

Using an Emotional Intelligent Agent to Reduce Resistance to Change

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Abstract. Organizations need to change for developing and surviving in the marketplace, but changes bring uncertainty and not only produce feelings of apprehension, anxiety and stress, but also create resistance among employees. Resistance can delay and increase the costs of a change process. So, it is essential to present organizational changes in a manner that reduce the potential for resistance. In this paper, we propose an intelligent agent able to reduce employee's resistance to change by presenting the best corrective emotional strategy according to his personality in order to temper his negative emotion.

1 Introduction

Organizational changes are defined as one or more efforts to transform structure, goals, technology or tasks of a company [1]. Although the organizations need to change for developing and surviving in the marketplace, a change brings uncertainty and evokes apprehension, anxiety and stress. Face a change, employees may be afraid of new situations and can have a belief that change will have a negative impact on them and so they show a resistance. Several studies on resistance to change have considered that negative emotions are an indicator of an individual's resistance [2]. Moreover, resistance can block and increase the costs of a change process [3]. So, it is crucial to present changes in a manner that reduces the potential for resistance [4].

In this present work, we propose to reduce employee's resistance to change using an intelligent agent able to apply a *corrective emotional strategy* according to various factors including the personality of the employee. First, we present the architecture of our agent and then the experiment that we have set up to determine the best corrective emotional strategy. Finally, we discuss the evolution and perspective of our next works.

2 The EMIARC Architecture

In order to reduce employees resistance to change, we created an *Emotionally Intelligent Agent for Resistance to Change (EMIARC)* aiming to propose the *best corrective strategy* to be applied to an employee subject to a change process. This

strategy is defined as the strategy that will minimize the emotional impact of change. Figure 1 illustrates the EMIARC architecture composed of 3 main modules.

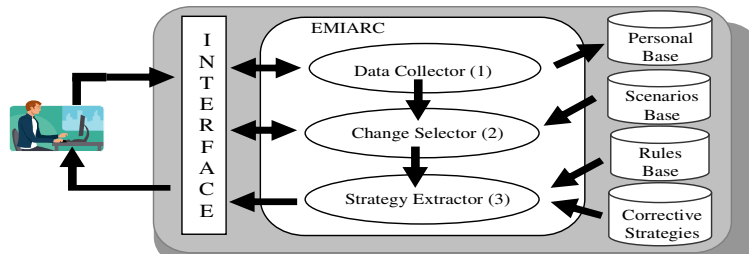


Fig. 1. Architecture of EMIARC.

The agent is an autonomous system which interacts with the employee who is faced to a specific change in his environment. This agent will progressively acquire expertise about the adequate corrective strategy to apply by experimenting different cases. This expertise will be stored in the rules base which is initially empty; the rules will be created by successive runs of the agent on specific change situations and different employees. EMIARC will run according to two successive phases. In the first phase it will acquire data (training data) then, in a second phase, he will be able to send the corrective strategy directly to the employee or to his manager. The different steps of EMIARC intervention are the following:

1. The first module (Data Collector) acquires the employee's personality traits by sending to him the personality questionnaire called Saucier's Big-five Mini-Markers [5].
2. After collecting personal data, the second module (Change Selector) extracts a scenario of organizational change from the base of scenarios and presents it to the employee. This base contains various types of scenarios which are credible stories about the future changes in an organization. Presented to the employee, this scenario will trigger successively an *emotional reaction* and a *behavioural reaction*. If the emotional reaction is negative then the behavioural reaction will consist in resistance to change. Moreover, the type of reaction will vary according to the employee's personality. The emotional reaction and the behavioral reaction of the employees are obtained by asking them to imagine their emotional state and indicate their behavioral intentions towards the change.
3. Knowing the reactions of the employee, the agent aims now to minimize the employee's resistance. The third module (Strategy Extractor) will select a corrective emotional strategy that will be presented to the employee with the scenario of change in order to reduce the emotional impact. Negative emotions are due in general to a lack of explanation and fear of uncertainty. So, this strategy is a sequence of additional information giving more explanation to the change, how the employee can adapt, which compensation he will be able to get, etc. Now, our goal is to select the *best corrective strategy* which is the strategy able to reduce the most the negative emotion. We have then conducted an experiment in order to provide the agent with a mechanism able to select the best corrective strategy.

3 Experiment

We have applied EMIARC in two steps, as indicated above:

(1) acquiring personal data and emotional reactions to identified scenarios, using a machine learning technique, the Naïve Bayes Classifier [6], to determine the highest negative emotion class given the user's personality, the scenario of change, and the user's negative emotion with the highest value for this scenario, then

(2) by proposing different corrective strategies the system was able to determine (using again the same machine learning technique) their impact to reduce the emotions and consequently the best corrective strategy class. Results were stored as rules in the rules base and have shown a great reduction, and even a suppression, of the negative emotions. This experiment was implemented and tested by twenty three volunteers.

4 Conclusion and Future Work

The agent provides a double capability:

- The agent is a tool able to create a database of change scenarios specific to the company and personality traits of the employees.
- Once the acquisition phase is realized, the agent can recommend to the managers the corrective strategy to apply to reduce the impact of the change process.

Results have shown a clear impact of the agent on change management. For future research, we plan to keep running the experiment in order to obtain more training data and create more rules.

Acknowledgements. We acknowledge the support of the FQRSC (Fonds Québécois de la Recherche sur la Société et la Culture) and NSERC (National Science and Engineering Research Council) for this work.

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