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THE EFFECTS OF EMOTIONAL AND RATIONAL NEGOTIATION WITHIN DESIGN

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ABSTRACT
Negotiation in design is conducted using a wide spectrum of skills and procedures. Typically a rational approach to negotiation is taken by providing evidence and reasoning for either side of the negotiation. Such 'proself' approaches have, on occasion, been found to be a disruptive and argumentative approach to negotiation. Subsequently a focus on emotional negotiation has become an important research topic. The benefits of considering other parties emotions have slowly become a reasonable argument for changing the way negation is conducted in many industries such as engineering design. By investigating 'prosocial' opportunities for both parties' during negotiation, better outcomes or greater opportunities for win-win situations are provided. Despite this, when emotion is used in the context of design projects, it is often seen as a weak position or a hindrance to the negotiation process. This paper focuses on how negotiations are affected by participants' use of rational and emotional negotiation. An experiment has been conducted with a new rational and emotional framework to understand its effects on the performance of a design project and test proposed hypotheses. The results of this experimentation revealed that group performance improves as they focus more on joint outcomes. However, it does not make the process of negotiation any easier. The paper concludes with a discussion of the results and recommendations for further work.

Keywords: Negotiation, Emotion, Rational, Social Value Orientation, Proself, Prosocial, Frameworks

1 INTRODUCTION

A key feature in any design team is the need to make decisions and compromises, often on competing criteria in order to achieve a successful outcome. Teams must work together to make joint decisions that are best for the design or output of the project. While there are many positive aspects to working in teams [1] there are also difficulties. These can disrupt projects and create conflict in teams, caused by misunderstandings and differing opinions or viewpoints [2]. Due to the nature of design itself disputes can arise. However, by negotiation these disputes are often overcome, keeping vital professional relationships intact. Research has shown that negotiation is key during collaborative design and engineering; it can turn a complex dispute into a clear set of decisions [3]. The ability to negotiate has a direct impact on a project as it is often used as an approach to make decisions and manage disputes [4]. So much so that it can be seen as a form of design tool. By implementing a negotiating framework or strategy to manage conflict, teams can work through issues, share information and concerns then ultimately improve the output of the team [5]. Educating individuals in design groups on how best to approach negotiating in terms of logical and emotional perspectives will improve the overall output from negotiating and improve the project outputs [6]. This is particularly relevant for the education of design and design engineering orientated students. The aim of this work is to characterise how logical and emotional behaviours during negotiation affect the output of design teams, to create a framework for use by various design groups and to reveal new knowledge.

2 RATIONAL NEGOTIATION, EMOTIONAL NEGOTIATION & SOCIAL VALUE ORIENTATIONS (SVO)

Bui [7] defines negotiation as "a process in which two or more parties aim to reach a joint agreement". It is a process in which a range of social interaction, rationalities, preferences and opinions all come together to make decisions. A vital characteristic of successful negotiation is all parties involved are

needed to find a solution [8]. The most common, and often default, negotiation approach used is rational negotiation [3]. Rational negotiation uses logical thinking which is "the process of induction, deduction, analysis, abstraction and integration from a set of premises." [9]. Many authors [5], encourage the calculation of options prior to meeting opposing parties and encourage the emphasis and definition of the importance of a task to an opposing party so as to promote rationality. Bazerman and Neale [10] state that one of the common mistakes in negotiation is allowing non-rational thought to obstruct opportunities. However, this sentiment characterises all non-rational thought as a hindrance to the negotiation process. This school of thought has subsequently been challenged and in some cases considered outdated and incorrect [11]. It has been argued that by using these predetermined arguments a bargaining zone then evolves and this can be seen as an intimidating and stubborn way to negotiate [10]. The temptation to demonstrate knowledge and dig into details to prove people wrong can be deeply ingrained into people's personalities. When people arm themselves with supporting facts they aim to overwhelm the other party and to persuade them to agree with their point of view. This is not, by definition, negotiation; as negotiation is a collective decision process. By creating a one-sided negotiation this begins to become a contest for the upper hand.

By contrast a growing body of research has shown that the outcome of any negotiation can be influenced by the emotions of the parties involved as "negotiating is an emotional process" [12] and "people are primarily emotional decision makers" [13]. However, when emotion is used in the context of negotiation, it is often seen as a weak position or a hindrance to the process. The effects of emotions in negotiation have been postulated to have a strong influence but lack conclusive evidence [11]. Emotional negotiation is something everyone does almost every day and may not realise. Authors have argued that emotions are separated into principal categories - positive, neutral, and negative - and it has been found that these can influence the outcome of a negotiation [14]. If harnessed appropriately opportunities are provided for better outcomes and 'win-win' situations, additionally maintaining healthy relationships and encouraging trust [15].

