

# The role of Emotional Intelligence on the resolution of disputes involving the Electronic Health Record

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## Abstract

Numerous authors have expressed concerns that the introduction of the Personally Controlled Electronic Health Record (PCEHR) will lead to an escalation of disputes. Some disputes will concern the accuracy of the record whereas others will arise simply due to greater access to health care records. Online dispute resolution (ODR) programs have been successfully applied to cost-effectively help disputants resolve commercial, insurance and other legal disputes, and can also facilitate the resolution of health care related disputes. However, we expect that health differs from other application domains in ODR because of the emotional engagement patients have with their health and those of loved ones. In this study we will be looking at whether the success of an online negotiation is related to how people recognise and manage emotions, and in particular, their Emotional Intelligence score.

*Keywords:* Dispute resolution, Electronic health record, Emotional intelligence, EHR.

## 1 Introduction

An Electronic Health Record (EHR) is a virtual record of every health related event (e.g hospital admission, general practitioner visit, allergies) experienced by an individual from in-utero to death. The establishment of an EHR is a national priority in Australia, because it is believed it will improve the quality and efficiency of health care delivery by empowering Health Care Professionals (HCP) with a full description of a patient's history. Challenges to the establishment of an EHR centre around adoption issues and may include data inter-operability, security, privacy and terminological challenges.

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A key component of the United States recent health care reforms involves the expenditure of many billions to establish an EHR by 2013. Microsoft and Google have established EHR systems that currently can accept entries automatically from many general practitioner and hospital information systems. In Australia, over \$400 million dollars has been earmarked for the establishment of an EHR, named the PCEHR, due for release in July 2012.

Halamka (2009) has forecast that the emergence of an EHR will bring with it disputes regarding access and use of information in a record. Some of the disputes will be serious and obvious breaches of privacy or security and require resolution by recourse to Courts. However, many disputes will not be so serious or involve jurisdictional issues that render legal action impractical. For instance, disputes involving the accuracy of data in a patient's EHR are unlikely to be litigated. Different protocols for sharing health data across disciplines or countries are similarly unlikely to be resolved by litigation unless breaches are serious. Recently, Online Dispute Resolution (ODR) approaches have emerged to help disputes between buyers and sellers in online markets, (e.g SquareTrade [www.squaretrade.com](http://www.squaretrade.com)) and insurance claims (e.g SmartSettle [www.smartsettle.com](http://www.smartsettle.com); Cybersettle [www.cybersettle.com](http://www.cybersettle.com)). Bellucci et al (2008) demonstrates the successful use of AssetDivider as software to help divide assets in a divorce. These models appear to successfully deal with financial issues without making provisions for emotion management. However, when dealing with disputes related to EHR, we feel the emotions of the concerned parties, such as patients and health care professionals will play a vital role.

Borland et al, (2010) and Foo et al, (2010) have found that the success of a negotiation is dependent upon the Emotional Intelligence (EI) of the participants. Goleman (1995) defines EI as the ability to recognise and manage one's own emotions and read and deal effectively with other peoples' feelings. Recently, studies have been carried out to investigate if EI could influence informal mediation (Boland and Ross, 2010). In our paper, we postulate that EHR disputes may be influenced by the emotional intelligence of the disputants. Using Argumentative Theory of Reasoning (Mercier and Sperber, 2011), we propose the important role of EI in resolving

disputes related to EHR.

Our paper will describe a laboratory study we are conducting to support our research. We have asked 80 participants to complete two online activities. The first involves an EI test, which will provide us with an indication of Emotional Intelligence Scores. Participants will be given a hypothetical case detailing a dispute in the area of Electronic Health Records. The next activity is to attempt to resolve the dispute using an Online Dispute Resolution system, Re-consider (Muecke and Stranieri 2006), where participants will be acting on behalf of either the patient or medical practitioner.

The rest of the paper is organised as follows. Section 2 describes the emotions that play an important role in any negotiation process. The various types of emotions are discussed and we arrive at a definition of emotion that relates to negotiation. We briefly describe negotiation theory and how to deal with emotions during negotiations that lead us to the concept of Emotional Intelligence. In Section 3, we explain EI and its importance in the negotiation of disputes. Next, in Section 4, we identify the types of disputes that could be associated with issues related to EHR. This section also gives a brief overview of the dispute resolution models found in the literature and the recent trends in dispute resolution mechanisms. In Section 5, we introduce the importance of a disputant's EI to the dispute resolution process and postulate the link between EI and health care disputes. We employ Argumentative Theory of Reasoning in arriving at our conclusions, and finally, in section 6 we summarise our research.

