Challenges for Student´s Skills and Attitudes within Social Studies Conventional Simulation Games

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Abstract: The paper promotes conventional simulation games in civics curriculum as for their potential to alter attitudes. The author presents the results of a pilot study within a doctoral thesis done at Masaryk University Brno, Czech Republic together with the outlines for the research of the effectiveness of simulation game on students´ attitudes towards the poor. Using a pre-test, post-test and delayed post-test the students´ attitudes towards the poor were measured in both experimental and control group. It also highlights the complex process of skills development within the conventional educational simulation games regarding the educational outcomes of secondary school students. The social and ethical issues are discussed together with the importance of a role-play in simulation games as for the possibility to gain empathy to individuals whose roles were played during the simulation.

Keywords: conventional simulation games, Social Studies, attitudes, non-cognitive skills

1.Introduction

In Europe simulation games are still being applied mainly in business education contexts. Social Sciences at schools as a part of general education provide an excellent platform for forming the student´s competencies important for everyday life. The topics within this educational subject comprise of various society issues where the students can practise a range of important life skills, provided we use the adequate teaching methodology. Simulating society systems might be challenging not only for the student´s experiencing the simulated environment, but it might also influence the student´s attitudes the key elements in how people get to know each other at an interpersonal level. Even though attempts to predict behaviour from general attitudes were not successful, they are at the core of cooperation and conflict between groups at the intergroup level. (Rogers 2003). The purpose of the first part of this paper is to present the results of pilot study, where the potential of two educational simulations from Social Sciences curriculum was examined, regarding educational simulations and their impact on attitudes. The second part outlines the next steps that are going to be taken in the research of these Social Sciences simulation games and their influence on both student´s attitudes and skills.

2. Pilot study on attitudinal change towards the poor

The research into the ability of simulation games to affect attitudes so far is full of contradictory results. According to Randel we only know which games people like to play, but ´not the extent to which they learn from these games´ (Randel 1992: 272). Randel also points out at the lack of real experimental design when evaluating the simulation games and recommends focusing on features that make the simulation games successful. It was Livingston who first found out that student´s attitudes towards the poor in experimental group involved in Ghetto educational simulation with a role-play of the poor were ´significantly more favourable after the game than before´ (Livingston 1970:1). Dorn also confirmed that role-plays in educational simulations rise empathy towards the people their role was played in simulation (Dorn 1989: 7)

2.1. Educational simulations used in the pilot study

The learning outcomes of the two Social Science conventional educational simulations that were used in the presented pilot study were not primarily focused on gaining better attitudes towards the poor. The students should gain from the simulation games a sense of global themes of inequality - it gives them a deeper insight into the fundamental global problem of wealth distribution. The ´ Pennies: Scramble for wealth´ from *Teaching Global Awareness with Simulations & Games* simulation focuses on the students´ ability to 'better understand the acquisition and distribution of worlds´ goods, services, and resources; compare and contrast their own view about the distribution with the views of others and draw conclusions about the necessity and feasibility of redistributing Earths´ resources´ (Lamy 1984: 4). The 'Trading game´ from *In the Global Classroom* simulation helps the students understand the principles and consequences of free market and how trade relates to a country's prosperity (Pike, Selby 2000: 188). Nevertheless, both educational simulations provide the students with the possibility to see the moral and intellectual difficulties of others, which creates the crucial part of the pilot study hypotheses. In case of the two educational simulations in our pilot study all the students had the

chance to feel what it is like to be poor. The role-play element created the main body of the ethical issues discussed in the feedback of the game.

2.1.1 Pennies: Scramble for wealth game

The pennies in the game represent the world's wealth which is distributed among the students in 100 pennies that are scattered over the floor. First, the students are asked to gather as many pennies as possible without touching one another simulating the fight for wealth and power in the world. Then, the students may, if they wish, share their pennies with other students, especially those with no pennies. If they do that, they get extra coins without knowing it ahead. Finally, the students are divided into two groups, those who are satisfied with their wealth and those who are not. Each group is given some time to create a plan for a fair distribution of the pennies to everybody. In both groups a spoke person explains the plan to the others and a vote is held on which plan to adopt. The number of votes is given by the number of pennies, students with more coins have more votes, students with no coins cannot vote to simulate the fact that the distribution of power often reflects that of wealth. The winning plan is carried out, the coins are redistributed among the students accordingly. The individual steps of the students and the decisions in the groups are reflected in the feedback of the game with the main point of confusing the student´s prejudices of the distribution of wealth and power throughout the world together with the consequences of one´s decisions taken in the game.

