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Serious games for vocational training: from emotional labor to knowledge transfer¹

Abstract: based on research on a serious game used for training purposes, this chapter aims to analyze knowledge transfer related to emotional labor between gaming and work situations. After defining emotional labor, we will discuss issues related to the use of a serious game as mediation; whether or not it is accepted; and whether it contributes to the possibility of better regulating emotions. The results suggest that knowledge transfer, in and about work situations, is more related to the acceptance of mediation including its debriefing than to the playful attitude itself.

5.1 Introduction

Among the many definitions of serious games, we retain that of video game designers Chen and Michael (2005): "A serious game is a game that is designed for purposes other than pure entertainment." According to this definition, a serious game can apply to a large number of sectors: education, health, advertising, communication, politics, humanitarian, defense, religion, art, etc. – serious games can be digital or non-digital (Abt, 1987). To specify the digital form, the term "serious video game" may be used.

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Alvarez, Djaouti & Rampnoux (2016) define the serious game as a: "*device, digital or non-digital, whose initial intention is to combine, with consistency, both utilitarian ("serious") aspects such as, in a non-exhaustive and non-exclusive way, teaching, learning, communication, or information, with playful motives (competition/challenge, rules of control, closure and procedure, scoring, the artificial character) stemming from the (video) game. Such an association is aimed at an activity or a market that goes beyond mere entertainment*" (p.17).

"Utilitarian scenario" refers to the work of researcher Étienne Armand Amato, who in 2007 proposed the term "utilitarian game" to designate serious games. For Amato, "utilitarian" is understood as aiming at : [...] bringing about a transformation in their addressees in the sense of an improvement in skills (training), adaptation to the environment (treatment of phobias), understanding of a phenomenon (education) or greater adherence to the message conveyed (promotion, advertising, ideological video games, also known as political games) (Amato, 2007). Three main families of utilitarian functions to be associated with the game can be referenced: to broadcast messages, to train and to exchange data (Alvarez, Djaouti & Rampnoux, 2016).

Our research focused on a serious escape game (SEG). The principle of escape games (EG) is simple: players are in a room and have to get out in a limited time (usually an hour). Whether the room is real, in a live action escape game, or virtual, in board games or video EG, does not change this principle. Used by companies as entertainment in team-building seminars, EG has become a new type of serious escape game (SEG), and has begun to be used in training and recruitment schemes as well.

A French company has created a SEG dedicated to apprenticeship. This game is in a case divided into three boxes, each closed with a padlock and all the clues are recorded on a tablet. A company in the insurance industry wanted to adapt this SEG so that their employees could discuss in a playful way the emotional charge of customer relations, a key element of their activity. A major problem in customer relations is the emotional response to the various situations encountered at work. Understanding and regulating emotions can be a resource, a major asset in customer relations to manage incivilities, difficult situations and in order to make appropriate and professional decisions. The entire training aims to enable professionals to take a step back during difficult exchanges and to help them regulate their emotions. This implies that professionals need to know and master strategies to regulate their emotions. This is called "emotional labor".

There is a tension between the daily life of customer advisers in the field and the "frivolity" of gaming. Therefore, it remains to be determined whether games, and in particular the proposed SEG, is an appropriate mediation to address such issues with often overwhelmed professionals. Is the artefact used considered and experienced as

a game? Does the training session produce a change in the behavior of the professionals at work? We proposed to address these questions through action research within the framework of the psychosociology of work (Lhuilier, 2013). The group interviews were analyzed using two methods:

- in-situ observations made during gaming activities.
- questionnaires submitted one month later.

The data studied analyze issues related to: whether or not a SEG is used as a mediator; whether or not such mediation is accepted; and whether or not it contributes to the possibility of better regulation of emotions. Through this process, it is possible to analyze learning transfer (Frenay & Bedard, 2011) in and on work situations.

5.2 Emotions, debriefing and learning

5.2.1 Emotional labor

To define emotional labor, we must distinguish between affects, emotions and feelings (Martin & Alvarez, 2018). Shouse (2005) explains the difference between "feelings, emotions and affects": affects are abstract and unconscious, feelings are personal and biographical, and emotions are social. An affect is an intense, unconscious experience. It is highly subjective, as affects cannot be fully expressed through language, they are unconscious (Massumi, 1987; Shouse, 2005). A feeling is a personal sensation related to prior experiences and life history, as each person has a distinct set of prior sensations from which to draw in order to interpret and categorize their feelings. An emotion would be the "showcase" of a feeling. An emotion can be an expression of one's internal state or can be adapted to meet social expectations.

