

Knowledge Management and the Effect of Immersion in Virtual Learning Environments

Katernyak Ihor, UDL System, I.Franko National University of Lviv, Ukraine
udlsystem@udl.org.ua

Loboda Viktoriya, I.Franko National University of Lviv, UDL System, Ukraine
vloboda@udl.org.ua

Garnets Oksana, DESPRO, Ukraine
despro@despro.org.ua

Kulya Maryana, DESPRO, Ukraine
m.kulya@despro.org.ua

Abstract: This paper presents the examples (cases) of integration of knowledge management techniques – the community of practice and eLearning – into competence-developing virtual learning environment. Clear e-course objectives and learning trajectories with challenges that correspond to the level of knowledge and skills of participants actualize the need for problem-solving through critical thinking. Space for effective communication, collaboration and co-creation fosters creativity and leadership. Findings of the described successful e-course indicate that 41% of participants feel arousal, ‘drive’ and have positive memorable learning experience, while almost every fourth learner (23% of the participants) feels ‘actively immersed’ in virtual learning environment.

1. Introduction

The key element in the art of knowledge management is the ability to create a space (environment) for practitioners where:

- everyone can be involved in sharing experiences, generating ideas and finding new solutions – through effective communication in communities of practice and cooperation;
- everyone can choose his or her own learning trajectory for the acquisition and development of necessary competences and skills.

Academic mobility programmes - on the one hand, and Massive Open Online Courses (MOOC) - on the other greatly expand the horizons on the way towards new educational products. The educational market needs products which consist of two components: an educational service and experience, where "*services are intangible while experiences are memorable*" [8]. People need improvement and diversification of their life through immersion in various activities and obtaining various experiences that stimulate (positive) emotions. Educators are aware of the fact that emotions have the power to open or close access to learning, memory, and the ability to make connections [10].

Today universities are facing difficulties with motivating learners to acquire knowledge that may be relevant to their ‘distant’ professional future, when everything around them is changing so dramatically and rapidly. And when it comes to lifelong learning, it should be focused on the nearest professional future - "tomorrow" because this not very distant prospect arouses greater interest and curiosity in learners. Involvement in various learning experiences creates additional values for cognitive presence and competences. The basic reason why people strain after obtaining a different experience are usually described as follows: they seek to feel, to experience something new that is different from their everyday activities and routine. Learners get a chance to become part of an alternative life, to experiment with their own identity, to play a different role [3].

Successful integration of communities of practice and eLearning in the virtual learning environment means that up-to-date knowledge and current experience are concentrated in one place and becomes a value innovation strategy in education.

2. Background

The Swiss-Ukrainian Decentralization Support Project (DESPRO) and Ukrainian Distance Learning System (UDL) had an idea to combine the two techniques of knowledge management – Community of Practice and eLearning – into one learning process by creating a virtual learning environment. The topic of

decentralization of public administration and development of local self-government has become the basis for the formation of the Community of Practice (CoP), which means (according to Lave, J. and Wenger, E. (1998)), a group of people who share concerns, deal with complex issues concerning a certain topic, broaden their knowledge and experience in the professional field, as well as interact on a regular basis. [7] With the development and implementation of new models of public services, more and more new practitioners have joined the CoP in order to look for new solutions to more efficient use of models or to promote the developed models to other local governments. Today the CoP brings together more than 3 000 committed participants, which enables us to scale up the project results horizontally and to unlock new sources of growth. Furthermore, the prepared CoP is passionate for collective learning and is the perfect place for eLearning: we can state that we have created market where we know what our users (customers) value the most, and we can provide them exactly with what they need, rather than focusing on achieving competitive advantage over other providers of educational services and attracting as many customers as possible. In 2011-2015 a series of e-courses were organized and carried out for different groups of learners from the CoP (civil servants, representatives of local governments, students in public administration and so on).

We have defined learners' immersion in a learning situation – in the experience-based eLearning context – as a process where participants get new experience, which is supported by the existing experience of learners and which helps them contribute in the continuous development of their life competencies such as idea generation, decision-making, adequate response to a situation, maintaining a constructive dialogue, teamwork and supporting own identity.

