

Online resources for coaches education: Motivation for applied Intellectual Capital Management in tennis.

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ABSTRACT

Over the past few years the opportunities and challenges associated with “eLearning” have changed as dramatically as information technologies have been and are still developing. This refers not only to the technologies themselves but also to the availability of information. The amount of information in general, also scientific findings, can be characterized by an exponential growth, too. This in turn causes a rapid decrease in half-time for current, valid information and knowledge. In natural sciences this half-time is appr. 2.5 years, in information technology less than one year, both half-times are decreasing.

Key words: Online, Education, Tennis, Information, Knowledge.

Received: 2 August 2011

Accepted: 19 August 2011

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INTRODUCTION

Regarding the various formats of information, printed types still have their own relevance and impact. It must be considered, however, that it could take around 2 to 4 years to publish e.g. a substantial textbook, and that it takes another 4 years to bring out a completely revised version. It is easy to understand that over the course of these 8 years dramatic changes in valid information have been occurring and that practical problems and insights might have surpassed official doctrines by far. A special dilemma must be mentioned in this context: Young researchers are obliged to publish predominantly in journals with impact factors. Practically oriented journals do not fulfil this requirement. Thus, much information that might be needed urgently in practical settings, such as in coaching, are “hidden” in highly specialized journals and written in a language that too is highly specialized.

“Traditional” eLearning modules comprise various formats, such as Computer-Based Training (CBT), Web-Based Training (WBT), Web-Lectures (WL) and Web-Meetings, sometimes in stand-alone versions and sometimes in combinations of these. It seems that all these formats have developed more in an evolutionary way than by proven and evaluated concepts. One may argue that evolution in a biological sense produces results that are not totally negative. The counter-argument in sport is that we take care of individuals at the extreme borders of their potential and their health status as well as of kids with all the

necessities of prudence. Thus, we are obliged to gather and use all currently available and reliable information as fast as possible.

The following two examples with respect to sport and exercise science shall illustrate that traditional formats tend not to picture the current state of scientific knowledge nor meet the requirements of modern training.

1) Intensity control and meaning of lactate: For many years now, it has well been known that lactate is not an end- or waste-product of metabolism but rather a potent trigger for many bio-positive signaling pathways. In spite of this, most practical recommendations state that “too” high lactate-concentrations should be avoided. Following current international research, however, it has been shown that it is important to develop the lactate- transportation and metabolism capacity by enhancing the lactate-shuttle of MCTs (MonoCarboxylat-Transporters). This can be done primarily by using special protocols of High-Intensity-Training (HIT) in combination with adopted exercise-rest strategies (Gibala et al. 2006; Helgerud et al. 2007; Wahl et al. 2010a; Wahl et al. 2010b).

2) Talents, age and genetic pre-disposition: Especially in tennis there has been a long-lasting discussion about when, how and with whom early talent-identification and –promotion should be started. Current neuro- biological research with regard to

neurogenesis and synaptogenesis quite clearly shows that the period between the ages of two to four is extremely important for the development of high-performance motor skills. The contribution of genetic pre-disposition must be re-considered under these aspects as well as possible modifications by epigenetic mechanisms. This means that also at the level of the genes, effects of certain attitudes and of individual behaviors can be traced and can be influenced in their early stages (Csoka, Szyf 2009; Karberg 2009; Martin 2009). As exercise and training must be considered to be important contributors in this framework of stimuli, there is much reason to carry out more research in this field.

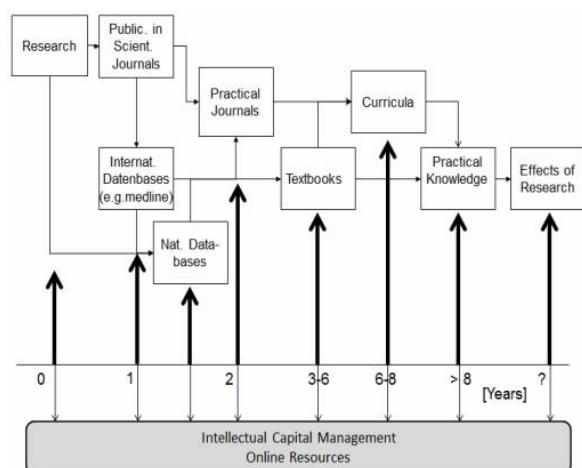


Figure 1. Time-line of traditional research and transfer-rate into practical publications.

A mapping of these examples to be reproduced in the format of traditional CBTs or WBTs is not practical. It cannot keep pace with the speed of progress in scientific research. Printing materials are hopelessly overstrained. The previous figure illustrates the problems and offers a conceptual approach.

If current research - as in the above mentioned examples - is carried out, one can assume that it takes approximately:

- One year before these results are published in international scientific publication databases, such as "Medline" and many others,
- two years until abstracts are mentioned in practical journals,
- 3 to 6 years until textbooks show the results,
- 6 to 8 years before these results are transcribed into practical knowledge,
- more than 8 years until research results show practical effects.

Nowadays (nearly) all relevant information is available online – somewhere – and could easily be organized in the form of a so-called Intellectual Capital Management (ICM) System. It must be stated that today it is no longer a problem to get access to information. The challenge is rather to gather, harmonize and to adapt the information to the needs of the practical application and also to give feedback to the scientists. The choice of digital formats is self-evident since the Web has evolutionarily brought into use all kinds of well-known tools.



Figure 2. Online Resources.

According to these considerations:

- 1) Research results should be picked up as early as possible, ideally through direct contact with the researchers.
- 2) Scientific publication databases should be scanned for new insights.
- 3) First, second and third results transformation in practical journals, textbooks and curricula should be documented and enhanced in an ICM System.
- 4) The development of practical knowledge should be monitored.
- 5) The effects of research should be evaluated.

Of course, so far this is not a way to communicate the results of scientific research and to get into powerful interactions with practical demands. However, modern internet-/information-/communication technologies are now at hand to build such systems. In the age of social media, software, tools and platforms there are numerous online resources available for that.

Fig. 2 shows tools and buzzwords. Fig. 3 illustrates the ICM concept of systematically structuring current scientific and practical knowledge and of connecting people – here coaches and scientists.

An integrative approach of these ideas can generally be found in so-called modern "Cooperation-Systems". These systems include the following elements:

- Social Software,
- Web 2.0,
- Computer-Supported Cooperative Work (CSCW),
- Groupware,
- Knowledge Management (in Communities of Practice),
- Infrastructure Technologies for Groupware and Social Software,
- Ubiquitous User Interfaces for Community Awareness



Figure 3. Added value of individual intellectual capital and communication via online-resources.

Such technical and organizational resources can be made available online and be used to stimulate exciting win-win co-operations. The - by far - most important issue, however, is the content which can only be and must be provided by experts. If, for example, the topic of "intensity in training and the meaning of lactate" is of interest, "communities" can easily be established around experts in physiology and practical training. Then, based on existing results in well-controlled lab-studies, conclusions for quantitative and practical applications in tennis can be drawn quite rapidly. Although quantitative consequences in the field of epigenetics cannot be drawn so easily because the research is not far enough, together with existing results in talent research, potential implications can also be developed.

There is no doubt that such a system requires significant resources in terms of development, installation, administration and maintenance. On the other hand as international competition and communication in sport belong to the most outstanding achievements of modern society, for a global institution such as the ITF it can be regarded as a real challenge to bring to life such an innovative system.

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RECOMMENDED ITF TENNIS ACADEMY CONTENT (CLICK BELOW)



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