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PROSUMPTION IDEA CREATION IN DISTANCE LEARNING

Introduction

The topic of the paper is the promotion of prosumption through distant learning. The following research question has been formulated: Is it possible to pursue the idea of prosumption through distance learning? The research has covered the stage when students were given access to a computer game, which supplemented one of the modules within the program of e-lectures. The computer game belongs to the activation methods used in distance learning. Students were asked to share their experiences and opinions. The paper includes a summary of the research findings collected when delivering e-lectures under the econet project – virtual space of collaboration of universities of economics*.

It has been assumed that any activation methods used in education, including computer programs or educational games, will be best adapted to the needs of their users i.e. students, if the users are allowed to participate in improvement efforts. Today's students have a clear understanding of what knowledge and experience they are most likely to need in the future. E-learning tools create an environment which enables students to have impact, in course of a learning process, on what they are actually learning. Their experiences may be drawn upon to improve the contents of lectures, teaching methods, computer programs and games, which can then be used when training other groups of students in the future.

Student as a prosumer

A student, when sharing his or her comments on the game, automatically becomes one of its creators and a co-author of its new or improved version. A consumer who is a producer at the same time is called a prosumer, based on the following formula:

* www.econet.pl – a platform for inter-institutional cooperation.

prosumer = producer + consumer

As a result, students who have actively participated in the improvement of a product, such as a computer game, may be referred to as prosumers.

The term ‘prosumption’ was coined in the 1970s. It is connected with a conscious use of consumers’ knowledge when creating new products or services. According to D. Gach, prosumption may be manifested when designing new products or services, improving the existing ones, developing new working methods, searching for pioneer activities, devising promotional and other campaigns [Gach08, p. 57-60].

There are many examples of prosumption and it currently finds an increasing number of applications. The paper presents an example of prosumption in which consumers – students are involved in innovative processes at e-lectures. Prosumption provides an opportunity for introducing successful innovations as students explicitly define their needs and requirements concerning a computer program. For instance, during this research one of the students suggested that a source code for the game should be made accessible for analysis. Such an initiative seems to fall under customer made. A company comes up with a product or a service, which is subsequently modified by a customer to adjust it to his or her needs (selecting one’s own car accessories, deciding about a credit card image, ordering a customised calendar, etc.).

Characteristics of a project *econet*

Econet is a joint university project, carried out by cooperation among universities of economics in Poland: University of Economics in Katowice, University of Economics in Cracow, University of Economics in Poznan, University of Economics in Wroclaw and Warsaw School of Economics (SGH). The project commenced in 2005. Its initiator and coordinator is CREN – The Centre for Development of Distance and Continuing Education in Warsaw. Every partner university has prepared a lecture which, as assumed by the authors, should be up-to-date, non-competitive against the lectures from the other universities and optional for students.

The *econet* project uses a CREN SGH training platform. Through this platform, lecture contents, students, lecturers and their mutual cooperation (communication) can be handled. Lecturers and students may communicate via a discussion forum, with a list of topic-based rooms, a chat and email. They have access to a notice board, a virtual gradebook, a notebook and a diary.

As a standard, the platform is developed in three directions [Hyla05, p. 67]: people, communication and knowledge. 'People' comprises tools used to manage courses, competences and skills as well as running testing activities and collecting feedback etc. 'Communication', aimed to improve the e-learning platform, includes e-mail, the discussion forum, the chat and the notice board. The solutions offered under 'Knowledge' concern the management of e-lecture contents.

For the *econet* project, the staff from the Informatics Department, the University of Economics in Katowice, have prepared a lecture on decision-making based on hybrid models (see [StPA05, p. 359-372]).