## 2 Emotions in Negotiation

When it comes to managing our health, we often have very strong feelings, particularly if we, or someone we care about has been given a poor prognosis, or is the victim of communication breakdowns. Whilst the implementation of EHR promises efficiencies in patient care and accountability, it is also expected to bring with it new disputes related to privacy, accuracy, ownership (property) and accessibility (Mason, 1986). In Section 4.1 we detail an adaption of Mason's theory to arrive at seven different types of disputes related to implementation and use of the EHR. We postulate emotion as an important facet to dispute resolution, and one we feel has the potential, if recognised and properly managed, to contribute to the success of e-health related disputes.

### 2.1 Definition of Emotion

Emotion is difficult to define without reference to an experience (Fisher and Shapiro, 2005). We experience emotions, and as such define emotion using words that express feelings, ie we feel anger, sadness, happiness, joy. Lazarus (1991) gives a more theoretical definition by defining emotion using three distinct features: physiological reactions, action tendencies and subjective experience.

Emotions are also defined by what they are not; Li and Roloff (2006) make a clear distinction between emotions

and moods. Emotions are usually discrete, of high intensity, short duration and are directed to an object, person or event (Li and Roloff, 2006; Van Kleef et al, 2004). Moods on the other hand are generally "more pervasive, enduring and less intense than emotions, and may not have an identifiable target" (Barry, 1999). Moods are identified in broad terms, such as good or bad (Li and Roloff, 2006), while emotions come in a larger variety of experiences – happiness, sadness, anger, disappointment (Li and Roloff, 2006). It is generally understood the broader concept of affect encompasses both emotion and moods (Li and Roloff, 2006, Barry and Oliver 1996, Van Kleef et al, 2004, Borland and Ross, 2010).

For the better part of the 1980s and 1990s, emotion in negotiation has been largely ignored, whilst rational decision making was 'treasured in negotiation' (Li and Roloff, 2006 p170). Early negotiation texts (Lax and Sebenius, 1986) do not acknowledge the presence of emotions in negotiation. Ogilvie and Carsky, (2002) came to a similar conclusion when reviewing fourteen books on negotiation published between 1970 and 1990 and found none with the word 'emotion' in their indexes.

Since the late 1990's, negotiation research has acknowledged emotion as an important part of the negotiation process. It was realised we can make better collaborative decisions if we acknowledge and better understand emotions. Shapiro (2002) and Adler et al, (1998) were among the first researchers to attest emotions cannot and should not be ignored in a negotiation. This increased interest in negotiation and emotion has resulted in work on the role of emotion and moods in negotiation (Van Kleef and De Dreu, 2004); (Li and Roloff, 2006); emotions in cultural negotiations (Brett, 2000, Adam et al, 2010) and active negotiation around which emotions we experience and how intensely we experience them (Shapiro, 2002).

Models of negotiation that involve emotion are a very recent addition to the negotiation landscape. Martinovski and Mao (2009) describe a model which takes the active role of emotions in decision making, and uses it as a modifier to theory-of-mind models, goals and strategies. Findlay and Thagard (2011) used cognitive-affective mapping to track emotional changes in the 1978 Camp David negotiations.

Whilst emotions cannot be ignored in negotiation, neither should they be allowed to 'flood' negotiations to the extent they drive the agenda away from substantive goals, reveal information we would have preferred not to diverge, and disrupt our thinking (Fromm, 2008). Fisher and Shapiro (2005) understand this by advocating methods by which we can manage emotion, and state simply negotiation involves both reason and emotion.

### 2.2 Types of Emotion

The emotions most likely to arise in dispute resolution centre on cognitive, affective and behaviour aspects (Ogilvie and Carsky, 2002).

Cognitive aspects apply to emotions we experience as a result of participant action or inaction. These emotions can

be grouped into negative and positive emotions, based on whether our negotiation goals are blocked or not (Bodtker and Jameson, 2001).

Affective aspects centre around mood inducing responses and in particular the interplay between emotion and moods. Moods and emotion are often considered to be interdependent (Davidson, 1994). We are more likely to respond positively and creatively to a situation (such as negotiation) if we are in a happy mood. Conversely, we will also respond negatively (angry or fearful) if we are in a bad mood (Forgas, 1998, Baron, 1990, Carnevale and Isen, 1986, Isen et al, 1987).