2.1.2 Trading Game

A 90 minute simulation of an impact of an unequal distribution of necessary resource on trading potential is based on group work of students to represent individual countries with a lot or fewer resources. The resources in the simulation game are represented by sheets of paper, pairs of scissors, rulers, pencils and also currency units. There is an unequal distribution of resources among the groups of students. The students in their groups produce shapes from paper according to a given template and try to have the highest number of them in order to sell them to a banker in exchange for the number of currency units given in each one and become the winners of the game. In the feedback of the game the students reflect on the strong feeling of injustice caused by unequal distribution of resources. The students are also asked to provide examples of such inequalities in their own lives and what parallels there might be in the wider world. The further discussion considers the world trading system to make it fair. At this stage statistics about global distribution of wealth are introduced. The role of an individual in creating more just and equitable trading systems is discussed together with the contrast between wealthy and poor countries.

2.2. The quantitative part of the study

The quantitative part of the pilot study thus focused on measuring the students´ attitudes towards the poor. The major analysis of the research was a comparison of the results from the pre-test, the post-test and the delayed post-test of an adapted Atherton´s ATP form (Attitudes Towards the Poverty) measuring the attitudes towards the poverty (Atherton 1993). The adaptation of this instrument included changing the reverse scored items in the scale and focusing on the items expressing the attitudes to poor people rather than structural inequalities. Preliminary reliability testing was conducted with a sample of secondary school students. The reliability of the items (Cronbach's Alpha) was 0,83. A paired t test was run to compare the magnitude of the change scores for the groups (experimental and control) before (pre-test) and immediately after the simulations (post-test) and before the simulation (pre-test) and delayed post-test (two months after the simulation), focusing on retention over time as well.

The subjects of our research were students (n=60) at secondary grammar schools. Due to the demanding requirement for student´s reflections of the game we have chosen students at the age of 17 whose abstract thinking development and ability to reflect made it possible to get valuable feedback. The two educational simulations were played in experimental group while both groups experimental and control were asked to decide if they agree or disagree and to what extent with the Lickert´s scale of the adapted ATP form before the educational simulations (pre-test), after the educational simulations (post-test) and two month after the educational simulation (delayed post-test). There was no significant change found in pre-test and post-test and pre-test and delayed post-test scores between the experimental and control groups, still the scores in pre-test and post-test in the experimental group were slightly closer to the significance level than in the control group

(p=0,073). The timeline for both parts of research both qualitative and quantitative are shown in in the following table 1.

Table 1: Project timeline for the experimental and control groups of the qualitative and quantitative part of the pilot study.

Stages of the pilot study	Experimental group	Control group
I.	Pre-test (quantitative)	Pre-test (quantitative)
II.	Educational Intervention (Simulation games) Focus group (qualitative) After-the-game questionnaire (qualitative)	No educational intervention
III.	Post-test (quantitative)	Post-test (quantitative)
IV.	Delayed post-test (quantitative)	Delayed post-test (quantitative)

2.3. The qualitative part of the pilot study

The data in the qualitative part of the study were collected mainly to prove the findings from the quantitative part of the study while there were hopes for some explorative findings. The analyses were based on focus groups immediately after the simulations games and an after the game questionnaire.
The forty minutes focus groups were recorded, then coded and themes were identified. The students were highlighting the experience they got from the games and reflected on the positive and negative parts of the group dynamic during the simulation games. The after-the-game questionnaires were given to the students the next day after the simulation games. The aim of this type of reflection on the use of the two simulation games was to provide them with the opportunity to reflect on the experience individually. All statements concerning attitudes and skills were identified together with other aspect the students mentioned when answering questions about the best and worst experience, surprising moments etc. In their reflections most of the students commented on the use of the experience in their future life, including having the possibility to practise the skills such as creativity, solving problems, public speaking, negotiation skills and other non-cognitive skills, both interpersonal and intrapersonal. The students also commented on the unusual method of instruction: *'It was not the usual lesson which is boring and we all fall asleep', 'I worked more hard than in regular lesson', 'I was having fun and learning as well'*. Almost all the students reflected on the game positively, the students who did not were trying to make excuses from playing the game and in their reflections they stated not having learned anything. This fact was mentioned by their colleagues with comments like: *'I was very difficult to work with X he kept refusing to contribute to anything we tried to work on.'*

The decision-making process typical for simulation games was represented within these two games by strategies taken by individual groups of students to compete with the other groups. The decisions the students had to take were described as follows: *'I did not like the fact that sometimes there was somebody who made the decisions for us, just what it is like in real life'*. The communication between the groups was the most enjoyable part of the simulation with the students. These are the comments they made about class-room cooperation: *'Vow, there was lively discussion among us and everyone could express his/her opinion and nobody laughed', 'I liked that the whole class could take part in the game.'* The need for cooperation was reflected in these quotes: *'We all need to cooperate, no matter the conditions are', 'Now I know that I am not just an individual person in a crowd, but the whole crowd is a group which creates our world and there are moments when there is no way out and the only solution is the help of someone else'*. The subject of the games the wealth distribution was understood quite naturally: *'There will always be dissatisfied people', 'I came to realize that it is not easy to break through if you have no money.' 'The game helped me understand that the world is not that simple.'* The data collection from the qualitative part of the study formed the basis for the main research.

