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A Social Network Platform for Vocational Learning in the ITM Worldwide Network

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Abstract: In the more modern visions of Technology Enhanced Learning, the learners are seen as active participants engaged in a variety of online and off-line collaborative learning experiences and interaction. This paper presents an approach investigating the use of an attention enhanced social network platform as a way of implementing this vision. This paper first presents how mechanisms supporting social attention have been incorporated to design a collaborative platform AtGentNet to make the interaction more effective. It then indicates how this platform has been tested with a group of participants from Europe and Africa for supporting their interaction in the context of a blended vocational training programme TRIM (Trade Management Implementation). This paper then concludes with a presentation of the findings and makes a first analysis of the results.

Keywords: social networking platform, blended learning, international training, social attention

1. Introduction

1.1 The relative failure of the first "delivery"-based Technology Enhanced Learning approach

The success of the first generation of Technology Enhanced Learning, relying on the idea of using a platform to help distribute material, to deliver education (approach exemplified by the SCORM standard), or "administer" learning (via and the various LMS – Learning Management Systems that have been designed) have been far from spectacular. More generally, without calling it a total failure (for instance Technology Enhanced Learning has proved to be useful for teaching some basic skills such as the use of ICT (Information and Communication Technologies) tools or in the case of language learning as a practicing tool), it is generally admitted that Technology Enhanced Learning has not fulfilled its promises, and in particular has not "revolutionalised" learning as it was originally expected [1]. Besides, this early vision of Technology Enhanced Learning (often a simple adaptation of traditional offline pedagogical models) appears to be maladapted, in the perspective of life-long learning, for the training of the employees of knowledge intensive organisations who are more knowledgeable, are expected to be more proactive and more in control of their learning [2] than employees of more traditional organisations.

1.2 – The emergence of a new vision more participative, collaborative, and "blended"

This vision of Technology Enhanced Learning relying on the idea of an individual learner using ICT to remotely access training that has somewhat become obsolete, is however progressively changing with the emergence of new paradigms more funded on collaboration and active participation of the learners. In this new vision, the learners have evolved from a role of passive consumers of static content, to a role of full actors collaborating with peers, engaged actively in some more interactive experience, and even bringing their knowledge and participating to the construction of content. For instance, as indicated by the HELIOS European E-learning Observatory [3], "Group learning (including when using ICT as a communication device) is still considered to be more effective than individual e-Learning in improving learning opportunities", and in the new paradigm, "Learners create content, collaborate with peers through mechanisms such as blogs, wikis, threaded discussions, RSS and others means to form learning."

Besides, the new Technology Enhanced Learning vision does no pretend to totally replace the physical interaction, but rather to augment it, in particular related to collaboration. Indeed, organisations and people are also rediscovering that "presence" learning does not only present disadvantages, and for instance give the opportunity to the learners to really disconnect from their day to day activities, and to dedicate all their attention to the learning process. Besides, face to face interaction, even if it is not as flexible as online interaction, still appears important in the formation of people relationships, since many of the perception "clues" that are used by people to form their opinion [4] are only available offline. The combination of offline and online interaction, also termed as blended learning, allows taking advantage of the two worlds. Finally, blended learning also represents the potential of improving the effectiveness of the learning process for organizations [1].

1.3 – Learning 2.0 and the implementation of this vision

In response to these needs, a new generation of Technology Enhanced Learning systems, sometime termed to as Learning 2.0 in reference to the Web 2.0 from which it borrows many ideas, has started to emerge. Systems designed according to Learning 2.0 principles rely on the idea of supporting faster, smaller [5], more flexible [6], and informal "learning" processes [7], and are more centred on social interaction. They have also started to make use of new tools such as "social software tools (blogs, wikis, social networking systems, collaborative systems)" that have been created as part Web 2.0 [8].