Our goal is to transform the learners' behaviour in the virtual learning environment and to move it from a passive absorption - through social and cognitive presence – to active immersion and intellectual escapism, when during eLearning process learners may lose control of time, live their 'second life' (different from routine) in the virtual Community of practice, share experiences, generate ideas and develop new knowledge and skills.

Our recent benchmark in eLearning has been: over 40% of learners are actively involved and absorbed, and 23% of participants in each e-course are in the state of complete (active) immersion.

3. Forming a Community of Practice (CoP)

Formation of a CoP requires responsible attitude of each participant in the processes of knowledge management. In this respect, we can refer to maxims of the Seven Sages [9] as the unifying principles: *Communicate with others* (Ομοιοιςχρω), *Give what you have received* (Λαβων αποδος), *Perceive what you have heard* (Ακουσας νοει), *Do not nag at anyone* (Ψεγεμηδενα), *Act when you are sure* (Γνους πραττε). That is, each participant is a 'donor' of his or her unique experience and an active participant of the community. And in order to comply with the principle *Know what you have learned* (Γνωθι μαθων) and *Know your capabilities* (Καιρογνωθι), it is necessary to reflect on the lessons learned or heard, on the situation or action, on the future and on one's personal perspective, to carry out self-evaluation and personal renewal. The principle of *Using thy skills* (Τεχνηχρω) works for those who want not only to initiate a new topic, but also to be an active generator of ideas, the leader of systemic changes.

Such unity and development of the community based on knowledge interaction – through experience and passion for change – can be achieved when participants share the aforementioned principles when they are united as personalities, subjects of knowledge construction, professionals and practitioners.

Besides, regular piloting of e-courses on various topics in the area of local self-government also encouraged people at local levels to join the all-national community. Whenever a pilot e-course was run, the organizers had to deal with the following challenges: to avoid dropout of the e-course participants by providing them with space for their social presence, to guarantee their maximum cognitive presence, to engage the learners to enable each of them to be involved in various activities. At this stage of the community development, we found out that the key success factors for the formation of an effective and open for interaction virtual learning environment included trust and reduction of the psychological distance between the practitioners (learners) and teachers (tutors). The quality of each pilot e-course was guaranteed through the 4A model (attention, actualization, attraction, and action) [6] and measured in three dimensions: effectiveness, efficiency and comfort. Almost 90 % of the e-course graduates recommended their colleagues to take e-courses on various topics that are available in our virtual learning environment.

And when the CoP grew up to 2,000 members in 2013, it became viable and capable of self-development. Some members have left, but even more have joined the community. In 2014 it brought together more than 2,000 members, and today there are 3,034 participants. When the community became self-sufficient, we decided to conduct another e-course at a higher quality level, according to the following success factors:

1. objectives of the course meet the needs of the community, where each resource or activity is checked against its appropriateness in the context of the curriculum, achievement of the e-course objectives,

where each task corresponds to the level of professional training of the community in general and the ability of every participant to successfully fulfil it;

2. interest of every CoP member in social presence, when everyone has the right to be involved, and the involvement of everyone is fairly evaluated; everyone can ask questions, and every answer will be 'heard'; everyone has the right to speak, to share own experiences;
3. creation of an enabling environment, a so-called 'ecosystem' around each participant, which will encourage collaboration, creativity, idea generation, development of new solutions and finding ways to implement them.

Among the scientists who deal with the issues of creativity, there is a truism that a person is able to create and change things for the better only after having at least 10 years of technical and knowledge immersion in a specific area of activity. In 2015, our CoP advanced to a new level of development as 12% of its members had already had over 10 years (and 15% - from 5 to 10 years) of practical work experience in local and regional development, so they were ready to creative activities. Besides, almost 70% of participants had participated in the previous community events: e-courses, summer schools, workshops, etc., so they had the necessary technical preparations for eLearning. Thus, the critical mass of participants was formed who were well-trained on e-learning and a common topic of the training. Though at the same time, 35% of CoP members have never developed or participated in the development of projects, and 33% of them took the e-course in the CoP for the first time.

So finally, in November 2015, the branded e-course "Project Management for Local and Regional Development – 5" (PM-5) was launched, and it lasted five weeks on the web-site of the Community of Practice on Local Self-Government –<http://udl.despro.org.ua>. We succeeded in achieving a high level of active absorption and even complete immersion of some part of its participants.