Social rules impose the need to adapt one's emotions, what the American sociologist Hochschild (2003, 2017) calls "emotional labor". This work allows professionals to adapt and regulate their emotions in order to make them "appropriate" to the situation and context. In some professions, individuals need to adapt their emotions in order to adapt them to society's expectations. Emotional labor is the expression of emotions in the service of work. For example, a flight attendant must be smiling and welcoming and repress anger, indifference or worry in order to achieve "well-being" and recognition from passengers. Emotional labor involves changing the emotional state of employees through a variety of techniques and strategies. As a result, there may be a dissonance between what the person is feeling (affect/feeling) and the emotion they need to show, and this emotional labor can have a long-term cost on health. According to Hochschild, emotional labor is characterized by "transmutation", i.e. a transfer of emotions from the private to the public. Emotions, which are normally in the private domain, are managed and

marketed by the company in the public space. Lhuilier (2006) studied this evolution within organizations that range from the proscription to the prescription of emotions at work. Emotional labor is most damaging to health when the emotions prescribed at work do not accurately represent the experience and feelings experienced by the individual. Emotional dissonance among employees is strong when the customer is perceived as aggressive and harassing. In this case, it is more difficult to express positive emotions with an unpleasant and aggressive client (Ashforth & Tomiuk, 2003). Zapf (2002) demonstrated the importance of social support, including colleagues, in preventing dissonance.

Customer advisors are faced with emotional labor that can be difficult without having the theoretical background to understand it. The objective of the training is therefore to transfer this knowledge and to enable professionals to use it in their daily work. The learning is discussed during the debriefing to encourage knowledge transfer to work situations.

5.2.2 Learning in a game

With respect to learning through games, studies conducted by Sherry Turkle in 1986 showed the acquisition of skills through Pac-man (Turkle, 1986). More recently, Rebetz and Bétrancourt (2007), albeit cautiously, listed a series of studies devoted to the psychological and cognitive contributions of video games: for example, improving performance related to mental processes by playing Tetris created by Pajitnov in 1984, or related to dynamic spatial reasoning by playing Marble Madness (Rebetz and Bétrancourt, 2007). Yann Leroux, for his part, identified a series of skills that video games could develop in terms of clinical psychology: controlling anxiety, establishing social contacts, integrating personality, etc. (Leroux, 2012, p.74-78).

This non-exhaustive list provides examples of how games could support different types of learning. In the workplace, it can also make sense to use games to provide training and companies invest in training to encourage the learning of expected "behavioral skills". In particular, games can facilitate cooperation within teams (Schmidt, 1990; Taurisson and Chunikin, 2005), developing the ability to negotiate, discuss, collaborate, share emotions and ideas with others (Sauvé et al., 2007). Since SEGs are team games, it is tempting to use them to promote or evaluate teamwork. Two studies suggest that it is possible to develop group dynamics in the context of an EG (Warmelink, 2017; Pan, 2017).

In our research, the question was to analyze whether games, debriefing and associated work groups promoted the transfer of learning in work situations.

5.3 The context and framework of the ESG

5.3.1 *Difficulty in gamification*

Customer relations imply performance, customer satisfaction and objectives responding to requirements in a complex and difficult relational environment. The training in our study aimed at:

- Making teams aware of the roles of emotions and their individual and collective regulation in customer relations.
- Providing operational means to develop the emotional competence of teams and manage work situations differently.
- Supporting managers in the implementation of the proposed system in terms of customer relationship issues.

The digital SEG thus conceived made it possible to combine theoretical concepts illustrated with practical cases to facilitate their appropriation, strong moments of collective reflection and exchange of experiences for:

- sharing the difficulties encountered on the theme and identifying appropriate actions;
- enriching the training with the experience and knowledge of the teams on the theme;
- allowing each participant to discover not only external resources (within the group), but also internal resources (individual potential).

These resources were explored during the various challenges offered in the game.