This more modern approach of learning is also trying to take the human factor as a very important factor for adoption much better into account in Technology Enhanced Learning, since "Organizations cannot rely on the technology itself to drive interest, acceptance, or satisfaction with e-learning" [9]. Also, as recommended for policy and practice by [3] "'never neglect the human factor within e-Learning'. … two priority areas: the personalisation of e-Learning solutions and the 'humanisation' of e-Learning, embodied by such developments as the diffusion of game-based elements, new possibilities for learners' interaction and empowerment, the community building aspect of e-Learning"

To summarise, these new systems no longer consider the learners as isolated individuals to whom they have to deliver content remotely, but they see them as active participants interacting both online and off-line with one another, and to which they have to propose in a variety of collaborative learning experiences.

2. Objectives

Acknowledging this change of Technology Enhanced Learning paradigm, the objective of this paper is to present research aimed at implementing some part of this new vision of learning, in particular related to the use of a digital platform to support and to extend the social interaction of a group of learners engaged in an "off-line" education programme beyond the time of the classroom. More specifically, the core of this research is about investigating the idea of how the support of attention in a social context can help to make the interaction more effective in a learning system. Indeed effectively managing the attention in a social context is often difficult and time consuming and properly addressing this issue represents a determinant element in the success of an interaction platform. For instance, how to filter the large amount of information and signals originating from a community? How to deal with the large number of social solicitations that are created in such a community? How to determine the level of impact of an interaction in a community and its effectiveness? How to intervene to make the community as a whole more effective?

2.1 Supporting learning with an attention aware social platform

In this project, an attention aware collaborative platform has been designed whose function is to facilitate the exchange of knowledge between the learners and the courses, and further on in an alumni learning community, contributing to a better assimilation of the content delivered to them in a training programme. This function is also to intervene at the cognitive and social-dynamic level leading to augment the motivation and therefore the level of interaction between the learners during the off-line sessions and in the online exchange. Practically, to achieve this objective, this platform offers different means of online communication (such as bulletin boards or chat box), as well as a series of attention aware mechanisms aiming at stimulating the interaction or at making this interaction more effective.

The first objective of this paper is to describe more precisely how to support attention in a social platform and in particular to present different mechanisms that can be used for this purpose, as well as to present how these mechanisms may appear in term of user experience. More generally, this paper aims at a better understanding to which extend the idea of supporting attention can be useful to the design of a next generation of e-learning platform better able to support the vision of more active and collaborative learners.

2.2 Validating the approach with a pilot

The platform has been tested in the context of an offline vocational training programme, leading to a Diploma in International Trade Management. Practically, this platform has been used over a six month period to support the online interaction of the participants of this programme with the function of (1) helping to maintain, to consolidate, and to develop the relationships that have built during the physical sessions; (2) contributing to the learning process itself by facilitating knowledge exchange, even after they have returned to their respective companies; (3) Supporting the participants in an Alumni network. Indeed, after finishing the training programme, the participants affiliate to a Worldwide Network for life long-learning, career and business opportunities, which offer them the possibility to interact online (using the platform), but also to meet each year at a worldwide conference.

The second objective of this paper is to report the results of this pilot, and to provide a first assessment of the value of an attention aware platform based on evidences for making the interaction of a group of learners engaged in a blended learning programme for effective.

The research described in this paper was conducted as part of two research projects partially sponsored by the European Commission, AtGentive and TRIM. The first project AtGentive[1] (Attentive Agents for Collaborative Learners), an IST (Information, Society and Technology) European project co-funded under Framework Programme 6, provided an advanced social network platform that was used for supporting the interactions. The second project TRIM[2] (Trade Management Implementation), a Leonardo da Vinci European training action, provided the context to situate this research: an offline vocational training programme that we have described previously. Another project, the Network of Excellence FIDIS[3] (Future of Identity in the Information Society), was also used to inform this research related to the identity issues (such as privacy) happening in this context.

3. An Attention Effective Social Networking Platform

An attention aware platform was designed as part of the AtGentive project to support the online interactions of a group. More specifically, the objective of AtGentive was to investigate how agents can be used to design platforms supporting attention, and more generally how to design attention aware platforms that are able to better support the interaction of a group of learners. This project lead to the design of two attention aware platforms, each addressing a different context. In the first case, an attention aware platform named AtGentSchool was designed to support the real time interaction of a group of pupils in a series of classroom sessions. In the second case, an attention platform named AtGentNet was designed to support the mainly asynchronous interaction of a group of managers over a longer period of time (several months). The research presented is this paper is based on the work conducted with the second platform AtGentNet, and is aimed principally at supporting the attention at the social and organisational [10] level.

