral profile:
Competencies: Self-efficacy- Controlling anxiety levels- Enjoying the sport - Motivation
Indicators: the "self-efficacy" skill includes some specific behaviors associated with this comprehensive variable, such as:

- The athlete decided to execute whenever the game presented an opportunity.
- The execution focused on the processes of how to execute and not on the results of the execution.
- etc.

Therefore, some skills will include some indicators that are the actual behaviors that an athlete or coach should always have in mind because they make up their High Performance Behavioral Profile. This profile is evaluated at different moments of the mental training process. We can do it at the beginning and at the end so as to assess the progress (or setback) made while managing the gap. We can also evaluate an athlete during the training process.

These assessments can be very helpful when a software application offers results in real time both to the athlete being evaluated and the members of his team. In the same way, the results from all the assessments which are automatically analyzed by the system are of major importance for the mental training process. This is basically done by the online software called "Performance".

"Performance" results can be displayed in terms of:

- Ranking of indicators (at both the individual and collective level).
- Ranking of Skills (Idem)
- Ranking of Areas (position, responsibilities, etc.)
- Ranking of Projects (tasks and special roles that certain athletes or coaches have during the season)

- Comparison of the different actors being evaluated

In addition to this software that we have developed based on the ideas mentioned in the previous paragraphs, there are many others on the market. When we have to assess performance we should use the latest technology devices to be able to manage High Athletic Performance in a comprehensive reliable manner.

3.2.3 Online "Gol" Software: Athletic Skill Training based on Cognitive Indicators and Automatic Behavior Feedback, via Individual Dashboards Customized for Diverse Athletic Disciplines and Competitive Levels

Ideas, emotions and behavior can be trained. High Performance does not mean winning, but preparing in the best possible way giving everything an athlete and coach can offer. High Performance is the best possible training for increasing the chances of winning. Thereby increasing the chances of winning. It will guarantee growth. The best training is to grow.

The items above described two online software applications that offer an objective analysis at a given time. They take “photos”, some to collect information (“Handicap”), and others to assess execution levels (“Performance”). The trilogy is completed with a software application that provides systematic training after the collection and assessment of data. The online software "Gol" aims to train knowledge, attitudes and abilities. Again, this is not the only software available. We mention it because it is part of the sports psychology intervention models developed by the authors. It is neither better nor worse than the others; we just have more experience using it.

Gol makes it possible to train behaviors required by the Behavioral Profile at any time and online. Each athlete or coach has in their personal account a command dashboard with a set of indicators corresponding to different skills. They respond using this dashboard within the indicated time frame and the system automatically calculates the results in terms of skills and produces behavioral feedback with actual suggestions to improve in the short term.

Some of "Gol's" features are:

- It is a Training System for users and a Communications and Performance Management System for process leaders.
- It is absolutely flexible in its content, measuring time frames, definition of role comparisons, and performance and results comparisons.
- It offers specific suggestions from specialists to optimize an athlete's performance and online links for reference.

Some of the benefits for using Gol are:

- Beginning with a behavioral profile for the athlete to reach.
- This behavioral profile is modified as the athlete incorporates new behaviors.
- It offers specific suggestions to each athlete in order to maintain or enhance his performance.
- It provides links for the athletes to improve their knowledge in relation to the profile they are trying to reach.
- It compares the athlete's perspective with the coach's perspective about the athlete's performance.
- It compares the athlete's performance with the results achieved.
- It presents a ranking of the athlete's mastery of behavioral indicators.
- It analyzes the results in terms of the skills that need to be trained and the positions or roles of athletes.
- The weekly measurement only takes 10 minutes.
- Makes an archive available to the athlete, detailing their performance, week to week, with suggestions, virtual links and comparisons with the coach.
- GOL is flexible and can be adjusted to the needs of every athlete.
- The behaviors to be trained through GOL are selected by the athlete and the system offers him suggestions to help him reach his goals.

Like in other items, we are not emphasizing the use of any software in particular, rather, we want to outline the importance of using technology devices to support the management of High Athletic Performance. Fortunately, this development process will never stop growing.

3.2.4 Integrated Scouting Image Editing Software – Real-Time Statistics – Simultaneous "Streaming" Transmissions and Their Implications on Pre-Competition, Competition, and Post-Competition Phases

While we not want to overwhelm the reader with more ideas, we would like to share Juan Manuel Trenado's article in La Nación on May 9, 2015, where he proposes a series of technology tools for pre-competition, competition, and post-competition. Here is a summary of his ideas:

DT digital: la computadora, la herramienta deportiva de moda (The digital Coach: the computer, the sports tool that's in fashion)

La Nación. Juan Manuel Trenado
Saturday, May 9, 2015.