Behavioural aspects dictate the manner in which emotional experience is expressed. For example, when we are emotional, we find our voices rise louder, our heart rate is faster. If negotiators can recognise both the non-verbal and verbal cues for emotion, they are better equipped to understand and manage emotions in themselves and others. Several authors (Li and Roloff, 2006, van Kleef et al, 2004) distinguish between intrapersonal effects and interpersonal effects of emotions (and moods) on negotiators. Intrapersonal effects refer to the influence of one's emotions on an opponent's behaviour, while interpersonal effects refer to the influence of one's emotions on their own behaviour.

Much of the literature has focused on the effect intrapersonal emotions can have in negotiations (Forgas, 1998; Isen et al, 1987, Baron, 1990; Carnevale and Isen, 1986). Van Kleef et al, 2004 in their laboratory study found a disputant's emotions were affected by their opponents' emotions. For example, negotiation with an angry opponent reported more anger than did disputants who had negotiated with a happy or non-emotional opponent. Similarly, (Shapiro 2002) argues emotions can positively affect our ability to reach negotiation goals. Positive intrapersonal effect has also been attributed to increases in concession making, preferences for cooperation and increases the use of cooperative negotiation strategies (Bellucci, 2004).

So what kinds of emotions do negotiator's experience? Fisher and Shapiro (2005) present the "core concerns" as a model of five areas that stimulate the many emotions that arise in negotiations. These are:

1. Appreciation –through feelings or actions,
2. Affiliation – sense of belonging,
3. Autonomy – respect of your freedom,
4. Status - your standing in negotiation; and
5. Role – defining your role and its activities.

The above emotion groups relate to how negotiators feel, and as such relate to "human interests". Psychologists argue the most powerful interests for well-being are human interests. Wertheim et al., (1992) groups human interests into: security, economic well-being, a sense of belonging, recognition, and control over one's life. We argue the emotions felt during a negotiation are dependent on how much we feel appreciated, our affiliation (sense of belonging), autonomy (control over one's life), status (recognition) and role.

Negotiations can bring rise to the whole myriad of emotions. The following table from Fisher and Sharpiro (2005 p13), give us an indication of the types of emotions experienced in negotiation.

Positive Emotion	Negative Emotion
Excited, glad, amused, Enthusiastic, cheerful, jovial, delighted, ecstatic	Guilty, ashamed, humiliated, embarrassed, regretful,
Proud, gratified, happy jubilant, thrilled, overjoyed, elated	Envious, jealous, disgusted, resentful, contemptuous
Relieved, comforted, content, relaxed, patient, tranquil, calm	Impatient, irritated, angry, furious, outraged, Intimidated, worried, surprised
Hopeful, in awe, wonder	Fearful, panicked, horrified, Sad, hopeless, miserable, devastated

Table 1. Emotion Words (Fisher and Sharpiro, 2005, p13)

Whilst it is important to recognise emotions in negotiation, it is equally important to learn how to manage emotions to facilitate successful outcomes. The following negotiation theories will provide us with cues to frameworks that support the management of emotions.

### 2.3 Negotiation theory

Negotiation is a process by which two or more parties conduct communication or conferences with the view of resolving differences between them (Bellucci, 2004). Ponte and Cavenagh (2004) define negotiation as a process of refining and agreeing to the issues requiring resolution, establishing a range of compromise options from which to choose and selecting the appropriate option for settlement. Negotiation is often the first method of dispute resolution that is called upon to resolve social conflicts, and is often preferred to harsher substitutes such as court trials (Guillemin, 2011) or war.

There are a number of theories to describe how stakeholders negotiate; the two major, as proposed by Walton and Mckersie (1965) are: distributive (zero-sum) and integrative (collaborative) theories.

In distributive approaches, the problems are seen as zero sum and resources are imagined as fixed. In integrative approaches, problems are seen as having more potential solutions than are immediately obvious and the goal is to expand the pie before dividing it. An example of a distributed approach is Positional Negotiation. Positional Negotiation is based on the premise that one takes a position in a dispute and argues it. Occasionally concessions will be made in order to avoid a stalemate and ultimately any solution from the negotiation will reflect a win-lose (one disputant will win, while the other loses).