3.1 The AtGentNet platform

The AtGentNet platform was designed from the very beginning as a virtual community platform (whose function is to support the interaction of a community), but evolved as the project advanced towards a social networking platform (whose function is more oriented towards supporting the management of the relationships). The AtGentNet platform provided the traditional tools for supporting collaboration in groups and communities such as repositories, bulleting boards, chat spaces, etc. However, an important characteristics of this platform, was also to offer a set of advanced mechanisms making the social interaction more effective from the point of view of the level of attention that the members have to dedicate for their interaction. In the following paragraph, we are going to present how this support of attention has been operationalised in AtGentNet, and what some of mechanisms supporting (social) attention that have been put in place are.

At the architectural level, AtGentNet relies on the principle of an independent agent component observing the activities of a platform that are available as digital traces, that is able to mine [11] and to reason on this information, and to generate a set of active interventions [12]. More specifically, the AtGentNet platform export the activities of the users using Atoms feed that are semantically tagged to describe the type of actions, the resources and users involved in the interaction. An external agent module reads these activities and intervenes back to the platform using an API (Application Programming Interface) based on ReST web services.

[1] AtGentive FP6 project. http://www.atgentive.com/
[2] TRIM and the ITM (International Trade Management) concept web site : http://www.itmworldwide.org/
[3] FIDIS (Future of Identity in the Information Society) Network of Excellence www.fidis.net

3.2 Mechanisms supporting attention in the AtGentNet platform

The first set of mechanisms are aimed at reducing the effort interacting with the platform (and therefore the level of attention to dedicate to this interaction) by augmenting the perception of the user, in particular by filtering and personalising this information so as to make it more relevant. Practically some mechanisms consist in displaying more prominently the new items that the user has not read yet, or by emphasising items whose associated tags match the interests expressed by a user in his profile. Other mechanisms consist in delivering this information using a variety of forms (in context, using artificial characters, providing notification, using rss feeds, etc.) in a way that relieve the need for the user to dedicate a continuous level of attention to the observation.

A second set of mechanisms is aimed at augmenting the level of social awareness so as to contribute to increase the level of trust and motivation to participate (both online and offline) [13]. Practically this consists in providing repeated exposure [14] of the pictures of the participants as well as easy accesses their personal information so as to contribute to the familiarisation process.

A third set of mechanisms is aimed at making the activity of the group as a whole more visible and to facilitate the building of shared understanding, to reinforce the feeling of belonging to the group, but also to create some social pressure and stimulation. Practically, this consists for instance in displaying the items that are the most popular in the group, or indicators in items that are receiving a burst of activities, but also some statistics such as the number of items that are created, who are the members that connect the more often and that contribute the most.

Another set of mechanisms is aimed at enforcing the feeling of self-efficacy [15], and in particular at making the users perceive the impact of their actions or of their personal charisma. Practically, the platform provides several mechanisms such as: displaying the list of people having read a message, displaying the general audience of a user (who are the readers of this person).

Finally, other more mechanisms are provided to stimulate more proactively users' actions. Practically, agents can intervene in the form of embodied agents or via simple messages to raise the attention of the user of the community to a particular element (for instance notifying this bursts of activities), or to suggest a particular action (such as completing the user profile, or paying more attention to others). These interventions have however tried to remain as neutral as possible in order to avoid phenomena of psychological reactance that were for instance observed in [13].