4. Cases of open e-courses in the CoP

In general, out of 306 participants who started the e-course PM-5 (fulfilled the first task), 208 (68%) got to the end, which is an acceptable rate for such kind of e-courses in working place, while 185 of learners (60%) successfully completed it by receiving 60 (passing grade) or more points (out of maximum 100). Among those who successfully completed the training in the e-course, 23% of the participants experienced the state of immersion during the performance of different types of learning activities: based on their own observations, they felt the freedom, joy, sense of satisfaction and expression of their skills, the influx of ideas and/or a pleasant surprise.

Competitive spirit

The e-course consisted of four modules and it was offered in a self-paced mode, open 24/7. Each participant had an opportunity to plan time to study a particular module. The participants could have access to the materials of the next module only after they passed the tests in the previous module. They were able to come back to study materials and repeat the attempt to improve the score afterwards. The use of a constantly updated rating – top 10 or 20 highest grades for each course activity (test or assignment) – also supported the competitive spirit between individual learners. Besides, the e-course participants could see their own progress in the grade book and / or in the section of their course completion status.

In addition to the tests, tutors offered the participants a challenging individual task where learners had to analyse the concepts of existing projects and to offer their own variant, adapted to the realities of the respective community. The best individual works of the participants were posted on the home page of the course so that others could get acquainted with them.

At the beginning of the e-course, 28% of its participants mentioned the following expectations: new knowledge for project preparation, learning from the experience in project management and professional development, self-improvement. We tried to trigger a nonstandard, creative and innovative thinking of the participants through the creation of 'situations', by which we mean the momentum for change that requires acquiring new knowledge for decision-making. As a result, the learners develop new competencies, get new impressions and experiences. And the learning situation involved both individual and team work and were focused on creating a positive experience of the participants.

Communication and cooperation

Besides, the participants of the "PM-5" course had the opportunity to join a team working on case studies, after they selected one of the seven cases proposed by the experts. The cases varied in subjects and the levels of complexity. The use of case method in eLearning requires effective communication system, which includes communication within the team that can be guided by a facilitator, and communication with an expert. The facilitator's task is to provide freedom to every team member to be involved and to make individual

contribution in the teamwork. 40% of the e-course graduates stated that they had the feeling of arousal, ‘drive’ and positive memorable learning experience.

The expert’s task is to provide clear information on the case, instruction, and timely feedback to the fulfilled tasks. Effective communication also means that every member of such cooperation understands how this work helps to meet the course objectives. Learners involved in the teamwork were immersed in the process of eLearning and spent up to three hours a day online. After two weeks, some teams received the deserved “excellent” grade for their work, but they also extended their cooperation and friendship outside the course. There were other teams that barely reached the finish line. Nevertheless, it was a useful experience for each member of the teamwork when they start forming their own teams and implement their own projects. Best practice of the teams and professional comments made by the experts were also posted on the home page of the e-course.

To organise communication within the teams, different types of forums were used: forums for separate (visible and non-visible) groups, forums with delayed answers from other members. We realise that today’s LMSs do not provide a complete toolkit for organizing the teamwork and for integrating its results in the course grade-book.

Special attention during the learning process in e-courses is usually paid to expert forums. The e-course participants noted that even if they skip some practical tasks or tests, they could get all necessary information in forums where experts, lawyers, and especially other participants shared their knowledge and experience. The e-course “PM-5” had the whole range of various forums:

renowned experts gave answers to the most important questions the participants had concerning the specific features of local development projects,

the ‘Legal Advice’ Forum was used by the participants to explore the issues related to the procedures and regulations of the newly elected local authorities,

in the Forum of representatives of the Offices on local government reform, the participants discussed the mechanisms and tools used to achieve economic, legal and social capacity of communities and councils,

all forums were open throughout the e-course, where the participants had the opportunity to discuss the course materials with tutors, according to four main modules of the e-course;

one of the most valuable achievements of the forums in “PM-5” was the Forum “Here we are. All of us.

We are the crew...”: its discussion threads were opened by the course participants who raised a lot of topical issues, offered no fewer options to address them, as well as the diversity of ideas and project proposals.

In general, the learners in the e-course read almost 140,000 posts and published around 23,500 posts (their distribution can be found in Figure 1): as forum posts, news, notes, private messages within the e-course, filled in surveys, fulfilled assignments and so on. Hence, every learner’s input was, on average, 76 posts.