3. Limitations of the pilot study and outlines for the future research

The future intended research which has been started by this pilot study will also take into consideration some of the limitations we are going to discuss in this part of the paper.
An expanded investigation of attitudes with the use of a larger sample to prove whether the two analysed simulation games are an effective tool supporting attitudinal change needs to be done, confirming the importance of the role-play element in the simulations games. It is also necessary to conduct a proper longitudinal study to support the potential of retention when studying the shift in attitudes.
The described pilot study should be considered to be quasi-experimental as randomized groups were not used. This fact must be tackled in the future research to have real experimental design. The study must be extended to other simulation games used in Social Sciences education especially regarding more up-to-date topics and computer simulation games.

Using other qualitative methods such as observation or interviews could support the introduction of several control variables, such as the personality type or the student´s learning styles.
Additional constructs could be added regarding the learning outcomes. Together with the two categories of skills development and affective evaluation (represented by attitudes research) we could introduce the inquiry of student´s understanding the concepts discussed in the simulation game. Contributing just to the assessment of learning objectives we do not want to neglect the student´s assessment of other processes which are presented in the simulation games e.g. the process of experiential learning, which is defined as a learner-centred approach. Existing studies show that experiential learning results in better conceptual understanding, critical thinking and problem-solving skills increased enthusiasm and implication, better performance, higher level of self-confidence, self-efficacy, and enhancement of learning (Ranchhod 2014). The further research should also look in details at the experiential learning elements within the simulation games and its possibilities for skills development.

As a consequence of the qualitative part of the pilot study results, it is necessary to fully analyse the role of the conventional simulation games in getting the students practise non-cognitive skills. The changes in the curriculum outcomes throughout Europe could be characterized by shift to broader skills useful in the future life. The Framework Education Program for Secondary Education of the Czech Republic corresponds to the OECD expert designed framework defining the key competencies. The curricular reform in the Czech Republic is based on the Framework educational programs that represent a central level of the curricular system and define educational goals and key competencies as well as educational contents necessary for their achievement. In accordance with the Framework educational programs the educational outcomes are no longer focused just on knowledge or skills, the students at Czech schools have to acquire the key competences consisting of ´a set of knowledge, skills, abilities, attitudes and values which are important for the personal development of an individual, his/her active participation in society and future success in life´ (Framework Education Program for Secondary General Education 2007: 4). Each school has to develop its own School Educational Program according to new curriculum principles and state which strategies they are going to use to fulfill them. Teachers can choose their own teaching methods, within the scope of the proposals or recommendations articulated in the educational program and according to the general policy of the school. Similarly one of the recommended strategies of the European Union to support the implementation of 21st century skills is the creation of learning environments that enhance competence development and the use of appropriate pedagogy through supporting innovations and developing institutional leadership. Also many researchers start to ask ´*where* and *how* these competences can be acquired´ (Voogt 2010:8). Still in the Czech Republic educational simulations in Social Sciences are still not a proper part of schools curriculums, it is a field still waiting to be discovered.

There is a promising research being done in the measurement of skill acquisition that could be used for identifying learning outcomes measureable through standardized tests. The biggest challenge of the future research will be to identify the skills the students perceive as practised in the simulation games with the help of 21st century framework suitable for secondary school students including a range of skills, a complex system of individual and collective goals. Another analysis concerns the teaching methodology of the simulation games to identify the individual methodology steps being taken in the game to practice the non-cognitive skills to complement the insight into the factors of the simulation games that lead to skills development helping the designers of simulation games in Social Sciences education.

4. Conclusion

The aim of this contribution was to introduce the results of the pilot study of two Social Sciences educational simulations as for attitudinal change towards the poor. Although the attitudinal changes in the quantitative part of the study were not statistically significant, the preliminary results of the pilot study´s triangulated data indicate the potential of the two simulations for the students, the two Social Sciences educational simulation games used in research could be the real challenge for the future necessary skills of the students.

The famous Czech educator Comenius in his masterpiece Didactica magna stated that games should be connected with serious things and it would be an excellent advantage if the games focused on students´ recovery would be established to demonstrate serious life tasks and thus creating a habit. The researched educational simulations have such a power to achieve this goal.

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