Characteristics of e-learning lecture implemented under the project *econet*

The lecture – Decision-making based on hybrid models – is divided into three units, so-called modules, which are equivalent to traditional meetings with students held every second week. The prosumption study has covered one of the modules included in the e-lecture program. The module is entitled "Business planning using an interface agent". The contents of the module deal with the rationale behind the use of a software agent in a decision-making process in business, for example when creating a business plan. The involvement of the software agent at the planning stage may help, due to a high number of parameters and the fact that they may be omitted in decision making. Furthermore, it may facilitate the data analysis, help to deal with the changing environment and possible limitations. In practical terms, every decision has to take into account certain barriers, which may affect the choices to be made. The barriers to making successful decisions are described in more detail by such authors as M. Romanowska [Roma08, p. 119-124], W. Walczak [Walcz12, p. 35-45]. They distinguish competence barriers, organisational barriers and information barriers. Decision making is affected by numerous factors. Therefore, much importance is attached to the ability to collect, select and analyse vast amounts of information, which comes from various sources. The involvement of a software agent at the decision-making stage may help to do that.

A lecture has a multi-level structure. It is composed of: an introduction, the main content of the module, a summary and a check part which uses the activation methods. The activation methods incorporated into the lecture module include crosswords, test questions, online forum discussion questions, exercises and extra resources. An extra resource added to the lecture is the computer game. Students have access to a document template to help them collect results ob-

tained during the game. Students are asked to present their views and rationales for their results and fill them in the document template. A game prototype was created by a student of the university for the needs of his own Master's thesis. It requires some further development though. The operation and reliability of the game, which depend on the technology employed, need to be improved, as well as its graphic design. The incorporation of the game into the lecture brings a lot of advantages. First of all, it motivates and involves learners, making the learning process more attractive. The game differs from traditional methods of delivering lectures. It may also serve as an opportunity to carry out the other, undisclosed objective of the training – to check whether students are going to take part in the game improvement process.

Analysis and evaluation of student activity

The lecturers, as an experiment, provided the students with the document template where they could fill in their results. Furthermore, they published some questions on the discussion forum, encouraging the students to share their reflections about the game (their comments and suggested improvements). Using the time comparison method, the results given in Table 1 were obtained.

Table 1

Evaluation of the computer game by the students registered for e-lectures

Year	Criteria for evaluation			Sum
	Functionality	Computer graphics	Information technology and tools	
2006	19	4	4	27
2007	1	0	0	1
2008	6	2	3	11
2009	4	1	1	6
2010	9	3	2	14
2011	1	0	1	2
2012	3	1	1	5
Sum	43	11	12	66

The students could share the experiences from the game, using the reports based on the available template or publish their views on the discussion forum. Totally, 43 comments published on the discussion forum were collected – 16 were given by the female students and 27 by the male students. The comments mostly concerned the improvements in the game operation but there were also some suggestions of changes in the graphic design or the technology applied. An

advantage of the discussion forum as a means to collect and communicate the knowledge is the fact the other students belonging to the same group could also see the messages. The other users were able to analyse, compare and comment on the replies.

Within the lecture, the knowledge of a specific community of students, who were interested in further development of the existing game or creation of its new version, was compiled. Therefore, we can say that some consumer potential was used here. About the promotion of consumer innovativeness via e-learning. The students, who previously used to play the roles of consumers and recipients of lecture contents, were drawn into the participation in a productive process – checking whether the game runs properly, verifying its graphic design, process and technical requirements and suggesting some ways to improve the game. The most common method for summing up a simulation is a meeting of all the group participating in the task in order to discuss the exercise. The requirement was satisfied here by means of the discussion forum. Not only did the students share their experiences and practical reflections but they also referred to, and commented on, what the others said.

Based on the number of replies collected in Table 1 it may be concluded that the students were eager to share their experiences and give their comments on the computer game available in the module. Decision making with an interface agent. The students' involvement may mean that the simulation decision-making game is an attractive teaching method. The discussion forum archives of the econet platform made it possible to collect the data. When summing up the study, it turned out that the group of students included some people who had had some previous experience from using other decision-making computer games. Apart from their reflections on the game itself, the students also expressed their views on other games and business plan generators. They presented their opinion on the reasonability of a software agent's use in a decision-making process.

The students' views may be grouped in the way shown in Figure 1. These views result from their previous experiences with other games and/or the observations made during the game available in the e-lecture module.

