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Identifying the Baseline for Serious Games in Corporate Training

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Abstract

The term Serious Gaming was coined by David Rejeski and Ben Sawyer in their white paper Serious Games Initiative (2002). Serious games are games that educate, train and inform (Michael & Chen, 2006) and they are proven successful as a learning method for conveying skills on complex tasks. It could therefore be expected that serious games would play an important role within cooperate training, but this seems not to be the case. In order to identify which barriers the use of serious games in corporate training faces, the authors have developed a questionnaire in the frame of the Gala NoE project. This article presents the questionnaire as such, and it is the intention of the authors that the feedback of the IFIP workshop will be used to improve the questionnaire.

Keywords

Awareness, corporate training, penetration of serious games.

Introduction 1

The European labour market is volatile and both the requirements on the workforce as well as the working environment are rapidly changing. The competitiveness of the European industry is dependent on the competence level of the workforce. The question is therefore, how is it possible to mediate what the employee could need in such a way that he will use time and be motivated. The figure below shows the relation of age and enrolment in formal education, so it can be seen that too few employees visit formal education after leaving school.

The mismatch between needed and available skills and competencies increases due to the dynamic environment in which the European workforce acts in and due to the quite low level of vocational training and implemented lifelong learning strategies.
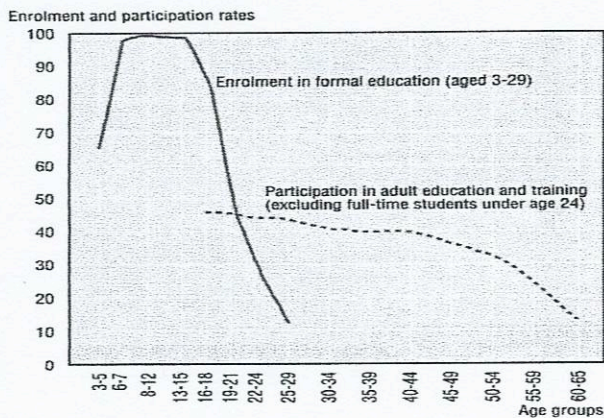

Figure 1 Enrolment and participants rates (Source OECD Observer, February 2004, Policy brief])

In order to prepare the workforce as well as support the lifelong learning, there is a need for continuous training within the company. Furthermore, several surveys examining the training needs carried out during the last couple of years state that there is a large need for improving the qualification of employees working at all stages and positions (compare Hausladen 2009, BVL 2008; Eckerland, Borchert 2008; Ahlene, Dobischat, 2008) There is also a need for vocational training (Hausladen, 2008; Cedefop, 2008) and most companies do offer their employees qualification possibilities, but only few employees attend such training. The question is therefore, why does it not seem attractive for employees to visit such courses and can gaming help to reduce the barrier of lifelong learning?

In their study and presentation, Pikkola and Illmarinen (Pikkola, 2004; Illmarinen 2009) mention different areas relevant to the well-being and the ability of an employee to work. The well being is a pre-requisite for taking part in corporate training. They use a work ability house with four different floors, seen in Figure 1 below. The first floor is the level of health and functional capacities, which decreases with increasing age. The second floor is the competence floor, comprising individual skills, knowledge and competences. At this level an individual lifelong learning strategy can ensure that an employee stay fit for the labour market, but if the employee loose track at this level, his motivation will also disappear. (Pikkola, 2004)

The third floor is the floor of motivation. Taking into mind that the working environment is fast changing, and that the employee is a part of the
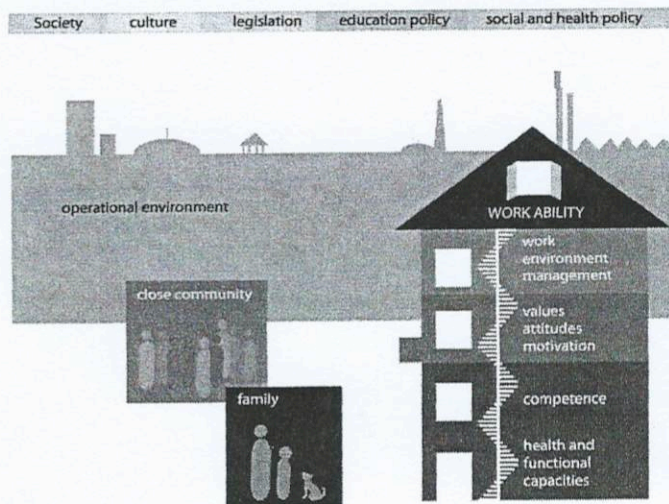

Figure 1: Illmarinen's Workability House (Illmarinen, 2009)

learning organization (Fuchs-Kittowski, 1998) it becomes evident that any barriers or boundaries leading to a reluctant relation to the use and implementation of new tools and working processes, needs to be addressed by the employers in order to prevent a drop in the well-being at work of the employees (Pikkola, 2004).The fourth floor is the level of operation. Illmarinen concludes that "...leadership and the organization of work is important element. The fourth floor is subject to the most rapid changes during the life time. This should be reflected in any strategy in human resources development.

