INHERENT GAME CHARACTERISTICS OF ELECTRONIC NEGOTIATIONS

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Abstract

Negotiation activities have often been referred to as a game. For example, negotiators dance around each other, play with different strategies, follow rules and protocols, decide on particular moves from a set of alternatives, and try to achieve the ultimate goal of agreement. This paper presents the results of an explorative literature study examining the inherent game characteristics of electronic negotiations. To consider the context of information system explicitly, we analyse e-negotiations conducted in negotiation support systems. Our results reveal among others a strong social interaction element, various levels of difficulties and challenges, different activity choices that may lead to the same goal and continual feedback during these activities. With respect to current IS trends such as serious games and gamification, these identified game characteristics may serve as a basis for a gamified negotiation support system.

Keywords: game characteristics, gamification, electronic negotiation, negotiation support system

1.0 Introduction

Negotiations are present in everyday life and arise in private life, between social groups, in politics or in business (Pruitt and Carnevale 2003). A negotiation is defined as "[…] an iterative communication and decision making process between two or more agents (parties or their representatives) who 1) cannot achieve their objectives through unilateral actions; 2) exchange information comprising offers, counter-offers and arguments; 3) deal with interdependent tasks; and 4) search for a consensus which is a compromise decision" (Bichler et al. 2003, p. 316).

For several decades, various IT systems have been employed to conduct negotiations electronically. These negotiation support systems (NSSs) aim at saving transaction costs in business negotiations, reaching an agreement in less time than F2F-negotiations and finding an agreement of higher quality (Bichler et al. 2003). NSSs enable asynchronous negotiations for parties residing at remote locations (Kersten and Lai 2010). NSSs do not only transfer the negotiation to an electronic media, but provide additional support for the communication and/or decision tasks of the

negotiators. In addition, they might offer document management, and conflict management (Schoop 2010).

Few negotiation researchers have characterised the negotiation activities as a game directed towards the goal of an agreement. Pruitt and Carnevale (2003) describe negotiations as a *game of agreement* including the following components: "a set of options that are available to two or more parties (the 'players'), rules for making decisions among these options, and utility values associated with the possible outcomes of these decisions" (Pruitt and Carnevale 2003, p. 19). In addition to this rather game-theoretic perspective, they also use the term *game of moves*, relating to the employed tactics in a negotiation, such as concession making and information sharing.

Looking at the training phase of (future) negotiators, several aspects have game-related characteristics. For example, role games using different case studies are quite typical in negotiation courses. Furthermore, such negotiation courses also include trying out new negotiation styles and discovering their impact on the process and outcome (Köszegi and Kersten 2003).

Current research in Information Systems has drawn attention to new trends such as serious games and gamification. Serious games are games directed towards a specific learning goal, whereas gamification can be described as an extension of an information system with additional game elements (Blohm and Leimeister 2013; Deterding et al. 2011). Gamification in particular fosters user motivation and user engagement in non-entertainment contexts (Seaborn and Fels 2015).

Regarding the engagement in negotiations, prior research has shown that the exchange of more offers leads to more integrative agreements and that engagement is a significant factor for the probability to reach post-settlement agreements (Gettinger et al. 2012a; Gettinger et al. 2016).

Therefore, our overall research goal is to provide an NSS that utilises gamification to increase user engagement and outcome effectiveness and efficiency in negotiations. To the best of our knowledge, the analysis of gamification in NSS is a novel approach that has not been studied yet. As a first step, the game characteristics in negotiations and in NSSs need to be analysed which leads us the following research question for the current paper:

Which inherent game characteristics are present in electronic negotiations?

In the following, we will present the results of our explorative literature review which illustrates the presence of game characteristics in the various negotiation activities and components in NSSs.
The results can serve as a starting point for an actual implementation of a prototype enabling the analysis of gamification effects in NSSs.