Research is increasingly attesting that a strictly rational approach to negotiation is not the most effective way to make decisions and that both rational and emotional negotiations need to be considered for optimal outcomes [12].

An emergent theory in emotional negotiation is the characterisation of types of negotiator. When parties are negotiating, their Social Value Orientation (SVO) influences them to evaluate the outcomes in term of their self-interests and contending parties' interests separately. There are two main types of SVO which are most relevant to negotiation situations, 'prosocial' and 'proself'. These social motives can be deeply rooted in an individual [1]. In the broadest sense prosocial parties will prioritise satisfaction of others while proself parties will priorities satisfaction of oneself. It has been reported that prosocial parties will accomplish a lot of united outcomes, because it produces trust and encourages problem solving while discouraging contending behaviour [16].

When considering in terms of emotional context it has been found that positive emotions create a prosocial environment for people to negotiate and develop strong trusting relationships more easily [11] [17]. It also creates a more cooperative atmosphere and heightens creativity which consequently improves the chances of a mutually beneficial outcome [18]. Yet, Kramer, Pommerenke and Newton [19], discovered that a positive mood can also make a negotiator more susceptible to being taken advantage of. Positive and highly prosocial negotiators are more likely to make compromises and this may not always be in their best interest [14]. This is a circumstance that proself negotiators could take advantage of and can drastically swing the negotiation out of balance and in favour of one party in particular. Negative emotions can add tension and can be perceived as proself under certain circumstances. This can be beneficial when a negotiator wants to effectively haggle with the other party. They will take advantage of the other party's softer approach, hoping they will concede [11]. If a party is displaying anger or disgust, other parties may withdraw and this then risks their emotions crossing over to the negative state [20]. Negative emotions can reduce a party's accuracy in judgements and when strong emotions such as anger occur, this can interrupt negotiation and in worst cases, stop negotiation. Various bodies of research have revealed no constantly conclusive answer on what emotions have the most effect therefore the effects continue to be uncertain.

3 DEVELOPMENT OF A NOVEL NEGOTIATION FRAMEWORK

Given the importance of negation in the design process there have been attempts to create frameworks in order to generate successful negotiations and outputs. They are used to manage the decision making

process and considerations in a structured manner. During design and engineering projects, they are often seen as facilitators to the process and sometimes referred to as design tools [21]. After reviewing a large number of negotiation frameworks over the past 30 years, a clear pattern in steps for negotiating have been identified [21] [10] [12] [7] it is also apparent that the inclusion of emotion is a last minute thought. The guidelines identified by authors such as Thomas [22] and Bui [7], merely add supplementary discussion points about emotion into a fairly robust and dated negotiation framework. The emotional frameworks that do exist in research still describe negotiation in terms of strategy and not as a collaborative, prosocial, process [11]. The lack of recognition for emotional negotiation is still very apparent. It is clear that although there is research showing the importance of emotions during negotiation [17], it has yet to be fully incorporated into frameworks.