Due to its high motivation factor and the possibility to let the participants play an active role, the use of experiential learning forms have been

increasing within elementary and secondary education. During the last decades such methods have also been implemented at the university level. Serious games are such an approach. The next section will therefore deal with how Serious Games can support different floors in the house of competencies and thus motivate the employees.

Serious Games and wellbeing at work

As mentioned in the introduction the mismatch between required and offered skills and competencies is a problem in a dynamical environment, and thus, it is common sense today, that there is a need for continuous learning (OECD, 2004). Employers and employees do have some common objectives regarding the competencies and wellbeing at work. On one hand side the employer needs qualified and motivated personnel in order to carry out the task correct and efficiently. On the other hand, the employee should an own interest of being able to fulfil the requirement on him so that he stays attractive and the personal motivation and satisfaction have a large impact on the wellbeing, both at work and at home. Despite this crucial impact on the efficiency of an employee, the number experiencing the satisfaction is decreasing (Pikkola, 2007) thus not only the employees faces changing working environment and therefore need continuous learning (OECD,2004, EU, 2009) but also for organisations(Thoben, 2005; Schwesig,2004). Level three in the work ability house deals with the motivation, and level four comprises the organisational aspects. In order to increase the number of attendee to corporate training, it is necessary to look at how it is possible to reduce barriers. In order to be able to do that it is necessary to know which methods they use at the moment as well as if they use games or not. In the case of not using game it would also be interesting to know why. Consequently, we are interested in measuring the level of awareness, if serious games fit into company training concepts etc.

Development of a Questionnaire for corporate training and the use of games

Serious games have proven to be an important tool in supporting the education and training at schools and universities as well as the vocational training in the industry (Windhoff, 2001), but still it is not often in use.

In order to analyse the use and the requirements the authors have developed a questionnaire which is comparable to typical questionnaires used on the implementation of ICT in companies. To answer these questions a questionnaire survey of training and human resources

managers across Europe will be carried out. The aim is to assess the degree of awareness of serious games for training in companies and to assess the level of adoption and the barriers to adoption. Currently the survey is being piloted in the UK on three groups of top 100 companies: the best to work for, the most profitable, and the fastest growing technology companies. These top 100 lists have been complied by a leading newspaper in the UK. Comparing the responses between these three groups of companies will provide some interesting insights. One could hypothesize, for example, that the highest awareness and adoption of serious games would be found among the top 100 best companies to work for.

The first part of the questionnaire seeks to understand the level of awareness of serious games and to compare the company's innovation approach to see if they would be likely to adopt new technologies like serious games:

① **Have you ever heard of the use of Serious Games for training?**
   ☐ Yes   ☐ No

② **How do you consider the approach of your organization to Serious Games?**
   ☐ Early adopter – you are willing to use the very latest new technologies, taking the risk of unprofitability or uncertainty
   ☐ First follower – you could take the risk of deploying new technologies relatively early if they are promising
   ☐ Slow adopter – you are cautious and will deploy new technologies only when the market is mature and the benefits are clear
   ☐ Forced adopter – you will deploy new technologies only if your customers, government regulation, etc. oblige you to

The responses to this question allow us to plot the company on the famous s-curve of technology adoption. Then the question of the level of adoption is investigated – any or no adoption, test or pilot adoptions to wide scale adoption (we anticipate the latter to be unlikely).

③ **What is the level of adoption of Serious Games in your company? (tick only one)**
   ☐ We have never investigated their applicability
   ☐ We are carrying out an investigation into their applicability
   ☐ At the moment serious games do not apply to us
   ☐ We have already planned to invest in serious games in the near future
   ☐ We are carrying out a pilot/testing project
   ☐ We have adopted them in a limited area of our business
   ☐ We have adopted them widely

Then we examine the barriers to adoption: knowledge/information deficit, practical/ facilities barriers, cost/ business case barriers, low familiarity with electronic training means/ IT, lack of staff, and perception problems (that games are not serious).