4. Piloting this Advanced Platform in the Context of ITM Worldwide Network

The different concepts of supporting attention in a social context, and the platform that has been elaborated for this purpose, have been tested during a pilot test take took place over a period of six months in 2007, in the context of the ITM (International Trade Management) vocational training programme. This programme has been elaborated as part of a Leonardo da Vinci European training action TRIM (Trade Management Implementation), and leads to a Diploma in International Trade Management. In this programme the participants have to attend a series of local seminars, of joint international seminars, and have to meet every month with an export coach with the objective of elaborating an export business plan. The AtGentNet platform appeared to be particularly adapted to support the context of the ITM programme: the participants of this programme are "isolated" because of their geographical location, because they are travelling a significant part of their time and because of the size of their organisation (SMEs) that make them unlikely to exchange knowledge with colleagues of similar expertise.

More specifically, this pilot involved the participation of sixty people from seven countries (Greece, Hungary, Iceland, Lithuania, Namibia, Norway, Slovenia, South Africa, and Sweden), and seven faculty members (from Denmark, China, France, South Africa, The Netherland, UK), and was launched at the first International seminar that took place at Lidköping, Sweeden in May 2007. This first seminar provided the opportunity to present the ITM concept to the participants and to introduce the platform to them that they would be able to use as an interaction space between the seminars to strengthen their social relationships and to exchange knowledge (such as experiences) once they have returned to their respective counties. After this seminar each participant received an account to connect to the platform, after having been separated into three groups. The first group was provided with access to a legacy collaborative platform that only provides basic communication capability, and was not analysed. The second group (the control group) was provided with an access to a restricted version of the new social network platform only offering a subset of the functionalities. Finally the last group (the experimental group) was given access to the full functionalities of the new platform, and in particular to the more advanced mechanisms supporting attention.

Different actions were then initiated to stimulate the participants in engaging in an interaction so as to generate a maximum of data for our analysis. The first phase of familiarization of the platform was set-up, which consisted of conducting small activities (such as updating their profile or uploading photos) so that participants could experiment with the platform. Then the participants were presented with some tasks (light assignments) related to the courses they had attended during the physical training session. The last phase, which aiming at boosting interaction, consisted in the organisation of an online collaborative business case game, the Eagle Racing Simulation, which consists of a number of group collaboration experiences, supported by a synchronous collaboration technology and by a set of linked multi-media cases. The Eagle Racing Simulation was developed as part of the European research project L2C (Learning to Collaborate)[4], and based on the concept of small world simulation [16].

The data collected during this AtGentNet pilot consisted in the log files of the activities of the users; the responses to a series of questionnaires that filled by the participants of the training; and some post-trial telephone interviews. The data was analysed using statistical analysis (for the log files), but more qualitative methods were also used since the small size of the sample did not always allowed concluding in a way that would be statistically significant, but also so as to allow a higher level of analysis.

5. Results and Discussion

The data extracted from the log files provided a number of findings. First it indicated a very noticeable difference in the patterns of system use before and after the Simulation game was organised. Providing a good reason to interact still appears to be more effective to generate interaction than just providing mechanisms making this interaction more effective. Participants, who were managers, connected in the first place to the platform because they considered that they received tangible value from this interaction. Yet, it was also observed that before the game was organised, the participants of the experimental group were consistently using the system more than the participants of the control group. The presence of these attention support mechanisms therefore appears to increase the perceived value of the platform, and therefore the likeliness of a participant reconnecting later. The observation of system usage at accessing the other participants' profiles (as an indicator of social interest) showed however a less pronounced difference between the two groups than expected: the advanced mechanisms do not seem to play a significantly role here. Yet,

[4] L2C (Learning to Collaborate) FP6 Project www.l2c.info

recent observation of the log files in the context of the Alumni platform clearly indicates that the observation of other people profiles represents a behavioural pattern that is very important, and extensively used, people connecting often to the platform not so much to interact with others but to get information about them.