2.0 The Inherent Game Characteristics of Electronic Negotiations

First of all, there is fundamental distinction between playing and gaming: Playing is a "[…] more free-form, expressive, improvisational, even 'tumultuous' recombination of behaviours and meanings" (Deterding et al. 2011, p. 11). In contrast, gaming is governed by rules structuring the game and directed towards a specific goal (Deterding et al. 2011).
Developing or studying game artefacts requires a framework for the game characteristics. The MDA framework (Hunicke et al. 2004) distinguishes between game mechanics, dynamics, and aesthetics. Mechanics describe the game components at the data level, such as points. Dynamics specify the dynamic behaviour of the game while interacting with the player, such as awarding activities with a certain number of points. Finally, the aesthetics are the player's emotional responses towards the provided game dynamics. In the following, we will investigate the negotiation process and the characteristics of NSSs to outline the presence of these game components in further detail.

2.1 Negotiations as an Interactive Process

As per definition, a game requires a specific goal and is structured by rules (Deterding et al. 2011). As already discussed, that the goal of negotiations is the achievement of an *agreement* (Bichler et al. 2003). The negotiation process is structured by a *negotiation protocol*. In electronic negotiations, precise protocols defining the activities which are undertaken by a human negotiator or by the NSS are required (Kersten and Lai 2007b). "The protocol may specify possible actions and their sequence, allowable offers and messages, timing of offers and messages" and may also "[…] specify the syntax and semantics of the messages, and mechanisms in which alternatives are determined and assessed, offers are constructed, and concessions are made" (Bichler et al. 2003, p. 316). Hence, we can conclude that the

prerequisites for negotiations being perceived as a gaming instead of playing are fulfilled.

To investigate the negotiation process and its phases in further detail, the five-phase model from Braun et al. (2006, see Figure 1) will be used which is based on the eight phase model by Gulliver (1979) and has been adopted to meet a larger range of negotiation scenarios including those facilitated by NSSs.

The first phase is the planning phase. Negotiators determine their strategy, relevant issues, aspiration levels, reservation levels, and the best alternative to a negotiated agreement (Fisher et al. 1991). Furthermore, the communication strategy is planned and the overall approach (i.e. more collaborating vs. more competing) is chosen. These are individual planning activities carried out by each negotiator. Joint activities include selecting a negotiation location and the communication modes (Braun et al. 2006). In the second phase, negotiators jointly discuss the negotiation issues and their meanings and may try to add new issues or remove others, thereby setting the agenda and exploring the field. Eventually, they might also revise their preferences and strategies.

Then the negotiators start with the actual exchange of offers and arguments which characterises the third phase. They learn about each other's preferences and priorities and identify potential conflicts (Braun et al. 2006). On an analytical level, negotiators may modify their strategy, determine possible concessions or revise their aspiration levels. At some point, the parties realise that they have successfully negotiated towards an agreement and develop joint proposals. The other alternative in phase four is that the parties agree to disagree and thus leave the negotiation table without a deal. Finally, in the conclusion phase the agreement is evaluated, might be improved further, or might be re-considered in a re-negotiation activity.

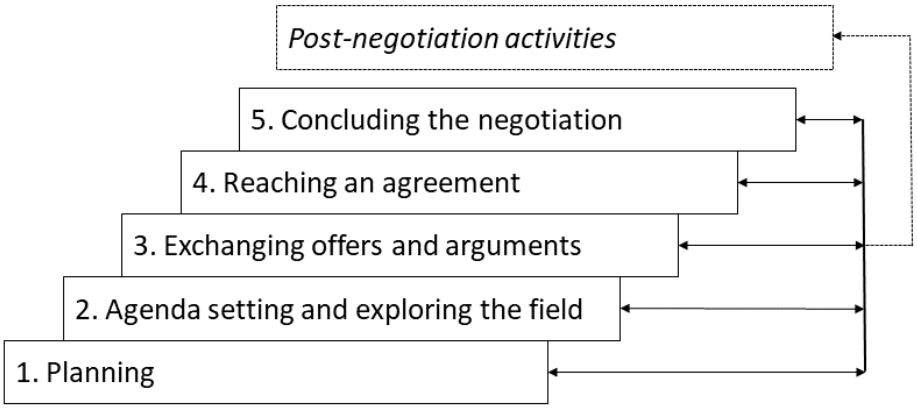

Figure 1. Negotiation process model (adapted from Braun et al. 2006, p. 274)