The challenges embedded in the SEG were illustrated with concrete examples from authentic work situations. For each of the learning objectives (cognitive biases, incivilities and people in difficult situations), the work situations encountered by the teams were detailed. When designing the game, each theoretical part was associated with practical cases from these work situations.

5.3.2 The training system

The training program involved 50 customer advisers, but only 45 were able to attend. The program consisted of a full day with the digital SEG and complementary half-days of 10/12 professionals to work and take the work situations modelled in the game further or any lived situation involving the adviser.

The day started with an introduction by the team leader explaining the game choice of the day and introducing the theme of emotions. The teams were randomly composed of three or four people, with the exception of the team of the three managers.

Once the game was introduced, each team could start playing. Only three participants had already made live action escape games. The game lasted from 1h15 to 1h30. Feedback from the game was achieved through the team's creation of drawings. Each participant was given a large sheet of A4 paper, then teams of 3 to 4 people had to make a collective illustration of what had happened during the SEG and indicate what they retained from the acquired knowledge to transfer it to work situations.

In the afternoon, the videos made by the participants during the game were viewed. Another group, other than the one who had made the video, reacted on the emotions the adviser could feel and how he could regulate them. Then the day ended with a quiz on the day's learning and a memento of the main knowledge from the training was distributed to each participant.

5.3.3 A research-action approach

We carried out an action-research that aimed at global and transformative change through the simultaneous process of action and research, the two being linked by critical reflection.

In this action research, we used a qualitative part with observations during and after the game as well as during debriefing and working groups, a process quite similar to the analysis of practices. We supplemented our observations with a questionnaire. The objectives of the questionnaire were both to collect data on the experience of the game, to analyze the involvement of professionals in the game itself, and the role of debriefing and working groups in learning.

5.4 Results

5.4.1 Observations during gaming

The 45 professionals were divided into 10 teams of 4 to 5 people during the SEG sessions. We could observe the surprise when they understood that "*it was time to play*". Some of them had played an EG a short time before and said they were very excited to play again. Most of the teams played in a good atmosphere and cooperated with each other. The competition between the teams came about relatively quickly. From our experience, the game seems to summon competition quickly. The teams evaluated each other by observing where the others were at. The music from some of the puzzles was a very good indicator and we heard: "*What is that? We're not there yet,*" or when their music rang out, they said, "*We're only there, they're ahead of us*". This performance evaluation mainly concerned teams that were close to each other. The 10 teams and the layout of the room did not allow them to progress in the game and follow the progress of the other teams at the same time. Two teams caught our attention.

The first team because it was not having fun; two of the three members spent a lot of time thinking about and discussing all the puzzles, and it was very difficult for them to get involved in the game. The third member was bored and fed up because he couldn't have fun. We discussed with them the reason for this difficulty in getting into the game and both members expressed their disagreement with playing.

The second team played and collaborated throughout the game. Towards the end, people started to get nervous. They couldn't find the material to answer the riddles. At first we thought it was a logistical mistake and suddenly we realized that they had not opened the last box where all the puzzles were. When we talked to them, they explained that they were falling behind and that they wanted to go faster just by using the tablet. The fact was that this was not possible, the puzzles and the tablet worked together. The team's defense strategy was to say that the boxes had been badly prepared and the material was missing, which did not allow them to continue, so they lost time, they said. This behavior was similar to the behavior of the bad player who "destroyed" the game: "it is not a good game", they said when the results did not meet the team's expectations (Mehl, 1981). In this example, the team tried to cheat, i.e., they tried to go faster using only the tablet, although this was not possible.

These two examples are isolated, most of the teams played and expressed pleasure, in particular by making two videos to illustrate work situations related to the game. Playful behavior was then analyzed using the questionnaire sent to them after the game, the debriefing and the working group.

5.4.2 Post-game discussions

5.4.2.1 The debriefing session

After the "hot reactions" within each team, the second phase of the debriefing was carried out by creating a collective illustration within each team of what happened during the SEG and how people thought they would transfer the new knowledge to work situations.

The collective illustration was the result of the collective discussion according to three questions:

1. How did you find this experience?
2. What do you think of the way the team worked?
3. How can you learn from this experience and transfer it to your professional activity?