Integrative (cooperative) negotiation describes the communication of parties when the outcomes are the result of coordinated behaviour of both participants (Robertson et al., 1990). Parties are more likely to be

satisfied with (and most importantly adhere to) suggested solutions if they participated in reaching the solution. Whilst reaching a solution indicates success in negotiation, it is how well the parties adhere to the solution which truly makes a negotiation resolved. Our research is based on the assumption that participants desire to co-operate in negotiation (or can be persuaded to), hence increasing the likelihood that solutions arrived by negotiation are successfully implemented. An example of integrative approaches includes Principled Negotiation, developed by the Harvard Negotiation Project. It advocates proposing an argument based on the disputant's interests which support their position. It also promotes cooperation among disputants by advocating a joint search for options and use of objective criteria. Parties attempt to accommodate as many interests of the parties as possible, leading to the so called win-win or all gain approach.

As Kersten (2001) notes, although Walton and McKersie (1965) did not suggest one type of negotiation as superior to the other; over the years, it has become conventional wisdom that the integrative type allows for better compromises, win-win solutions, value creation and expanding the pie. Fisher and Ury (1981) and Lax and Sebenius (1986) discuss these issues in detail.

Ogilvie and Carsky (2002) state most negotiations have elements of both distributed and integrative components, and as such negative emotions from goal blocking and conflict are often inevitable. However, once participants find ways to work collaboratively, positive emotions can result as well. Fisher and Shapiro (2005) advocate meeting the 'core concerns' briefly mentioned in Section 2.2 as a way to promote positive emotion. Positive emotion promotes a collaborative environment; which "signal cooperativeness and trustworthiness, elicit cooperation, trust, and concession from others, and promise rewards for others" (Li and Roloff, 2006 p 172).

We believe negotiation using a collaborative approach and supporting the importance of emotions is likely to result in successful outcomes. We now look to the field of EI for insight on how to recognise, use, understand and manage emotions; which in turn may positively affect the resolution of health care related disputes more effectively.

### 3 Emotional Intelligence

Emotional Intelligence (EI) is the ability to recognise and manage one's own emotions and those of others. It is defined as the ability to understand and use emotions adaptively in everyday life (Mayer and Salovey, 1997).

The concept of Emotional Intelligence relates to theories on how humans express emotion. It states emotional responses to our environment differ from person to person. There are several measures to quantify one's emotional intelligence, usually referred to an EQ (Emotional Quotient). It is generally understood emotionally intelligent (high EQ) individuals are better equipped to deal with emotional responses and in general with human interaction. Those with a low EQ are less likely to recognise emotions and act on them appropriately. It is generally understood that negotiators need appropriate

levels of cognitive and emotional intelligence in order to negotiate successfully (Thompson, 2001; Fulmer and Barry 2004). A negotiators' cognitive intelligence (measured through IQ) is particularly important if the negotiation is complex and variables constantly change (Fulmer and Barry, 2004). Whilst our paper does not describe the role of cognitive intelligence in any detail, we assume participants in our study will have above average and relatively similar IQ levels, consistent with the IQ of third year university students studying similarly rigorous courses.

#### 3.1 Instruments to measure EI

There are a number of different instruments available today to elicit a respondent's EI; including Bar-On EQ-i (Bar-On, R. 2000), ECI (Boyatzis and Sala, 2004), Goleman's Emotional Intelligence Appraisal (Goleman 1995) and the MSCEIT (Mayer and Salovey, 1997), among others. Additionally many EI instruments have been designed specifically for a certain use, for example, Team analysis and building (Druskat and Wolff, 2001), The EQ Map for the workplace and leadership (Cherniss and Goleman, 2001), business education (Tucker et al 2000), and in e- procurement (Higgs and Reynolds, 2002).

Most researchers agree the MSCEIT (Mayer and Salovey, 1997) is the most appropriate and commonly used measure in negotiation and social interaction (Fulmer and Barry, 2004; Mueller and Curhan 2006). Mayer et al, (2003) and Mueller and Curhan (2003) also claim the MSCEIT is of high reliability, which in turn produce studies of relatively high levels of internal validity.

The MSCEIT involves understanding around four major branches, "perceiving, facilitating, understanding and managing emotion" (Mayer et al, 2002), (Caruso and Salovey, 2004).

- **Perceiving emotion** refers to identifying emotions in ourselves and others.
- **Facilitating emotion** refer to how we use emotions. It asks us to reflect on how moods impact our thinking; and the relationship between various sensations to emotions.
- **Understanding emotion** relates to how emotions can change over time and how we define emotion.
- **Managing emotion** relates to emotion management and emotional relations. We are asked to reflect on which solutions would be most effective in resolving internal problems (to self), as well as problems involving other people.