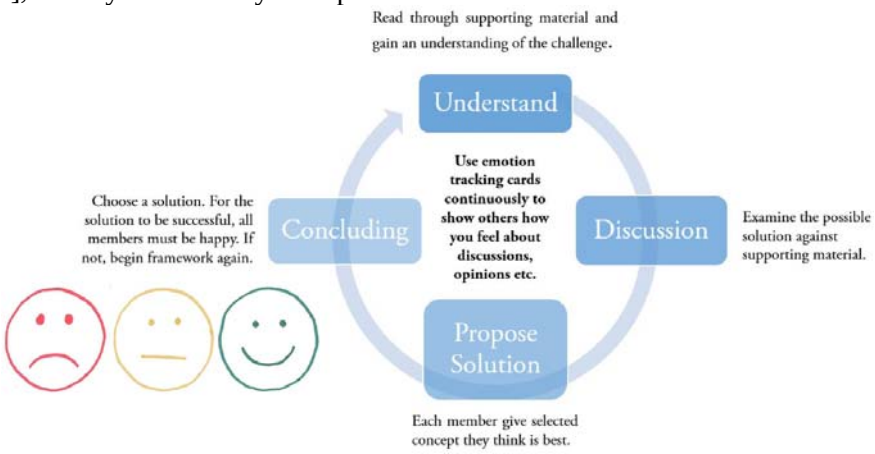

Figure 1. Emotional and Rational Framework & Emotion Tracking Cards

The Emotional and Rational Framework (ERF) is based upon a combination of existing frameworks [21] [10]. It is informed by research which shows that by continually demonstrating and permitting understanding of the various parties' priorities, negotiation will have a superior joint outcome [23]. This newly proposed ERF reduces the overall number of steps to 4 key rational negotiation phases informed by the work of Broekens et al. [12]. The ERF is demonstrated in ***Figure 1***. The four main phases of the ERF have been designed for simplicity and clarity, intended to be flexible and more interactive, which will also allow participants to incorporate negotiation methods they are comfortable using. In addition to this ERF a novel emotional element is proposed and introduced, the implementation of Emotion Tracking Cards (ETCs) which allow all participants to continuously illustrate their emotions in a discrete and subtle manner and encourage emotional engagement. The ETCs are a set of three cards given to each party in a negotiation process. Each card has one of 3 different facial expressions which represent the 3 main states of emotion; positive, neutral and negative. As Fisher and Ury [24] discuss in their research of emotions' place in negotiation, they stress to "make emotions explicit and acknowledge them as legitimate". By using the ETCs (Figure 1) emotions for any part of the process, such as discussions and opinions, will prompt further discussion into the topic at hand. The topic of discussion that caused a participant to be unhappy and show a negative ETC must be thoroughly conversed until all participants are happy and are showing positive or neutral ETCs. The use of traffic light colouring on the cards helps visualise that the task cannot move on until all participants show amber or green. As both Roschuni et al. [15] and Bazerman and Neale [10] proposed, negotiation requires a party to rationally consider both their own perspective and others. While there are many rational frameworks and guidelines in circulation, some of which have been altered to include vague procedures for understanding participant's emotions, no frameworks that actively include the measurement of emotion have been developed thus far. Such existing frameworks neatly explain the obvious warning signs but shy away from asking each participant to declare their emotions during the different negotiation stages. The proposed ERF and associated ETCs are intended to fill a gap in knowledge as to how a framework incorporating emotional negotiation works in a design team. The following hypotheses are proposed and subsequently tested by means of a qualitative experiment.

H1: A group will perform better when given a framework that encourages emotional and rational negotiation.

H2: A group will find negation easier with the addition of an emotional and rational framework.

The devised test consisted of two tasks: task 1 represented a control condition without the use of the ERF and ETCs; task 2 with the use of the ERF and ETCs. A key stage of the design process where decision making and negotiation must be used was chosen; the concept evaluation stage. The experiment involved small groups of participants working to agree upon a concept, from a set of provided concepts, which best addressed a design task. The concepts given to the participants were evaluated in advance by an expert in the field to identify one concept that fulfils all the requirements of the design task. In both experimental tasks the participants were provided with a Product Design Specification (PDS) and a set of concepts to be evaluated. In the second task participants were additionally given the ERF and ETCs. The performance of the groups participating in the experiment was evaluated by their decision of which concept is best suited to the PDS. Participants were only informed that they were taking part in a study about design in an effort to reduce any conscious or unconscious bias. The performance of the groups was observed and compared over both tasks. A questionnaire upon task completion was used to gather data to enable a comparison to be made. Small teams of 3 were chosen, in total 8 groups (24 participants) took part. The participants were a random selection of design engineering students.

4 RESULTS & DISCUSSION

The most pertinent data generated by the experiment is visualised and discussed throughout this section.

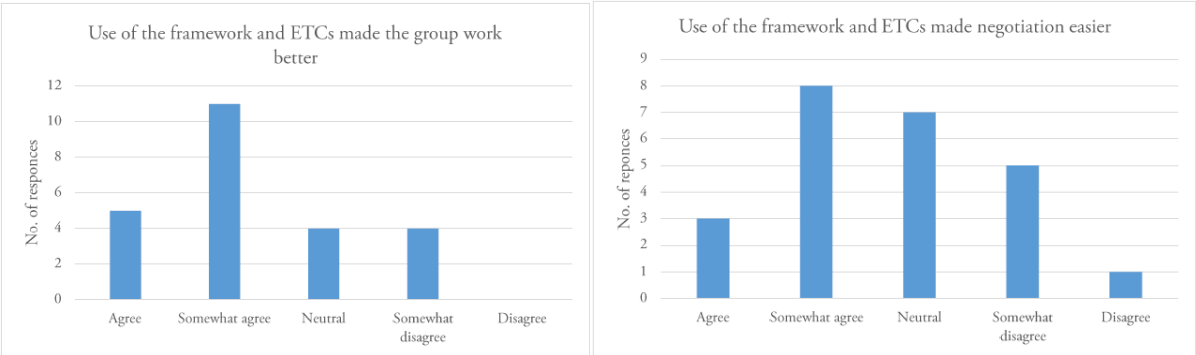

Figure 2. & Figure 3. Use of the ERF and ETCs for group work and negotiation

Figure 2 demonstrates that 83% of participants thought they performed better or comparably when using the ERF and ETCs. A smaller percentage (17%) stated they thought they didn't work better as a team due to the new ERF and ETCs. In review of the questionnaire responses this appears to be attributable to improved communication achieved through use of the ETCs, and as discussed in literature; there is no negotiation without communication [24]. The elevated levels of communication that the ETCs provide increased the amount of negotiation involved.