The idea of a collective creation was to get them to discuss and make visible what had happened during the SEG and what they had understood about emotional labor. The drawings were in light colors and showed the fun, enjoyment and discussion in the teams during the SEG. Experience was also depicted with brains, hearts and people talking together. The transition to work situations was illustrated with arrows ranging from learning to work situations. Only one team retrieved the drawing to share it in their workplace.

5.4.2.2 Working groups

Two months after the SEG and its debriefing, working groups were organized to deepen emotions at work. We had 4 groups of 10 employees and 1 group of managers.

We started the session by asking three questions:

1. What do you remember about the training?
2. Do you have a different approach to situations since the training?
3. What are your expectations today?

Regarding the first question, all appreciated the discussions and interactions with colleagues in the game: "several discussions on work situations"; "good collaboration with colleagues"; "importance of each colleague's skills". Most of them remembered the main topic of the EG and some of the teachings on emotion regulation: "importance of managing our emotions"; "emotion is a very personal feeling and above all very different from one individual to another"; "don't confuse your emotions with the situation"; "maintain distance from the situation". The EG was a good memory for all except one participant, a member of the team who was reluctant to play. Two participants were frustrated because they would have liked to

go further in work situations and because of the competition. Going further was everyone's expectation for the work groups.

The question about transfer of learning was very interesting. For some ($\frac{1}{3}$), a transfer of learning occurred in everyday life: "more relaxed in person or on the phone, more fluid conversations"; "since the escape game, I try to pause before any reaction"; "I am more aware of my emotions, my reactions and what I can feel"; "I take a step back from other people's emotions, I let myself be less invaded by others' emotions"; "I know better how to react to a person in a totally stressful situation, distress. I have learned that the person is unable to receive information until the brain is calm and soothed. Only then will we be able to guide and help him. For others ($\frac{2}{3}$), the transfer did not take place: "the learning was blurred"; "too far to remember the content"; "I didn't really change"; "the game took over the content".

The expectations for the working groups were: "to manage my feelings by maintaining distance, but not too much"; "to gain a better knowledge of my colleagues' feelings"; "to manage my emotions according to the situations"; "to understand how to better manage customers who irritate me"; "to be more detached from my daily work"; "to better manage what irritates me; "to take a step back"; "to learn things, to put words to my feelings"; "to manage conflict situations". A few were looking for tools: "to find tools to manage conflicts or difficult situations on the phone". The difficulty was to make them understand that it was more important to understand an emotion than to banish it.

The second part of the working groups was devoted to explaining, for each of them, a work situation and the associated emotion in order to analyze it together. The ANACT model for analyzing a problematic situation was used (Sanglerat, Grandjacques & Francou, 2014). This model promotes interaction between participants in the identification of psychosocial risks and solutions. This involves: describing problem situations with the associated emotion, consequences, causes, risks and actions. Each person explained a work situation and the others asked questions.

After this analysis of the work situation, the professionals envisaged some changes: "maintaining discussions on work situations with colleagues"; "asking the question of causes: what makes the other person act/interact equally"; "analyzing emotions and taking a step back"; "choosing the right time to contact a client"; "asking a question at the end of the e-mail or conversation to encourage the answer"; "using key words: I am surprised ... I need ...".

From our observations, the majority of people were curious while maintaining a professional attitude despite the playful context of the training. A minority of $\frac{4}{5}$ people, initially more reticent, resistant, assertive and very spontaneous, got involved and participated positively. Only one person remained on the sidelines and

did not wish to participate and this person expressed it without giving a reason. All the professionals felt the need to speak, each with a personal anecdote to share. Some of them asked to continue the working groups.

5.4.3 Questionnaires

The questionnaires were completed by 25 of the 45 participants. The answers to the questionnaires were analyzed with the aim of analyzing: i) the perception of the training session as an authentic game, ii) the transfer of learning, in particular through the debriefing session and the post-game working groups, and iii) the potential impact of the training session on professional practices.

Professionals were asked about their perception of training through a series of questions. The questionnaire included closed-ended questions about the gaming experience in general and this experience in particular. Most of the questions were developed based on the results of initial research (Martin, 2018). The flow scale was used to subjectively assess learners' enjoyment and motivation in gaming (Heutte, Fenouillet, Boniwell, Martin-Krumm & Csikszentmihalyi, 2014). They were asked directly if they felt that SEG was a game. Almost all (24/25) responded that they thought it was a game.