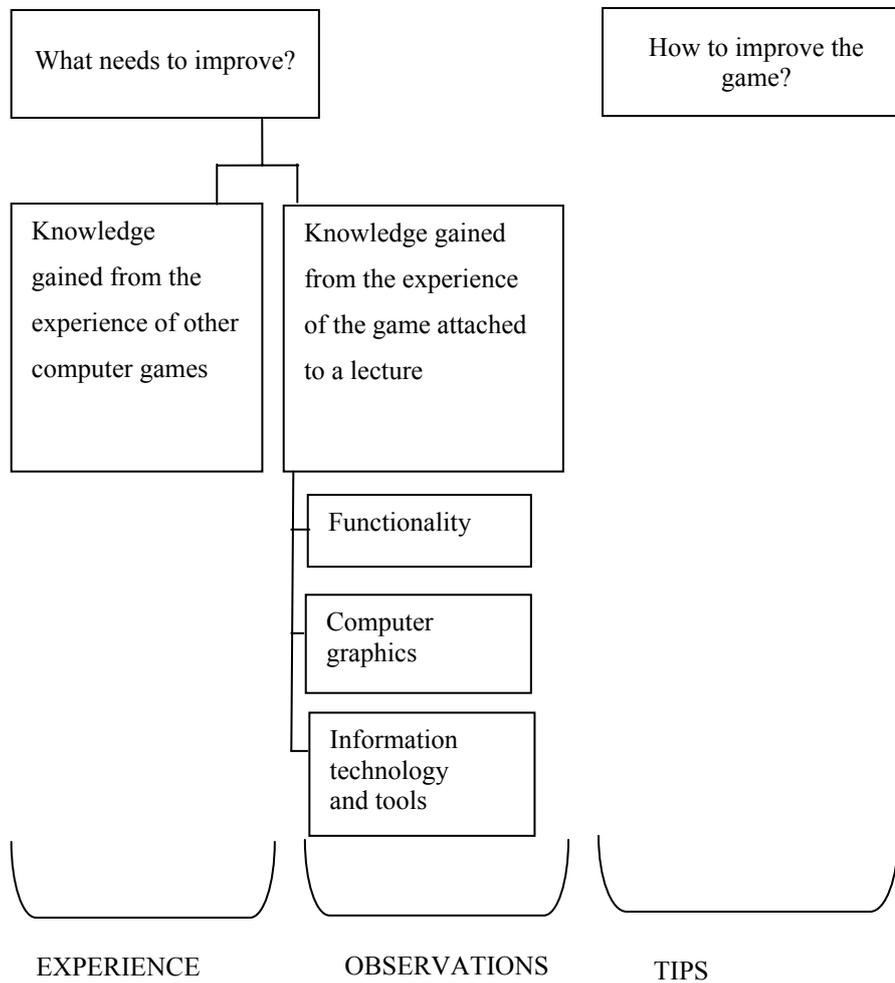


Fig. 1. Systematization of knowledge about computer game

The students shared their reflections because, on one hand, they were motivated to earn points for active participation and, on the other hand, they were affected by the contributions and involvement shown by their peers. There were also some comments provoked by the technical defects found in the game. However, according to Ł. Gajewski [Gaje09, p. 21-25], a dissatisfied individual is a creative individual. All the responses were equally relevant. They may now be used to work on some new, innovative solutions or to remove the faults.

The involvement of recipients in the creation of innovations is a new approach to this process. In case of our experiment, the recipients were the students. The students took active part in the creation of innovation, although it was much easier for them to criticise the shortcomings than to suggest improvements. Therefore, a computer game may be a tool to identify consumer needs and expectations. The experiment as such may be classified as an example of prosumption.

Knowledge acquisition from students

Prosumption involves a conscious use of customers' knowledge. On one hand, dispersed knowledge of individual customers may be gathered and, on the other hand, collective knowledge may be used. During the experiment it was observed that there were some students who had their reflections about the game, there were some students who agreed with others and the ones who first listened to other opinions and then came up with better solutions. To illustrate this point, a number of students' replies are given below as examples:

- male student: “The game improvements I would suggest are: an option to make more than 2 products, prolongation of a decision period to more than 2, an option for a player to have influence on e.g. costs of transport, a choice of alternative sources of funding”,
- female student: “The improvements suggested by Bartek and Monika would make the game easier”,
- female student: “I agree with him – I think it would be helpful to give access to the assumptions during the entire game”,
- male student: “As every decision generates subsequent decisions, the best solution would be to write down the assumptions made at the beginning and, based on that, take appropriate decisions”.