The industry of technologies applied to sports has a great number of companies that go by unnoticed. They may hide behind television idols but they play an important role in the training of an athlete or a team. They are helpful in many ways. As an informative tool, to change a tactic during half time, correct defensive behavior in certain situations, observe the opponent's movements, take advantage of the defects detected in an opponent or correct the technique of a player of our team. If somebody is dedicated enough to know how to observe those situations the help can be invaluable.

SportCode

How do they work? Depending on the requirements of each coach, codes are programmed to record certain situations (corners, getting the ball, passes, centers in movement, dribbles, clearances, etc.) With just a click on an iPad the software selects a segment of the recording that starts two seconds before and ends two seconds after execution. The video is automatically saved in a file on the hard disk.

It can be recorded by type of play, player, and area of the field. It can even select all the instances when two players pass the ball to each other. Everything is registered in a matrix and then recovered if necessary.

The cameras with the most convenient angles can be selected and irrelevant shots ignored depending on the requirements of the coach (wide or short angles, middle, side on, or frontal views).
This is very interesting because it can be adjusted to every sport. In Argentina, it is used by the national soccer team, many first division clubs, Las Leonas and Los Leones field hockey teams, Los Pumas rugby team, and even by Ellerstina polo team, among others.

There are many databases with videos however, three main databases are the most reliable: Wyscout, from England; Videoprofile, from France, and InStat, from Russia.

Prozone

This company installs cameras on the fields of the teams that purchase them. The images are transmitted from anywhere in the world to a mother server located in India where the material is processed by thousands of employees.

Another method in high demand to evaluate games are sensors linked to GPS (the most popular ones are GPS Sports, and Catapult USA). These small devices are placed in a small pocket in the neck of players' jerseys. They have been banned by FIFA and therefore the clubs only use them during practice. They provide information about the kilometers a player runs during a game, his maximum speed, or his average speed.

The latest innovations are associated with those sensors attached to the players' backs which are connected to video cameras to follow a certain athlete. The machine detects the player's movement and follows him around the whole field without the need for a cameraman. Even the zoom is automatic and is adjusted when the player gets close or far away from the area where the device is located.

In this Module we've tried not to overwhelm the reader with conceptual theory. On the contrary, we've tried to reflect on the significant changes that have taken place in the world of sports in general and in High Athletic Performance in particular: disruptive paradigms, constant technological advances, communication codes in constant evolution, individual and collective priorities under constant change. And in the middle of all these phenomena are people. Managing ideas, emotions and behaviors is just as important today as it was in the past but the rules of the game are very different. This is the challenge we have to overcome in the 3.0 environment.

References

Bär, N. (June 20, 2016). Atletas de laboratorio: el deporte recurre cada vez más a la ciencia [Laboratory Athletes: sports resort more and more to science]. La Nación.

Buceta, J. M. (1998). Psicología del entrenamiento deportivo [Psychology of Athletic Training]. Madrid: Dykinson.

De Diego, S., & Sagredo, C. (1992). Jugar con ventaja [Playing with the Advantage]. Madrid: Alianza.

Mosqueira, J. (December 27, 2015). Multitasking y feedback en tiempo real, los millennials frente al espejo. [Multitasking and feedback in real time, millennials in front of the mirror]. La Nación.

Oramas Monzón, A. (April 7, 2016) Retrieved from http://www.hobbyconsolas.com/noticias/egames-evento-esports-durante-juegos-olimpicos-rio-2016-141130

Orihuela, J. L. (October 14, 2008). La hora de las redes sociales [The Moment of the Social Networks]. Nueva Revista, no. 119, 57-62.

Perazo, C. (September 22, 2015). Cómo es ser una chica gamer en el mundo de los videojuegos [What it's like to be a girl gamer in the videogame world]. La Nación.

Prieto Astigarraga, X. (February 27, 2009). De piloto virtual a promesa real [From a virtual pilot to real promise]. La Nación. Retrieved from http://www.lanacion.com.ar/1103739-de-piloto-virtual-a-promesa-real

Rebato, C. (2011). Las diez mejores aplicaciones de iOS para hace deporte [The Ten Best iOS Applications for Playing Sports]. Retrieved on April 15, 2013 from https://hipertextual.com/archivo/2011/12/las-diez-mejores-aplicaciones-de-ios-para-hacer-deporte/

Revista Noticias (October 29, 2015). Las 7 mejores aplicaciones de Android de Deporte [The 7 Best Android Sports Applications]. Retrieved from http://mobileapps.ec/las-7-mejores-aplicaciones-android-de-deporte/