The other questions were indirectly related to their perception of the session as a game: i) *I felt that I had the ability to deal with the situation*, ii) *I did not see the time go by*, iii) *I felt constrained by the rules of the game*, etc. These indicators were used to analyze whether each individual behaved as in a classic game situation (without the injunction to play): i.e. a person who did not see time passing, who did not feel constrained and who felt in control of the situation was considered to be playing, whereas a person who felt constrained and did not lose the notion of time was considered not to be playing. With this approach, two people were considered as not playing and four were considered neutral.

Another set of questions analyzed their perception of training. One of the questions asked whether, in their opinion, SEG was appropriate to address the issue of emotional workload in their work. Another questioned the debriefing to allow for the transfer of learning into work situations. Finally, a few questions questioned their behavioral change. One question asked if they used the memento handed during the training. Another question asked whether they had succeeded in transferring the knowledge acquired during the training into their work. Although the sample size was limited, it appears that the three observations (gaming, transfer and effect) were not independent (Friedman's test, sum of the ranks, $p < 0.02$). Looking at the paired associations, we found no significant association between play and effect (Kruskal-Wallis test by ranks, $p > 0.15$). This is consistent with the idea that play behavior does not appear to be crucial in maintaining the effect of play itself. On the other hand, we observed a significant association between transfer and effect (Kruskal-Wallis test by ranks, $p < 0.02$). This confirms the importance of

debriefing as suggested by others (Garris, 2002). These results also demonstrate that the questionnaire is capable of capturing this association.

5.5 Discussion - Conclusion

This study shows that the effect of training on the participant's work situations was significant, although we limit ourselves to those for which there was no ambiguity (11/25), although this should probably be pursued with larger cohorts.

One of our questions was whether it is possible to use a game for an activity that has a very strong emotional imprint, as here with emotional labor. An interesting element is that although almost all participants defined the activity as a game, a significant fraction of them did not demonstrate play behavior. This was not surprising, given that the same game can have different meanings for different participants (Juul, 2010). Indeed, a study of adult education using a serious game revealed a significant effect of participants' previous experiences as players; this preliminary knowledge altered the playful experience and perception of the serious game as an evaluation (Martin, 2017, 2018). In addition, a small study of a SEG found a correlation between the gender of participants and the effect on their experience (the "flow") (Hou, 2012).

The questionnaires were designed to capture informations that are usually collected through observations or interviews. This should make it possible to collect data on larger cohorts in the future. However, the questionnaires showed less consistent responses with related responses suggesting that some questions could be improved. It may also be that some indicators are more appropriate than others. Another limitation of this study is related to the fact that the questionnaires were anonymous, which prevents direct comparison with the results of observations and interviews.

Emotions are the visible part of an affect. Emotional labor can consist of regulating this visible part, but what about the affect? If affect is the unconscious part of the emotion, therefore the part we do not control, how can we regulate it without analyzing and understanding it? Individuals are asked to regulate the visible part, the emotion, from a deeper part, the affect. In the distinction between feeling, emotion and affect, we can assume that debriefing allows us to discuss the feeling and to think about how to regulate it according to the prescribed emotions, which is emotional labor.

It is an illusion to believe that play is enough to promote learning. Debriefing is essential to establish links with work situations and thus promote knowledge transfer. The post-game working groups on the emotional load at work made it possible to deepen this link initiated during the debriefing. Our results are consistent

with the notion that a game is a mediator and not the final solution, which made it possible to collectively discuss work situations during the debriefing.

In this example, the modification of feelings could be the "actual work" and the modification of emotions could be the "prescribed work". The effect would remain hidden or ignored. A tension may therefore arise between feeling, affect and emotion that can be harmful to health (Lhuillier, 2006). Interestingly, most participants told us that the support of managers and co-workers was essential to discuss these daily tensions and to express sadness, anger, tears and all the emotions prohibited at work, as well as in relationships with customers. This is what participants said the post-game working groups fostered. Since social support prevents dissonance (Zapf, 2002), it can reduce tension because emotions are prescribed in front of consumers, not colleagues. In turn, reducing cognitive dissonance may improve health.

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