Ogilvie and Carsky (2002) claim the MSCEIT appears most suited to the study of negotiation, as all levels of the model have relevance and application to negotiation. For instance, negotiation involves information acquisition, reaching consensus and decision making, performed collaboratively among disputants. Whilst Fisher and Shapiro (2005) make the relationship between emotions and negotiation clear, they also state it is not enough to

recognise the emotions, but also to know how to manage and leverage emotion in negotiation. Emotional intelligence can help disputants understand the emotions they feel whilst negotiating how others feel and the management of these emotions (Ogilvie and Carsky,

2002). A number of studies have been conducted analysing the affect of one's EI on dispute resolution, which we detail in the next section.

### 3.2 EI and Dispute resolution

Numerous studies have been conducted analysing the relationship between EI and negotiation. Boland and Ross (2010) in their research into leadership, negotiation and EI, state a leader's EI as a good indicator of how well they lead or manage others. Conclusions from their study suggest high EQ disputants were more likely to seek mutually satisfying agreements; while those with a Low EQ would try to put a stop to conflict by not addressing underlying issues (for example by compensating or putting pressure on disputants to settle). Fulmer and Barry (2004) describe how Cognitive Intelligence and Emotional Intelligence helps negotiators succeed in the areas of Information Acquisition and decision making soundness. Mueller and Curhan (2006) establish a disputant's EI can affect the satisfaction of the counterpart negotiator. They state a participants' ability to understand emotion positively predicts their counterpart's outcome satisfaction.

We postulate that whilst the presence and management of emotion is important in all disputes, it is in health we expect emotions are expressed most passionately. Whilst research has been conducted in the relationship and subsequent affect of EI in ADR, little has been discussed by the way of disputes relating to the EHR. In addition, in disputes over the management of an individual's health, the EHR will bring additional disputes regarding its management and use, including the longevity, manipulation, security, access and maintenance of the electronic record.

## 4 Disputes and EHR

The purpose of this paper is to lay the foundation for our premise that the much established role of emotions in negotiation could be employed as a vehicle to facilitate resolving disputes that are possible in EHR. Since scientific measures could be associated with one's EI, it is now important to forecast and identify what could be the types of disputes related to EHR and the level at which EI could play a role in resolving each of these dispute types. Our literature survey and consultations with practice professionals related to EHR and disputes have resulted in seven major types of disputes described in this section. We have also summarised the existing dispute resolution models, their trends and the inherent impact of emotions on disputants going through any dispute resolution process.

### 4.1 Types of disputes

In this paper, we consider the definition of disputes given by Felstiner, Abel & Sarat (1980) as a particular form of conflict between two parties, where one party (called filer) makes a claim that is rejected by another party (called respondent). In the EHR related disputes, normally the filer is the patient and the respondent is predominantly the doctor or health care practitioner, who is the creator of the record.

With information abundantly available on the Internet, networked databases, and other electronic sources, disputes or questioning the truth or validity of information is inevitable, and affects the way people interact and businesses operate, for example disputes due to self-diagnosis (Ryan and Wilson, 2008). Disputes over health care records are no exception and are gaining more attention of late due to their storage and access in electronic form.

With paper-based health care records, such records are under the control of the health care providers. Gaining access to records can be time consuming and difficult. However, with health care records available in electronic form and becoming easily accessible to patients as well as health care authorities, disputes could take a wider scope and may even lead to legal challenges. With health care records in electronic form, researchers and health-related practice professionals have recently started to predict the kind of EHR related disputes possible in the years to come. Mason (1986) outlined the following ethical considerations of the information age - privacy, accuracy, ownership (property) and accessibility. It is likely disputes will arise if the above issues are not properly met. We have identified such disputes and have grouped them under seven main EHR issues listed below:

- i. **Privacy** – data could be misused due to interoperability among insurers, doctors, hospitals and other health care providers;
- ii. **Practice Compliance and Trust** – how authentic is the source or the creator;
- iii. **Integrity of data** - data could be inaccurate, incomplete or unclear;
- iv. **Availability of data** – data could be unavailable due to compromise of system or system problem;
- v. **Data Accuracy** – Software flaws in updating records or in the storage of data;
- vi. **Access Control of data** – transparency in the rules of data access and control mechanisms, namely who are given access, who controls the data, what happens after the completion of treatment or death of a person; and
- vii. **Data Security** – encryption mechanisms, breach of access by unauthorised persons.

Although most of the above types of disputes are generic and could be applied to any electronic system, such as online buying and selling disputes, the effect of these disputes have a greater impact when it comes to disputes over health care records. This is because, such disputes not only lead to financial impact and lack of trust in the system, but more importantly could have a range of impacts, from the quality of care to, the patient's very life. In addition, among these seven types of EHR

disputes, our premise is that the first two, namely i) Privacy and ii) Practice Compliance and Trust would most benefit from the management of emotions.