УП-5 - All activity (views and posts)

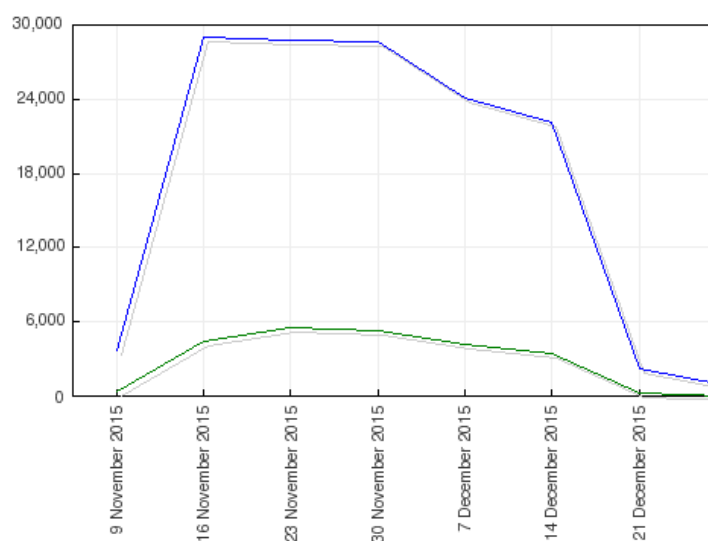


Figure 1. The number of viewed (blue graph) and posted (green graph) messages by the e-course participants, including private messages, forum posts, assignments, test reviews etc.

Another approach towards learners' immersion in eLearning was achieved through role playing. The participants were encouraged to play a role in the case within the e-course: as a representative of a business, academic or research community, local government or the media. Tutors supported all discussion threads in the forums and gave very quick feedback, which made the communication very dynamic, and almost 100% of the e-learning process was taking place in real time. Thus, more than 5,000 posts were published in forums within one month, and the participants spent two-three hours every day, with several peaks during each week (as it can be seen in Figure 2).

activity (views and posts)

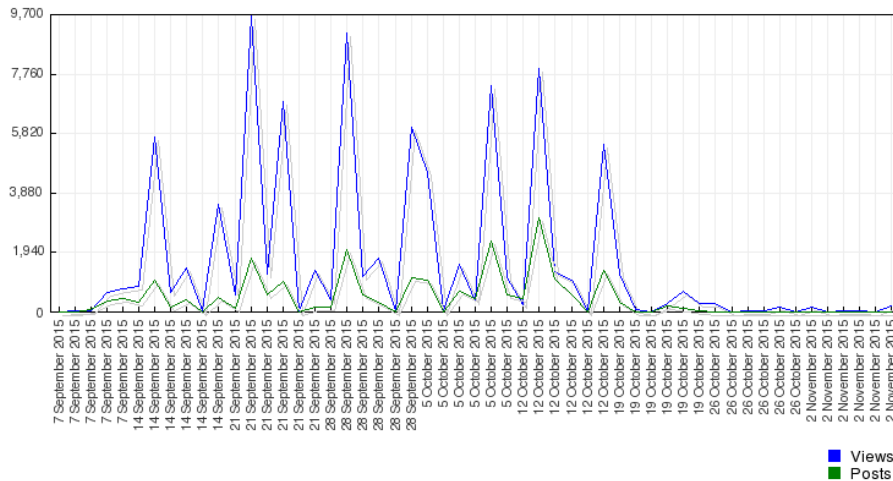


Figure 2. The number of viewed (blue graph) and posted (green graph) messages by the e-course participants, with peaks during every week.

Here is some of the feedback from the e-course participants:

It was very interesting, informative and high-quality learning process!

The approach to learning through sharing our experiences is very effective.

Sometimes only one question leads to the generation of unusual ideas and forces us to build a chain of thoughts in search of the very elementary level, pulling by which you can get the whole chain.

We study in the atmosphere of friendship and mutual understanding.

Usually we entered the e-course very late at night (sometimes after a day of work), but with great pleasure.

At the end of the e-course, the learners were offered to define their prevailing emotional state when they were involved in various types of learning activities. In general, the results of the survey are presented in Table 1 below.