Negotiations are characterised as an interactive process between at least two parties (Bichler et al. 2003). The negotiators engage in negotiation-specific *communication* by exchanging offers, counteroffers or informal messages with the *joint goal* of mutual understanding and their *individual goals* (Schoop et al. 2003; Schoop et al. 2010; Schoop 2010). Apart from the given individual goals and planned behaviour of a negotiator, the actual *behaviour* will constantly be adopted according to the behaviour of the negotiation partner. Therefore, negotiations can be characterised as a *social interaction process* (Schoop et al. 2010). Negotiations can never be conducted by one party in pure isolation, as the negotiators rely on each other in order to reach their goals and the negotiation requires the achievement of a *compromise* solution (Bichler et al. 2003). Consequently, each negotiation consists of various communication elements depending on the current situation, e.g. arguing, convincing, accommodating, threatening, enquiring, clarifying etc.

The negotiators' *strategies* are part of and affect the complete negotiation process. In general, a negotiator's strategy is either distributive (competing) or integrative (collaborating) and can be implemented using several tactics (Lewicki et al. 2010). Distributive strategies are characterised by a fixed-pie assumption, where each of the negotiators claims the largest piece of the pie (Pruitt and Carnevale 2003). On the other hand, integrative strategies overcome this fixed-pie assumption and focus on creating additional value. Integrative negotiations require careful consideration of each of the negotiators' interests in order to create mutual benefiting solutions. Integrative strategies focus on achieving win-win situations, are more relationship-oriented and thus focus more on cooperation amongst the negotiators. More mutually beneficial agreements can be reached through information exchange about the parties' interests (Thompson 1991).

In a distributive setting, each negotiator strives for winning the negotiation. In the famous story of two siblings both dispute about only one orange left (Fisher et al. 1991). This seems to be a typical distributive setting, where the orange can be given only to one of the siblings. Alternatively, they may cut the orange into two pieces. The sibling receiving more than a half or the complete orange would have won this distributive negotiation. In an integrative setting, the children would exchange their preferences and interests first, e.g. one likes to eat the fruit, whereas the other one only needs the peel to bake a cake. Therefore, both siblings' needs can be satisfied

without cutting the oranges into two halves. These two approaches are two completely different solutions for the *distribution problem*.

So far we have outlined the two basic orientations of the negotiators, the interactive character of negotiations and the continuous communication exchange between the participants. *Social Interaction* is one element that can lead to enjoyment in a game (Lazzaro 2004). Social Interaction in games should support competition and cooperation between the involved players and it should enable interaction (e.g. via chat) among them (Sweetser and Wyeth 2005).

NSS allow *interaction* among the negotiators using electronic media and following a protocol structuring the message exchange (Schoop 2010). Similar to competition in games, the participants of a negotiation might strive for winning the negotiation against another person (Pruitt and Carnevale 2003). On the other hand, negotiations also allow to follow a cooperative approach, which focusses on the creation of win-win situations for each negotiator and which is more relationship-oriented. In negotiations including more than two parties, coalitions cooperating with each other in order to reach mutually desirable goals can be build up (Lewicki et al. 2010). Therefore, negotiation include a strong social interaction element.

2.2 Control in Negotiation Support Systems

Ströbel and Weinhardt (2003, p. 147) define an electronic negotiation as follows:

"An electronic negotiation conforms to this notion if it is restricted by at least one rule that affects the decision-making or communication process, if this rule is enforced by the electronic medium supporting the negotiation, and if this support covers the execution of at least one decision-making or communication task."

This broad definition covers many systems facilitating negotiations. According to Kersten and Lai (2010), electronic negotiation systems can be further distinguished into five subtypes: E-negotiation tables, Decision Support Systems (DSSs), Negotiation Software Agents (NSAs), Negotiation Agent-Assistants (NAAs) and Negotiation Support Systems (NSSs). This classification, however, is not distinct and several system classes overlap.