## 4.2 Dispute resolution models

A more generic term used with regard to dispute resolution is conflict management and early conflict management models (Blake and Mouton, 1964). These consist of five types of handling interpersonal conflicts, namely forcing, withdrawing, smoothing, compromising, and problem solving. Subsequently, models based on intentions and interests of parties involved have emerged with classifications using assertiveness and cooperativeness levels (Thomas, 1976; Pruitt, 1983). They consider problem solving models as those yielding assertiveness and high cooperativeness, which could be a preferred model as it could be mutually beneficial.

With more and more disputes evolving specific discipline areas such as e-commerce, supply-chain, education, health, environment, intellectual property, land use, residential tenancy, labour and the like, one could find the evolution of four conflict resolution models, professional, bureaucratic, legal, and mediation models (Neal and Kirp, 1985). The professional model has a bias towards the professional expertise, and the bureaucratic model is less discretionary of circumstances, following only regulatory standards. Hence, the more popular models for dispute resolution are legal models, where the focus shifts from agency compliance towards individual rights and entitlements, and the negotiation model, where non-adversarial joint problem solving processes are adopted. In the negotiation model, if the process involves the development of a mutual agreeable outcome, then there could be a win-win relationship between the filer and the respondent of a dispute (Goldberg and Huefner, 1995). Some dispute resolution models were later developed to address group conflicts (Khun and Poole, 2000), where the approach is either distributive or integrative of the needs and concerns of the two groups.

## 4.3 Trends in dispute resolution

In the past couple of decades, disputes that were requiring legal resolution have resorted to Alternative Dispute Resolution (ADR). Due to delays and high costs involved in resolving disputes in court, legal practitioners have been adopting ADR (Landerkin and Pirie, 2003), where an arbitrator mediates between the parties informally and resolves the issues by going through a clarification process. In many situations such as supply chains, ADR is considered as a valued approach and well accepted by parties to opt in for a faster settlement of a dispute, thereby avoiding costs associated with court-based litigation and delays. ADR approaches are utilising advances in IT to reflect an online presence, and these approaches are called Online Dispute Resolution (ODR). ODR has been developed more recently by adapting ADR principles onto the Internet by making use of Web-based software systems. The parties and arbitrators work with facts and documents made available online and make use of web

meetings for the negotiation process (Rabinovich- Einy and Poblet, 2008). Such an approach to ODR is a simple adaptation of ADR. For disputes related to electronic health records, ODR is much easier to approach as the patient's health related documents and facts are already available online.

The majority of the present ODR related studies are concentrating on such simple adaptations of ADR. This paper argues that more sophisticated modelling could be incorporated once IT comes into the scene. One of the main concerns of whether the parties are emotionally prepared to cope with the risk and uncertainty involved in the mediation process have not been addressed so far. This could be addressed with ODR since simple online emotional checks could be performed.

According to Gross (2002), the parties do carry negative emotional experience during and after the negotiation process. They may require cognitive energy and physiological restraint to suppress their emotions. These emotional factors have a greater impact when it comes to disputes related to electronic health records. Hence, in this paper we give importance to a new emotional dimension that has been overlooked in literature. Next, we employ Argumentative Theory to establish the link between EI and dispute resolution related to EHR.

## 5 Emotional Intelligence and disputes relating to the EHR

In this section, the main aim is to establish the importance of the connection between EI and health care disputes using Argumentative Theory of Reasoning, the theory suggested by Dan Sperber. We adopt an intuitive inference as a mechanism to arrive at arguments used in reasoning (Mercier and Sperber, 2011), for accepting the conclusion that EI and disputes are very much linked to each other.

We have argued through the literature survey that recent models of negotiation make use of emotions in decision making to arrive at negotiations successfully (Li and Roloff 2006; Martinovski and Mao, 2009). According to Fisher and Shapiro (2005), the five 'core concerns' that arise in any negotiation are used as a guide to recognise emotions in ourselves and our opponents.

Since the capability of recognising and managing emotions in ourselves and others has already been coined as Emotional Intelligence (EI) by Mayer and Salovey (1997), we infer with other similar consensus in literature that EI has a role to play in negotiations. According to some recent studies (Ogilvie and Carsky, 2002; Mueller and Curhan, 2006; Boland and Ross, 2010), EI not only helps disputants to manage their emotions during the negotiation process, but also in achieving satisfaction of the outcome. Hence, through the inference mechanism of Argumentative Theory of Reasoning, we have established from existing research studies that the EI of disputants has an effect on the outcome of a negotiation. Can we generalise this premise to health care disputes, in particular disputes related to EHR?