Table 1. Final survey results: “What emotional state prevailed when you as a learner were involved in a specific activity?”

anxiety, fear, stress 9%	arousal, ‘drive’, zeal, excitement 41%	freedom, joy, satisfaction, influx of ideas 23%
worry, unrest, alarm 3%	control, restraint, regulation 22%	
apathy, indifference, drowsiness 1%	boredom 0%	relaxation, respite 1%

Having analysed the results of the final survey in the e-course, we can state that the learners' immersion in the process of eLearning means living a ‘second life’. Active absorption and immersion (the upper rightward part of the table) in the intellectual environment of individual and joint construction of knowledge, with a focus on ‘tomorrow’ using real-life case study, can guarantee the development of life competencies necessary for performing high-quality professional functions. Thus, the combination of two techniques – Community of practice and eLearning – can guarantee the effect of immersion in virtual learning environments.

5. Conclusion

We have integrated two knowledge management techniques – CoP and eLearning – and created the virtual learning environment as a new value innovation for competence-developing education. While designing the eLearning process using the ‘4A’ model (attention – by needs in knowledge and skills, actualization – by clear eLearning objectives, attraction – by involving in CoP, and action – by overcoming challenges and problem-solving), we endeavoured the effect when learners feel actively ‘immersed’ (intellectual escapism) in virtual learning environment. Our latest success in the organization of e-courses for 300-400 learners has ensured over 23% learners’ complete (active) immersion, while 41% participants had the feeling of arousal, ‘drive’ and positive memorable learning experience. The statistics report shows from 5,000 to 7,000 hits in e-course site per day, including weekends, where most participants spent up to 2 hours in the e-course daily.

So, the uniqueness of our approach is that (1) e-courses are especially tailored to meet the CoP’s needs, (2) there is clear understanding among the learners of the e-course goals (objectives), (3) the level of challenge of learning tasks corresponds to the level of knowledge and skills of the registered CoP participants, and (4) clear and timely feedback to performed tasks.

References

1. Cooperrider, D. L. et.al (2000). *Appreciative inquiry: rethinking human organization toward a positive theory of change*. Stipes’ Publishing.
2. Ferrari, A., Cachia, R., Puni, Y. (2009). *Innovation and creativity in education and training in the EU member states: fostering creative learning and supporting innovative teaching*. Literature review on innovation and creativity in E&T in the EU member states (ICEAC).JRC Technical Notes.
3. Firat, A. F., & Dholakia, N. (1998). *Consuming people: from political economy to theatres of consumption*. London: Routledge. – p. 96-97
4. Katernyak, I., Katernyak, Zh., Loboda, V. et al. (2008). *eLearning and value innovations in virtual education community*. Proceedings of the 11th International Conference on Humans and Computers HC 2008, Nagaoka University of Technology, Japan. Retrieved from <http://gii.nagaokaut.ac.jp/hc2008/tmpPdf/tmpvUaAq8.pdf>
5. Katernyak, I., & Loboda, V. (2009). *Innovation and creativity in virtual learning community*. Proceedings of the 5th International Conference on Multimedia and ICT: m-ICTE2009. Retrieved from <http://www.formatex.org/micte2009/acceptedabstracts.php>
6. Katernyak, I., Loboda, V., & Sheremet, M. (2009). *eLearning: from social presence to co-creation in virtual education community*. Interactive Technology and Smart Education, Vol. 6, Issue 4 (ICT 2009 Conference special issue). – p. 215-222. Retrieved from <http://www.emeraldinsight.com/10.1108/17415650911009182>
7. Lave, J., & Wenger, E. (1998). *Communities of practice: learning, meaning, and identity*. Cambridge University Press.
8. Pine, B. J. II, & Gilmore, J. H.. (1999). *The experience economy - Work is theatre and every business a stage*. Harvard Business School Press, Boston, Mass.
9. Seven Sages of Greece. (n.d.). In *Wikipedia*. Retrieved January 4, 2016, from https://en.wikipedia.org/wiki/Seven_Sages_of_Greece
10. Vail, P. L. (2010). *The Role of Emotions in Learning*. Great Schools. Retrieved from <http://www.greatschools.org/parenting/teaching-values/the-role-of-emotions-in-learning.gs?content=751&page=2>