The data extracted from the questionnaires and the telephone interviews helped to refine, to elaborate or to add to the previous findings. First the participants described themselves as busy people strongly involved with their regular work, and unable to justify dedicating time to an activity not generating tangible value. The comparison of the answers originating from the two groups indicates that the more advanced platform helps the understanding of the use of the platform, but also eases the access to the documents, confirming their interest in mechanisms helping them to be more efficient. The participants of the two groups liked the ability of the platform to help them to maintain business and social connection with the other participants. They also expressed their interest in being able to get in touch with the lecturers, as well as having the possibility to collaborate with colleagues they had met at the seminar. However, on the latest point, the observation shows that they engaged in these activities mostly when they had been organised and generated clear benefit (such as in the case of the game), and where reluctant to engage into informal interactions. Finally, all the participants indicated that the platform was displaying too much information at the same time and found the user interface too complex. If the most recent version of the platform has tried to simplify the interface, some additional work should be conducted since Web 2.0 interfaces, such as in the case of blogs, are able to display a considerable amount of information (such as list of tags, responses, shortcut, etc.) on a simple page with a good level of acceptance.

6. Conclusions

It this paper, we have presented research consisting of investigating the design (defining mechanisms) and the use (we have evaluating it the context of a blended training programme) of a “social platform” supporting the attention of the users, as a way to implement a vision of learning more engaging. We would like now to summarize the main findings of this research, and in particular indicate the elements that proved to work well in this approach, but also the difficulties that we were confronted.

The first finding that we discovered from our pilot is that making people (busy managers) participate still represents a real challenge. Indeed, if participants generally express a strong desire to be more active and interact more with others for their learning, the reality shows a slightly different picture: people are ready to dedicate some time on an activity only if it proves to bring a tangible value to them. In particular, activities that are not perceived as generating a clear value (such as for instance engaging in an informal interaction with others) have little chance to get real commitment. On the other hand, activities that appear to be very engaging (such as the game that was organised in the pilot) can really become successful. Put more blankly, busy participants managed to find some time in their agenda to spend on a game that they found exciting, but find also some good reasons not to do so in actions for which they could not identify a clear value. As a first conclusion, and for a context of adult learners, things do not appear spontaneously, and people should be provided with some real incentive if one expects things to happen. On the other hand, when provided with this right incentive (perceived value and interest), people appear ready to dedicate their time.

The second finding that is more related to our research is that the support of attention appears indeed to have a significant influence in making people to participate, even if it does not substitute the need to provide a good incentive. The attention mechanisms indeed appear to have improved the efficiency of using the platform. In particular it helps to reduce the effort to use the platform, and make the perceived benefit more visible. More

interestingly it was observed that people were reluctant to engaged in an interaction with others, but that they were interested to know more about others: this platform was indeed used more for its social networking capabilities (as a support for organizing the relationships with others) than for its collaborative capabilities. This is something that is consistent with the current usage of business people on the Internet, and which is testified by the success of networking platforms (LinkedIn or even Facebook), and the more limited success of collaborative systems in the business community. We believe that the solution to this problem relies in finding some way to generate some interaction by making them support activities that have clear benefit for the learners, such as for instance to have to work on joined assignments for which they have to coordinate. If successful, this would unleash the benefits of some of the attention mechanisms present on the platform related to the impact of their action.

To conclude, we have good hope that the approach of enhancing learning with social network platform to be increasingly successful in a variety of context and we can observe already different elements that indicate that we are on the right track. First because there is a recurrent need for such a platform that we have been observing directly ourselves. Examples include for instance, just for the African continent, the demands expressed from social entrepreneurship programme of the institution of the authors of this paper, or the need of distance training indicated by governmental organisations or of governmental organization (such as World Health Organisation) given the wide availability of fast Internet access in big cities. Example also include the countries (South Africa and Namibia) that are involved in the ITM Worldwide Network, and that are interested to further develop the ITM concept in order to scale up the training related to trade of their SMEs and trade organisations. There is therefore some concrete plan to continue the development of the ITM Worldwide Network and of the ITM concept beyond Europe and in particular in Africa.

Finally, we are also developing this platform not only for supporting the training programmes of ITM, but also as a way to support the community of the alumni that have graduated in this programme, as well as to build a sustainable partnership among the partners world wide, therefore proving the versatility of the approach and its exploitation potential. The level of acceptance for this global community is good, and therefore we are confident that this platform will continue to be used and to improve in the future.

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