Our analysis of literature suggests that recent health related dispute resolution trends are more inclined towards adopting negotiation models as patients are quite sensitive about their care records that are personal and private (Washington, et al. 2009). Following the EI theory of Goleman (1996), EI provides the inter-personal skills, which when fostered in health care organisations, could result in establishing lasting relationships with patients and partnerships (Morse 1991; McQueen 2004). With EHR systems, there is a higher need to provide a means of communication and negotiation between consumers and health providers as dispute resolution means to deal with issues related to EHR (Washington, et al. 2009). Not only do patients go through emotional distress due to their personal experiences, the health care professionals also experience emotional responses to their patients' suffering and need to adopt EI skills to deal with such situations.

Hence, through the inference mechanism of Argumentative Theory of reasoning, we postulate that the link between EI and EHR related disputes is much more profound, and should be fostered in designing systems that facilitate negotiations in dispute resolution. Many research studies consider EI as a core competency in health care organisations to prevent disputes as much as possible, and to deal with issues directly with care and quality of service for building trust and ongoing consumer relationship (Semple & Cable 2003; Freshman & Rubino, 2002).

While other industries make extensive use of ODR tools (ie ebay), we believe EHR systems should also incorporate ODR functionality to facilitate dispute resolution. Notwithstanding the success of ebay's ODR model, we believe incorporation of an ODR system within an EHR framework has the following advantages:

- Online system functionality will help stakeholders in understanding the informational content of their EHR records, and would aid in better addressing issues relating to health literacy. For example, there could be requests to make an amendment to a patient's EHR, which, depending on the experience and confidence of the health professional, combined with legal ramifications from the modification of EHR; make EHR more difficult to manage than with paper-based records.
- Medical practitioners, administrators and other stakeholders may also have additional stress in dealing with overheads involved with EHR management systems and in understanding other opportunities for error.
- Since patients and doctors are most likely involved in an ongoing relationship, the need to increase satisfaction and good will in both parties is essential.

Therefore, it is our premise that EI awareness when incorporated with EHR systems will result in a higher quality of service, and facilitate a satisfied dispute resolution through better management of disputant emotions during a collaborative negotiation process.

## 5.1 Research plan

Whilst the field of ODR is well advanced in tools

made available, little work has been done in discovering the traits of a successful ODR process. Borland et al, (2010) and Foo et al, (2010) have found that the success of a negotiation is dependent upon the Emotional Intelligence (EI) of the participants which is the ability to recognise and manage one's own emotions and read and deal effectively with other peoples' feelings (Goleman 1995). In addition, EI involves the ability to use this information to guide one's thinking and action (Salovey and Mayer, 1990). We hypothesize the EI of a negotiator will have an impact on the success of ODR processes.

This project will assess the Emotional Intelligence of participants and whether there is a strong correlation between one's Emotional Intelligence and success in a negotiation relating to the area of e-health.

We will be asking a large number of voluntary participants (80) to complete two online activities. Participants will be recruited from undergraduate students completing their major sequence in Health Informatics. Our proposed study has ethics approval by our universities (Number: BL-EC 41-11 Bellucci).

Participants will be asked to complete two online activities. The first relates to an online version of the MSCEIT test. The test is in the form of multiple choice questions which will assess how participants identify emotions present, use emotions to help a participant think and solve problems, understand the causes of the emotions and manage the emotions to obtain a positive result (Salovey & Mayer, 1990). After participants have worked through the MSCEIT inventory, an EI score will be provided. Next participants will be directed to commence working through a case study in EHR using Re-Consider (Muecke and Stranieri 2006), our online dispute resolution program. Reconsider, as we will discuss next, negotiates disputes by allowing disputants to re-evaluate their claims against a hierarchy of possible claims.

## 5.2 Re-Consider

The Reconsider ODR approach utilises a model of the important factors of the dispute and protocol which guides users through said model. In our proposed study, a dispute between a doctor and patient is represented by a hierarchical tree of factors. At the top most level of the tree sits the root node, this node represents the most general factor of the dispute. In Figure 1, the root node indicates the extent to which communication issues played in causing a dispute between the doctor and patient. Below the root node are the most important factors (referred to as nodes) required to determine the state of root node. These nodes cover such themes as: the method of communication used by the doctor/patient and ability of the doctor/patient to accurately convey important information to one another. Below each of these nodes are additional nodes, which hold significance in determining the node above them. Each level of the hierarchical tree become progressively more refined, until base facts can be established (known as leaf node).