DSSs were designed to assist negotiators in their *decision-making* processes only, e.g. by evaluating received offers or offers to be send. NSS requires all the capabilities of DSSs and also facilitates communication and coordination between the negotiators (Kersten and Lai 2010). In contrast to NSSs, NSAs conduct the negotiation or parts of

the negotiation automatically on behalf of their human principal (Kersten and Lai 2007a; Schoop et al. 2003). In NSSs however, the human negotiator is still in control of the negotiation process (Schoop et al. 2003). DSS components may e.g. evaluate offers or suggest appropriate counteroffers, though the decision about the next negotiation steps remains with the human negotiator.

This control over the negotiation process is also reflected in the game literature. In their GameFlow model, Sweetser and Wyeth (2005) describe *control* as an important element. Game players should feel a sense of control over their actions. This control also describes the impact of own actions to the game world, i.e. their actions lead to observable changes.

We already pointed out, that NSSs unlike NSAs never conduct any action autonomously. The decisions and actions are still part of the human negotiator's tasks. Based on a given negotiation protocol, the negotiator has full control about the process. An agreement can never be settled against the negotiators' will. Furthermore, one's own *actions* lead to observable *changes* in the negotiation. On a technical level, a completed action initiates the negotiation protocol's selection of new tasks to be completed for the negotiation partner or the negotiator (Kersten and Lai 2007b). On the content-related level of the negotiation, the negotiator might have successfully convinced the negotiation partner to make some concessions.

Consequently, negotiators using NSSs should feel a sense of *control* over their actions and are able to observe different *reactions* towards their completed action.

2.3 Negotiations as a Creative Decision Process

As discussed in section 2.1, preparation is an important task in negotiations and is part of the first phase of the negotiation process. Negotiators e.g. define their *goals* (i.e. the aspiration levels for the attributes) and their *tolerance interval* (i.e. the reservation levels for the attributes) and select a *strategy* and several *tactics* to implement the chosen strategy (Raiffa et al. 2007). Maximizing joint and individual benefits requires the definition of a set of tactical options. Such a strategy may consist of integrative as well as distributive tactics, which may be applied at the same time or are predominant in different negotiation phases (Pruitt and Carnevale 2003).

Similar to many games, different strategies and tactics can be used to achieve a specific goal. One important game characteristic describing these options is *choice*

(Charsky 2010). *Choice* refers to expressive, tactical and strategic options during the game play.

The initial strategy defined in the planning phase of the negotiation may also turn out to be unsuccessful in the further process of the negotiation. Like in many games, negotiators can change their strategy and tactics if their choices do not seem to be suitable anymore in driving them forward towards their goals.

On a more detailed level, achieving an integrative win-win situation for all sides comes along with several concrete choices and processes. As there is no standard procedure to follow in negotiations, negotiators have to define appropriate strategies and tactics. Furthermore, they need to construct a line of argument, which has to be organised and presented at appropriate times (Lewicki 1997). The shared pool of information should be carefully analysed in order to elaborate the areas of agreement and disagreement. Finally, negotiators search for a mutually beneficial *compromise* using logrolling or trade-offs. This search for a compromise requires negotiators to *invent* options which create mutual gain (Lewicki et al. 2010). Inventing options may e.g. include adding new negotiation attributes to the agenda.

Creativity is an element which is facilitated by several games, e.g. by allowing gamers to build their own worlds (Green and Kaufman 2015). Given an integrative situation, the activities listed above include creative choices in the later stages of the negotiation process. According to Lewicki (1997) *creativity* is a required negotiation skill to successfully conduct integrative negotiations.

2.4 Feedback for Negotiation Activities

Feedback is an important element in games (Sweetser and Wyeth 2005) and has been applied in many gamified systems (Hamari et al. 2014). Positive and constructive feedback increases the intrinsic motivation to complete a task, because they support feelings of task competency (Ryan and Deci 2000). Feedback may include information about the progress towards reaching the goal, immediate feedback on performed actions and some kind of status or score within the game (Sweetser and Wyeth 2005).