Figure 3 shows the responses of participants when asked if the use of the ERF and ETCs made negotiation easier. Participants 'somewhat agreed' that task 2 made negotiating easier supporting the effectiveness of the ERF and ETCs but only marginally. By comparing Figure 2 and Figure 3 it would appear, that although the use of the new ERF and ETCs made the teams work better together, it did not necessarily make negotiation easier. This could be expected as there are more factors to consider in task 2. From observations made during all 8 of the groups, during task 1 many participants used systematic and basic methods of rating each concept. In these cases, one or two participants resulted in making most of the decisions about ranking and if there was a small disagreement with the concepts rating against a particular PDS point, withdrawal was often seen; where other participants would quickly yield to allow the task to continue. Although a participant may have thought that yielding or compromising from a negotiation about a particular evaluation point was helping the overall evaluation, it is in fact reducing the chance for other viewpoints to be heard, therefore making evaluation less accurate.

During task 2, this was eliminated as the new ERF and ETCs made a reported 100% of participants feel that their opinions and thoughts were considered more than in Task 1. This result would appear to indicate that the new ERF and ETCs are accomplishing their intended purpose. In responses to questions related to participant emotional engagement the number of participants that reported feeling emotionally engaged increased from 25% in task 1 to 62% in task 2. This 37% rise also indicates that

the new ERF and ETCs in Task 2 have encouraged the majority of participants to constructively challenge each other and consider other viewpoints.
In terms of selecting the concepts which successfully addressed the PDS, 87% of participants reported that they thought they had correctly arrived at the most suitable concept. However, the overall percentage of concepts chosen correctly was only 33.3%. The participants themselves viewed their performance as higher than it was in reality, but importantly there was a significant improvement in their performance when evaluating performance in task 2 compared to task 1. From task 1 only 25% of groups selected the correct concept which is a poor result, however in task 2 this increased to 50% of groups selecting the correct concept. This increase in performance was mostly due to the groups' increased use and reference to the PDS. The PDS was considered more due to participants debating and negotiating each other's views on the characteristics of the concepts.
From observations, the groups that negotiated and deliberated each others' points and justified their own often considered the key criteria and PDS more. As Jehn and Mannix [2] stated "task conflict improves decision quality because the synthesis that emerges from the conflict is generally superior to the individual perspectives themselves". This higher level of discussion in task 2 made the groups more likely to select the correct concept, therefore increasing their performance. From questionnaire responses the participants who found task 2 more successful, felt that the team focused more on the deliverables of the design task and were more thorough when considering all the PDS points than in task 1. As participants were encouraged to further investigate one another's views on how concepts really performed against the PDS criteria, they found task 2 more interactive and easier to discuss their views or feelings towards the negotiations. When the participants were asked if these emotional responses affected choosing the selected concept, all participants said yes. By articulating concerns, this then made each participant re-evaluate their reasoning for arguments. This provoked increased use of the PDS points which increased the likelihood of selecting the correct concept. It was also found that groups with a majority preference for task 2 all selected at least 1 correct concept during the experiment. Groups who preferred task 1 did not select any of the correct concepts during both task 1 and task 2. It could subsequently be argued that although a group may prefer an unstructured negotiating environment without the use of frameworks, it will not necessarily result in the optimal outcome, a finding particularly relevant for students being trained in the design process. Consequently, it can be said that groups who preferred the framework approach, also performed better in the task.

5 CONCLUSION

This research and experimentation into the effects of collaborative emotional and rational negation and an associated novel framework has been informative in several ways. While the small sample size is a key limitation the hypothesis stated can be evaluated against the data collected from the experiment. Hypothesis 1 would appear to be supported by the data collected, which shows that by using the ERF and ETCs, the likelihood of the group selecting the correct concept is increased by 25%. Hypothesis 2 however is not demonstrably supported by the data. The data gathered in this regard was inconclusive. From this experiment it has become apparent that the ERF and ETCs have varying levels of success. It appears that the most successful part of the experimentation was the implementation of the ETCs. They have provided the key emotional negotiation strategy and largest impact which is supported by the data collected showing that participant's emotions have been considered more. This novel element appears to provide a low-invasive emotion measurement method to assess the participant's emotional state and has a beneficial effect on negotiations which warrants further research in the future.

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