Each node in the dispute is presented as statements and the possible assertions disputants can make about the

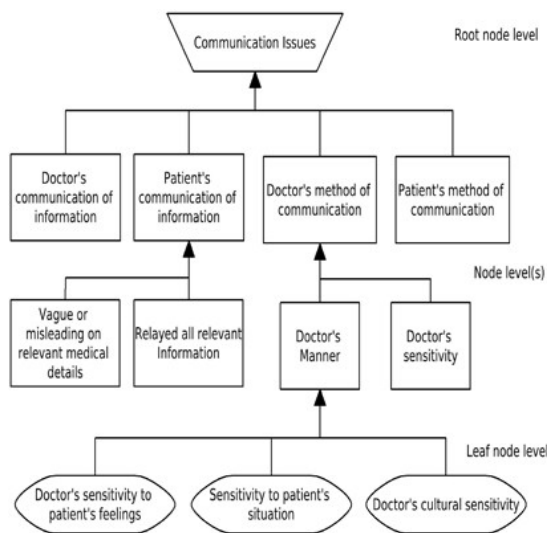


Figure 1. An example of part of a dispute model for communication issues

statement. For example, for the statement “You believe that the information provided by the doctor to the patient was...”, disputants can claim one of the following: a) “quite flawed”, b) “flawed”, c) “not ideal”, d) “neither good nor bad”, e) “good”, f) “very good” and g) “excellent”.

During a dispute, a structure such as the one just described is used by the ReConsider protocol to guide the disputants through the relevant factors of the dispute. Disputants assert their beliefs for each node, progressing from the first level of nodes below the root node to the leaf nodes, whenever a difference in opinion is found to exist. For example, if the doctor and patient agree that the doctor communicated all relevant information, then there is no further need to explore that particular branch of the tree. Once the tree has been fully explored to points of agreement or leaf nodes, the disputants work their way back up the tree toward the root node. This aids the disputants to reconsider the claims they asserted, now with a better understanding of the issues in the dispute.

Lastly, once the disputants have worked their way back to the initial node they asserted claim on, Bayesian inference is used to determine the likely claim value of the root node. This claim is then presented to the users as the recommended solution to the dispute. Agreement on the root node will end the dispute, while disagreement leads the users back to reconsider their positions on the factors of the dispute. The users are prevented from asserting a claim for the root node throughout the dispute, so as to prevent a fixation on the outcome without due consideration of the factors involved.

The case study will involve a dispute arising from the omission of a health professional to properly update a patient's electronic health record. Participants will be asked to act on behalf of either the patient or the doctor involved in the dispute. Before its use, Re-Consider has been coded with the tree (similar to that in Figure 1) that inclusively captures all possible disputes relating to the case study presented. We are currently in the process of conducting the research plan discussed in this section.

We can envisage use of an ODR tool such as Re-Consider to manage disputes in EHR. For example, when the patient and the doctor go through the negotiation process of answering questions at each level of the hierarchy where disagreement exist, their EI could be leveraged to make them understand the facts and information involved in EHR, resulting in a satisfied outcome. We believe the outcome of our research plan will affirm there is a strong correlation between a person's high and low EQ and their capability to negotiate a dispute well.

## 6 Conclusion

It is recognised that disputant emotions are much more involved in dealing with disputes related to EHR due to the inherent privacy and sensitivity issues associated with one's health. Only recently the concept of EI is finding its place in literature related to health care studies. This paper has adopted Argumentative Theory of Reasoning to suggest the important link between EI and disputes related to EHR that could result in positive emotion management during a collaborative negotiation process. The arguments suggest that EI awareness in EHR systems will lead to better understanding of technological and human issues, and in improving the quality of service in the health care industry. However, further investigation needs to be conducted in line with the issues and discussions we have raised in this paper. We postulate the presence of higher EI stakeholders in health care will contribute to a reduction of EHR related disputes. By alleviating the negative emotions (and moods) that may be involved in the dispute resolution process, it is possible the negotiation will lead to a greater number of satisfied outcomes. With ODR becoming popular as an alternate dispute resolution method, not only do we see potential in the use of ODR in EHR, but also in the recognition and use of EI to facilitate more successful outcomes.

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