On their way to an agreement, negotiators proceed through different negotiation phases. Considering e.g. the phase model for electronic negotiations by Braun et al. (2006) described in section 2.1, each of the phases must be concluded in order to

reach an agreement. However, the authors also point out, that this process is not necessarily straight forward and negotiators might revise certain phases again.

Completing each of the phases in a NSS are the intermediate goals of the overall negotiation goal. Ideally, the negotiation protocols structuring the process in the NSS are transparent, so negotiators can comprehend their current status within the different phases (Kersten and Lai 2007b). While being *guided* through these different phases, negotiators can *observe their progress* on their way to an agreement. The conclusion of the different phases is tightly related to the game characteristic *goal*: Besides a clear overall goal, games should also present clear intermediate goals (Sweetser and Wyeth 2005), which allow to monitor progression in the game or negotiation.

Furthermore, the negotiators receive immediate feedback in NSSs during their offer construction (Kersten and Lai 2010). Typically, while selecting desired values for the different negotiation attributes, a utility value ranging from 0% to 100% depending on a defined preference function is displayed. This utility value supports the negotiators in *evaluating* their next offer and avoids non-desirable outcomes, which are below their reservation levels.

Received offers are also evaluated using the same preference function, displaying the utility value in the offer history or in charts such as the history graph (Schoop 2010) or the dance graph (Gettinger et al. 2012b). Taking a look at the history graph of the NSS Negoisst (Schoop et al. 2003; Schoop 2010) illustrated in figure 2, converging lines would denote a higher probability for reaching an agreement, whereas diverging lines may require more time until an agreement can be reached. Besides, the received offer itself contains important feedback information from the negotiation partner and may require adapting or changing one's own behaviour (Schoop et al. 2010). Negotiators are thus able to evaluate whether they were successful in reaching some concessions or whether their recent tactics hinder negotiation progression.

The *feedback* element in NSSs can be summarised according to the following components: The negotiation protocol guides the negotiators transparently through the negotiation phases, the decision support components help to evaluate and construct offers, the communication support components display some feedback through the reaction of the counterpart.

Figure 2. Screenshot of the History Graph in Negoisst

2.5 Varying Challenges and Levels of Difficulty

Challenges are one of the most frequently used game characteristics (Charsky 2010; Lazzaro 2004; Sweetser and Wyeth 2005). Adequate challenges matching the player's abilities can lead to a flow experience (Nakamura and Csikszentmihalyi 2002). In general, games should provide challenges with different *levels of difficulty* depending on the skills and the progress of the player (Sweetser and Wyeth 2005).

Transferred to negotiations, the skill of the negotiator describes his/her general ability to analyse and to communicate (Lewicki et al. 2010). Negotiation skills can be acquired through experiential learning, e.g. by case studies and role plays and an evaluation of the performance in these negotiations (Köszegi and Kersten 2003; Lewicki 1997).

The level of difficulty in negotiations differs in many aspects as follows. Firstly, there might be a single negotiation attribute, multiple or even an undetermined number of negotiation attributes (Ströbel and Weinhardt 2003). Single-attribute negotiations e.g. about a price are quite easy to handle; the negotiators might not even need a utility value to evaluate the offers and know their current score. Multi-attribute negotiations are more difficult to handle, as they require additional support to evaluate offers and

counteroffers. Furthermore, given an integrative setting, multi-attribute negotiations involve careful consideration of various options to create a win-win situation.

Secondly, a negotiation can be further described by its type, e.g. a bilateral or a multilateral negotiation (Bichler et al. 2003). In a bilateral setting, only two parties negotiate and need to find an agreement. Multilateral settings involve more than two parties and require the agreement of all parties for a compromise. Incorporating the interests of all parties in a multilateral setting is obviously more challenging than the consideration of one parties' interests (Lewicki et al. 2010).