The discussion forum for the lecture, where students posted their opinions, gives an opportunity for students to communicate with one another. In a way, they become a certain society or a creative community (see [Gach08, p. 60]). Everybody has a voice and may present their ideas. It should be noted that the attendees come from different parts of Poland as the students from various universities of economics in Poland participate in the lecture.

The concept of knowledge-based customer relationship management was already addressed in 2003 by A. Tiwana [Tiwa03]. He presented the KCRM (Knowledge Customer Relationship Management) systems, where knowledge management and customer relationship management complement each other. Currently the SCRМ (Social CRM) systems, which are aimed at using social

networking media to make consumers involved in a certain issue, problem, product or service, are gaining importance. As stated by A. Tiwana [Tiwa03, p. 35], knowledge from a company's customers' heads (human capital) should be skilfully transformed into either practical skills/customer experience (structural capital) or relationships/collaborations (relationship capital).

The knowledge of crowds may then be used in order to improve a product, a service or a skill, to find new applications for them or to develop new products or strategies. The company may also focus on building creative communities – network forms of cooperation between people working as one organism. Under the wisdom of crowds concept/crowdsourcing, a group (a community) has broader knowledge than an individual. The point is to create appropriate conditions so that a crown (a group) could turn into a group of researchers (see [Gaje10, p. 60-67]).

Summary

The paper gives an example of how prosumption may be used to develop consumer innovativeness. The prosumers were involved in the innovative processes by presenting some ways to improve the computer game which was available as an e-lecture component. In a way, the students participating in the experiment became 'partners in business', partners in a computer game improvement process. Thereby they were no longer just passive recipients of lecture contents but turned into active consumers. There are usually two reasons why consumers – prosumers are willing to share their experiences with producers: a rise in dissatisfaction or a decrease in satisfaction with a product. The students' dissatisfaction concerned the game operation, its interface, graphic design and the IT technology employed in the game.

When summing up a few years of the research (e-lectures have been offered since 2005), a conclusion may be drawn that the students have participated in the creation of prosumption. Prosumption:

- is an opportunity to come up with innovative ideas,
- it contributes to the success of such innovations (in our case – the creation of a new or improved version of the game) as it makes products tailored to consumers' expectations,
- contributes to so-called co-creation,
- emphasising a higher importance of an individual as a discoverer, instead of an expert, as it was the case before.

As stated by B. Quain [Quai08] we are living in the era of the so-called "prosumer era".

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KREOWANIE IDEI PROSUMPCJI W ZDALNYM NAUCZANIU

Streszczenie

W artykule przedstawiono przykład wykorzystania prosumpcji w rozwijaniu konsumenckiej innowacyjności. Prosument (student) został włączony w procesy innowacyjne polegające na przedstawieniu sposobów udoskonalenia gry komputerowej udostępnionej jako jedna z metod aktywizujących wykładu e-learningowego. Artykuł zawiera podsumowanie wyników badań prowadzonych od 2005 roku. Łącznie za pośrednictwem platformy econet zebrano 43 komentarze. Podczas wykładów zgromadzono wiedzę studentów zainteresowanych problematyką rozwoju dotychczasowej gry lub stworzenia jej nowej wersji. Podsumowując, można stwierdzić, że istnieje możliwość kreowania za pośrednictwem e-learningu konsumenckiej innowacyjności. Prosumpcja jest szansą na kreowanie innowacyjnych pomysłów. Stwarza szansę powodzenia innowacji (w przedstawionym eksperymencie powstania nowej lub poprawionej wersji gry) dzięki lepszemu dopasowaniu produktów do oczekiwań konsumentów. Sprzyja również tzw. współtworzeniu, ponadto wzrostowi znaczenia już nie eksperta, a człowieka odkrywcy.