AN E-LEARNING SYSTEM TO PREPARE NEGOTIATIONS

Sérgio Assis Rodrigues\textsuperscript{a}
Yann Duzert\textsuperscript{b}, Jano M. de Souza\textsuperscript{a,c}

\textsuperscript{a}COPPE/UFRJ - Computer Science Department, Graduate School of Engineering, Federal University of Rio de Janeiro, Brazil
\textsuperscript{b}EBAPE/FGV – School of Public and Business Administration, Getulio Vargas Foundation, Rio de Janeiro, Brazil
\textsuperscript{c}DCC-IM/UFRJ - Computer Science Department, Mathematics Institute, Federal University of Rio de Janeiro, Brazil
Outline

- Introduction
- The Negotiation Process
- Matrix of Complex Negotiations
- SysNeg Software
- Conclusions
- Future Works
Introduction

- The goal of this article is to propose an environment for negotiation e-learning courses using a workflow approach to help learners to prepare the negotiation.

- This environment is based on a Matrix of Complex Negotiations (Duzert, 2007) and uses modern technologies such as Mining and Visualization methods.

- The proposed environment is developed to be used on the web and has mechanisms to connect users’ experiences in order to prepare cooperatively the negotiation.

- This work aims at accelerate students’ comprehension of negotiation concepts.
The Negotiation Process

- Negotiation is an activity that requires preparation and allows to reach agreements that are mutually acceptable for involved counterparts (Fisher, 1991).

- Preparation is crucial once it provides enough information to facilitate the deal, defines the issue to be resolved and clearly situates counterparts’ interests (Adams and Hicks, 2001; Raiffa, 2002; Tardy, 2004; Kennedy, 2004; Baker, 2006).

- There are similarities in the best practices used by the major negotiators (Lewicki et al, 1999), so it is possible to imagine a group of negotiation interfaces and reports, based on best practices, which supports students to become great negotiators.
According to Duzert (2007), the Matrix of Complex Negotiation can be defined as a schema with four steps:

- Preparation;
- Value creation;
- Value division;
- Execution.

These steps are associated to ten elements:

- Interests;
- Options;
- Power;
- Commitment;
- Context;
- Relationship;
- Criterion;
- Cognition;
- Legitimacy;
- Time.
## Matrix of Complex Negotiations

<table>
<thead>
<tr>
<th>Elements</th>
<th>Steps</th>
<th>Preparation</th>
<th>Value Creation</th>
<th>Value Division</th>
<th>Execution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interests</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Options</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Context</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Criterion</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Cognition</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legitimacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Time</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Duzert, 2007)
SysNeg was designed for the use of negotiation’s students during the preparation stage, guiding the negotiation techniques based on the Matrix of Complex Negotiations.

The group of steps can be dynamic, but the suggestive orientation is to fill the forms in a sequence. Besides, for each step there is an extra interface to help and give tips to students.
Definition of Negotiation Context

- The process starts with the storage of basic information in the negotiation. This interface aims to capture the context data for future understanding.
The alternatives stored in this interface can be compared to the BATNA concept (Best Alternative To a Negotiated Agreement) which is used to assist negotiators to keep the focus on the objective and to present different ways of achieving the planned interests (Fisher et al, 2002).

In this interface, the student has two ways of registration: i) free text, in the so-called basic interface, ii) enabling the aid interface, which, in this case, presents the convergent and divergent interests points of negotiation.
In this interface, the major established relationships and involved power aspects are catalogued.

As previous mentioned, the data can be stored directly (free text) or collected from the aid interface. In this case, the negotiation student can simply click on the interrogative icon for help.
Cognition and Communication aspects; Criteria, standards and Compliance factors

- This interface illustrates the aid interface as a checklist, which is an usual way to put in the tool user’s view if the completeness of parameters is in line with the storage expectation.

- There is an alternative to maintain stored information in secret or to share them with negotiation counterparts. This decision, not only exemplifies the importance of confidential information but also is used as an input to generate negotiation reports for the students use on case studies.
Concessions and Time influence

- SysNeg also allows the registration of items of Concession and the influence of Time in the involved negotiation.
- In the respective aid interface, not only is a checklist used but also a group of graphic reports developed through visualization methods technology.
SysNeg provides private and public reports and uses text mining and visualization methods to build them.

The radar graph, for example, takes into account the number of variables and items extracted from the mining of each filled step as well as if there were contents via checklist. After that, the software calculates the average value to shape the graph.
Conclusions

- This work showed how the negotiation concepts can be used in an e-learning environment and why the preparation stage is crucial to the success of the agreement.

- The introduction of a tool that supports the negotiation process provides students a great domain of negotiation uncertainties, increasing the likelihood of reaching the planned results.

- The prospect of a proper planning itself is a huge advantage to negotiation students; however, based on the background discussed in this work, even experienced negotiators may obtain benefits from an e-negotiation tutorial that makes negotiations more objective.
Present and Future Works

- Monte Carlo simulation tool;
- Mining tools to suggest strategic vectors based on previous negotiations;
- Risk Management;
- Multidimensional reports with OLAP technology.
Thank You

- Sérgio Rodrigues
  - Dsc. Student – COPPE/UFRJ
  - +55 21 2562-8785 / 8642-5699 / 2562-8694 (fax)
  - sergio@cos.ufrj.br