Thirdly, a negotiation's level of difficulty always depends on the approach of the negotiation partners. Lewicki et al. (2010) describe four approaches: avoidance, accommodation, competition and collaboration (see Figure 3). Avoidance (also referred to as inaction) characterises negotiators that do not want to negotiate at all. Negotiators following an accommodating strategy show little interest in their own outcomes but rate the partners' outcomes as being very important. In contrast, negotiators applying a competitive strategy are solely focussed on their own outcomes. Collaborative negotiators show interest in their own as well as in the outcomes of the partner(s). In figure 3, the concern regarding the outcome of the negotiation partners is represented by the importance of future relationships among the negotiators.

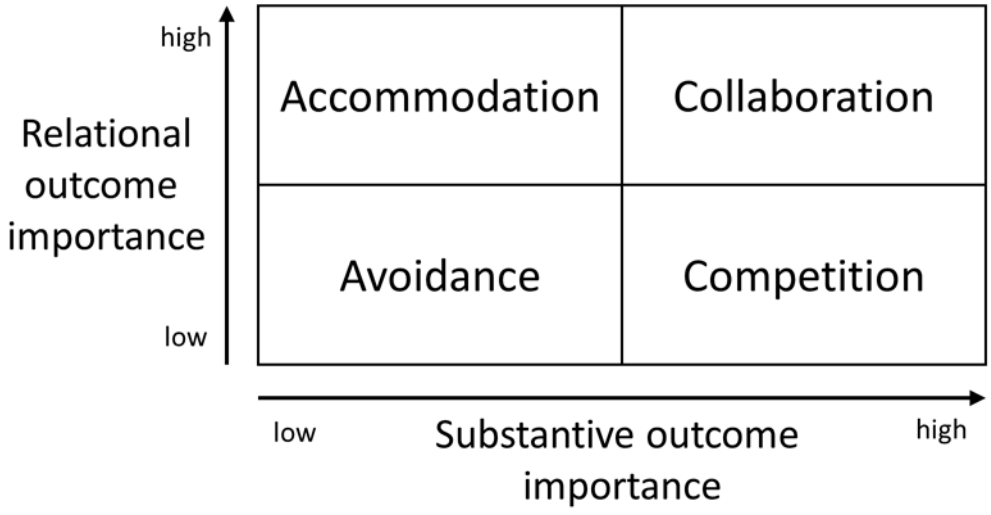

Figure 3. Negotiation strategies (adapted from Lewicki et al. 2010, p. 112)

The level of difficulty is consequently tightly related to the question whether the negotiation partner is interested in his/her own outcome and the quality of the future relationship. Negotiators following an accommodation strategy decide to lose the

negotiation and let the other win to maintain or establish a good relationship (Lewicki et al. 2010). Negotiating with accommodating partners is thus quite easy. The other extreme are negotiators following a competitive strategy. Competitive negotiators strongly pursue their own goals and show little concern for establishing or maintaining a good relationship. Somewhere in between these two extremes lies the collaboration strategy, reflecting high concern in both their own and the partner(s)' outcomes. Collaborative negotiators will neither adhere to their positions as fiercely as competitive negotiators nor will they give in as easily as accommodating negotiators.

A special challenge of electronic negotiations is imposed by the medium itself: Social cues such as mimics, gestures, or non-verbal behaviour are filtered out (Friedman and Currall 2003). Compared to face-to-face negotiations, these missing cues make it more challenging to observe and recognise the emotions and reactions of the negotiation partner. Consequently, misinterpretations and misunderstandings are possible.

Challenges are also part of negotiation trainings using NSSs, which have been used in several studies (Köszegi and Kersten 2003; Melzer et al. 2012; Melzer and Schoop 2014). All of these studies have in common, that they build up negotiation skills by providing adequate case studies and simulations, which match the negotiator's abilities. For example, Köszegi and Kersten (2003) conducted first of all a simple single issue negotiation simulation, which was followed later by a more complex multi-issue negotiation. Another solution for improving negotiation skills was the Tactical Negotiation Trainer (TNT) developed by Melzer et al. (2012). This automated negotiation partner can autonomously send new offers and underpin its position with text messages. The TNT was used as a training tool in a briefing teaching the actual use of the NSS Negoisst (Schoop et al. 2003; Schoop 2010) before the students participated in an international negotiation simulation.