⊘ What in your opinion are the barriers to the adoption of Serious Games? (tick all those that apply)

Not enough is known about their practical application	☐
Unconvinced of the business case	☐
Difficult to demonstrate Return On Investment	☐
Cost of Serious Games	☐
Unwilling to invest in developing serious games	☐
It is not easy, or practical, in our business to develop serious games	☐
Lack of knowledge (self, company) about Serious Games	☐
Low Familiarity with using	☐
Online Training	☐
Skype	☐
Virtual Worlds	☐
3Ds	☐
Not sure of the reliability of the technology	☐
Lack of good quality information about Serious Games use in training	☐
Worries about integration of Serious Games in to existing training	☐
Worries about serious games to satisfy the company's purpose	☐
Lack of training staff who are willing to/experienced in using serious games	☐
Staff and employee perception that playing games is easy and not valuable	☐
Not understanding the mechanisms in games that make them educational	☐
Lack of IT Support	☐
Lack of Technical facilities to use serious games	☐
Not enough time to use Serious Games in our company	☐

Other (please specify)

We then ask what the perceived benefits of serious games are. If companies perceive the benefits to be good they will be more likely to adopt them and conversely.

⊘ Please give an opinion to the Serious Games:	Disagree	Undecided	Agree
The use of SGs will allow us to improve our products/ services	☐	☐	☐
SGs will enable us to improve our staff competences	☐	☐	☐
SGs will enable us to reduce our training costs	☐	☐	☐
SGs will enable us to become more efficient	☐	☐	☐
SGs will enable us to increase our sales	☐	☐	☐

Finally, we ask about the types of skills that companies want to address using serious games. The question of what types of skill do industry need to be mediated by serious games is key? A question on skills mediated has been included in this questionnaire. It divides skills into hard and soft skills – hard skills are those associated with knowledge required to carry out ones jobs, eg. knowledge of the product being manufactured/sold, customer service, project management, etc. Soft skills are those associated with working with other people – team working skills, communication, inter-personal skills, etc. It has often been pointed out that soft skills are actually very difficult to acquire and develop – in fact more so than hard skills. And

it has been further observed that soft skills are more easily mediated by serous games (Scholz Reiter, et al 2002).

⑥ **How interested would you be in using Serious Games to address the following business areas?**

	Not	A little	Some	Very
Soft Skills:				
Team Building	☐	☐	☐	☐
Communication	☐	☐	☐	☐
Inter-Personal Skills	☐	☐	☐	☐
Negotiation Skills	☐	☐	☐	☐
Creativity	☐	☐	☐	☐
Collaboration Skills	☐	☐	☐	☐
Learning	☐	☐	☐	☐
Hard Skills:	☐	☐	☐	☐
Product/Services Knowledge	☐	☐	☐	☐
Sales	☐	☐	☐	☐
Discipline-Based Training (eg. accountancy, purchasing, stock control)	☐	☐	☐	☐
Customer Service	☐	☐	☐	☐
Project Management	☐	☐	☐	☐
Decision-making Skills	☐	☐	☐	☐
Innovation	☐	☐	☐	☐
Risk Management	☐	☐	☐	☐
Health & Safety	☐	☐	☐	☐
Legal/ Regulatory Compliance	☐	☐	☐	☐

Other (Please Specify) _____

The prelimary results from the UK survey will hopefully be ready for the workshop in early June. The results can be compared to a recent survey on RFID adoption. This survey found that there was a high degree of awereness of RFID in the UK logistics industry (80+%), however, adoption was a lot lower at 17%. The reason for this is that RFID is a system technology requiring all players in the logistics supply chain to adopt it for the benefits to be fully realised – individual companies adopting RFID will not see great payoffs. The question is whether serious games are similar system technologies – requiring concomitant investment in facillities (computer training labs) and trained staff as well as overcoming the awareness/ information gap. Hopefully, the survey can start to answer this question and point the direction for the types of serious games that industry would be more willing to adopt. And to identify what arguments serious game vendors/ developers need to use to convince companies to adopt or invest in serious games.

Conclusion

Fast changing and dynamic systems such as production networks lead to continuously of working conditions as well as rapidly changing requirements regarding the competencies of the workforce. Consequently, in order to stay competitive it is necessary to have a lifelong learning strategy and for the companies to offer corporate training. However, not many employees take part in formal training. The mismatch of the need for continuously training and the number visiting such offers has lead to new EU strategies for improving the number, but the lack of motivation might also arise from not using motivating training methods. Serious games are proven to be motivating since games have been demonstrated to provoke active learner involvement through exploration, experimentation, competition and co-operation. Still, games are not commonly in use in the corporate training. In order to get additional information on why they are not so much in use, the authors have developed a questionnaire to be distributed to companies. Depending on the outcome, we will look at different target group: firstly those using online training already, in the next step we would look for possibilities to look at games or mobile games.

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