In this chapter, we have outlined the various factors influencing the challenges and level of difficulty in electronic negotiations. In real negotiation scenarios, these factors are sometimes difficult to predict and control. However, teaching negotiations using NSSs can provide optimal challenges matching the negotiators' abilities, e.g. by varying the complexity of negotiation simulations. Furthermore, tools such as the TNT can be configured w.r.t. their negotiation strategy and target values to simulate various levels of difficulties.

2.6 Experimenting with Negotiation Styles

Varying negotiation strategies and tactics are not only related to the negotiation partner and affect the difficulty, but may also differ for each negotiation. In the planning phase, the negotiators define their approach in terms of the strategy and tactics to be used. Using different approaches requires appropriate negotiation skills, i.e. different modes of communication (Lewicki et al. 2010). Once again, these negotiation skills can be fostered by electronic negotiation training.

Köszegi and Kersten (2003) reported that the anonymity in an electronic negotiation simulation used for negotiation training encouraged students to experiment with various approaches and negotiation styles and to reflect on the impact on negotiation process and outcome.

This study is a good example how people can also define their own goals, e.g. by experimenting with new approaches and how they perform using these approaches. Setting individual goals has been a topic in the game literature as well as in the gamification literature (Charsky 2010; Nicholson 2012). Nicholson (2012) describes the possibility to define individual short- and long-term goals as a way to provide meaningful gamification experiences. Goals set by the players are likely to increase intrinsic motivation, such that an activity is done for its inherent satisfaction (Nicholson 2012; Ryan and Deci 2000).

If persons decide to set their own goals, the target achievement needs to be evaluated afterwards. Transferred to the study by Köszegi and Kersten (2003), some students may have simply defined reaching an agreement using a completely different negotiation style as their goal. Others may have strived for certain utility values, for a good relationship with the negotiation partner or less time-consuming negotiation processes. These experiments also allow for comparison with other previously tried and tested negotiation styles.

3.0 Conclusion and Outlook

In this paper, we have identified several inherent game characteristics of electronic negotiations. Like games, negotiations are directed towards a mutual goal representing the end of the game, i.e. an agreement. Individual goals represent each negotiator’s/player’s own targets. Negotiations are structured by rules, i.e. the negotiation protocols. The mutual dependency in reaching an agreement between the

negotiators and the competitive or cooperative strategies used in the negotiation reveal a strong social interaction element. An agreement can be achieved by choosing from different possible strategies and tactics. Integrative negotiations demand vast creativity. In contrast to several other electronic negotiation systems, the users of an NSS are always in full control of their negotiation activities and can observe an impact of their activities by lots of feedback mechanisms. Negotiations are challenging processes with different levels of difficulties. These challenges are anticipated in negotiation trainings, where the participants may also experiment with new negotiation styles.

A central trait of games is the enjoyment during game play (Sweetser and Wyeth 2005). User enjoyment is equally important for hedonic systems as well as utilitarian systems (such as NSSs), influencing their perceived ease of use and usefulness of a system (Gerow et al. 2013).

However, many of the described game characteristics are only implicitly present in NSSs. Gamification, defined as the use of game design elements in non-gaming contexts (Deterding et al. 2011), is a promising approach to emphasise these inherent game characteristics in NSSs. Gamification facilitates engagement of users, which has been identified as a factor to be addressed for the design of NSSs as a particular form of information systems (Gettinger et al. 2016). We expect the inclusion of game design elements to lead to greater engagement, more extensive message exchange, and better agreements in terms of individual and joint utilities. Although the identified game characteristics might not be comprehensive, they can be used as a starting point for the design of various game design elements in NSSs.

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