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Enabling Teachers to Create Authentic Interview Simulations

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Abstract. Social skills are essential and it is often necessary to train in order to react in the best way to certain difficult, stressful situations such as a job interview, dating. The best way of training for these challenging interview situations is to role play with actors, capable of simulating emotions, but this solution is not affordable for most schools and universities. We therefore propose TGRIS, a Teacher-Guided Realistic Interview Simulator that allows students to practice interviews with an emotional virtual agent in Virtual Reality. Most importantly, this tool allows teachers to create custom interview situations by changing the agent's face, emotional state and piloting the agent's verbal and non-verbal reactions during the interview. Finally, we discuss the first experimentations and show how this solution might turn out to be better than live actors.

Keywords. Interview simulator, Technology Enhanced Learning, Virtual Reality, social skills, authoring tool

1 Practicing Social Skills

Social skills are the core of our society. Learning how to react properly in certain situations is very important in many domains. Such skills are taught in medical, business and communication schools but the need for this type of training is omnipresent in all types of educational programs, even in those where you might not expect it at first.

For example, Education Trainers (ETs) need to practice their social skills in order to conduct productive interviews with novice teachers. Their job consists in helping novice teachers during the two first years of their service. Every month, they observe novice teachers while they teach a class, and conduct interviews with them to help them improve their teaching methods. During these interviews, novice teachers feel vulnerable and are often profoundly destabilized by the ETs' remarks (e.g. crying, rejecting criticism, offensive attitude). For fear of a bad evaluation, they have developed strategies to reject the ETs' recommendations, because accepting them would mean recognizing they are wrong and that they must change their teaching methods. ETs follow a basic institutional training that does not help them cope with these difficulties while leading interviews. A few years ago, fifteen ETs in Nantes (France), took the initiative to get together and share their experience regarding the way to conduct these interviews. After just a year, the French National Association of Educational Counselors set up an official training session on this topic in collaboration with the CREN research lab. During these training sessions, ETs try to relive past interviews during which they encountered tense moments. They collectively analyze these challenging interview situations in order to understand what went wrong and how they should have reacted in order to improve the communication. These sessions are obviously useful for the ET who lived the situation but they are primarily aimed at helping the other ETs prepare for their future interviews.

As it would be impossible to film the interviews, given the already tense setting, the ETs discretely record their interviews as audio files. They then use written transcription of these recordings to analyze the interviews. These transcriptions lack all the non-verbal communication (i.e. mimicry, gestures, attitudes and postures) and the rhythm with which the sentences are said. Without these elements it is almost impossible to understand the emotions displayed by the novice teacher and the tensions that occurred during the interview. Yet, experiencing these destabilizing interview moments is the key to help ETs deal with these situations.

Analyzing written transcriptions of interviews is a common technique for teaching communication methods, used in many domains. In order to make the simulation more realistic, teachers also use role

playing to help their students train. Even though these sessions are very useful, the students do not have the skillsets of actors, and the situations are usually not very realistic. Some schools pay specialized companies to train their students for job interviews but they can only afford one session. Certain assessment companies pay actors to play the role of an angry customer, or an employee who is about to get fired, in order to test the reactions of future managers. However, this costly solution is not affordable for public schools and universities.

Several interview simulation tools have been developed these past years to offer affordable and efficient solutions to this problem. We will analyze these tools and the functionalities they offer in the next section. In the third section, we propose TGRIS, a Teacher-Guided Realistic interview Simulator that allows teachers to create authentic emotional situations. In the fourth section we discuss the first experimentations of our prototype with a group of 15 ETs. After a short conclusion, we present the future work and experimentations.

2 Tools for Authentic Interview Simulations

These past years, several private companies have tried to answer the need for interview training simulators. SIMmersion¹ for example, allows learners to train on several job and sale interview scenarios. VTS Editor² also offers the possibility to create new scenarios by selecting the background, the virtual agents and the tree dialogue that contains all the possible answers for the virtual agent and the learner. However, these interview simulations are far from authentic. Indeed, the learners alternatively watch a virtual agent or a video of a real actor and then choose a predefined answer. This has three major disadvantages for teaching:

- the learners do not work on their oral communication skills (because they click on sentences)
- the learners do not work on constructing their own sentences (because the sentences are predefined)
- the learners do not train their non-verbal communication such as intonation, posture or facial expressions

MACH offer a much more natural interactions (Hoque et al. 2013). This system allows learners to train for job interviews by naturally answering questions of a virtual agent recruiter. This system is capable of detecting certain key words to adapt the virtual agents' interactions. However, the logic of this system only works for simulating interviews where the agent is the motor in the conversation and there is only need to slightly adapt their reactions to what the learner says.

TARDIS project (Anderson et al. 2013) provides a scenario-based application for helping people improve their social skills for job interviews. A virtual agent, playing the role of the recruiter, is displayed on a screen and conducts the interview by following a predetermined scenario. While the dialogue is scripted, the agent's emotional and social behavior is determined run-time according to non-verbal signals performed by the user, such as facial expression, posture, head direction, voice intonation. These signals are used to infer the user's emotional state, mood and attitude.

Virtual Reality (VR) is the latest breakthrough in interview simulations. VR headsets allow to create truly immersive and emotional simulations. Several researchers have proven the effectiveness of such environments for education: Ponder *et al.* (2003) used VR simulations for teaching rapid decision making in stressful environments, Bell and Weinstein (2011) for helping people with psychiatric disabilities to train for job interviews and Brinkman *et al.* (2012) for helping people to overcome their social phobia. In order to create authentic simulations that trigger emotions, like in the real world, the virtual agents and the elements of the virtual environment are piloted, in real type, by a teacher or a therapist through a Wizard of Oz interface.

This type of RV interview simulation could be used in many educational field. The group of ETs for example, could greatly benefit from this type of immersive simulation. In the next section, we therefore propose a tool that allows teachers to create their own authentic VR interview simulations.

¹ <http://simmersion.com>

² <https://www.seriousfactory.com/virtual-training-suite/>

3 TGRIS: Teacher-Guided Realistic Interview Simulator

In this section, we propose TGRIS (Teacher-Guided Realistic Interview Simulator). The main objective is to provide a tool that enables teachers to create their own custom interview scenarios to train their students. The goal is not to replace the transcription analysis or the role playing sessions currently used by teachers. TGRIS is an additional means to help students prepare for challenging interview situations they will be faced with and learn the best way to react in such situations.

As shown in Figure 1, the learner sits at a desk and talks directly to the virtual agent. TGRIS actually offer two versions: the virtual agent can either be projected on a screen, in front of the learner or in a VR headset³. Even if the VR version is more immersive, we wanted to provide a basic version that does not require costly equipment. The verbal and non-verbal reactions of the virtual agent are triggered by the teacher, in real time, through a Wizard of Oz interface. The name “Wizard of Oz” comes from *The Wonderful Wizard of Oz* story, in which a man hides behind a curtain and pretends to be a powerful wizard by piloting a huge puppet with levers and amplifying his voice. The term is commonly used in the field of Human Computer Interfaces to refer to an interface that allows a human to simulate the behavior of a theoretical intelligent computer application (Ford et Smith 1982).

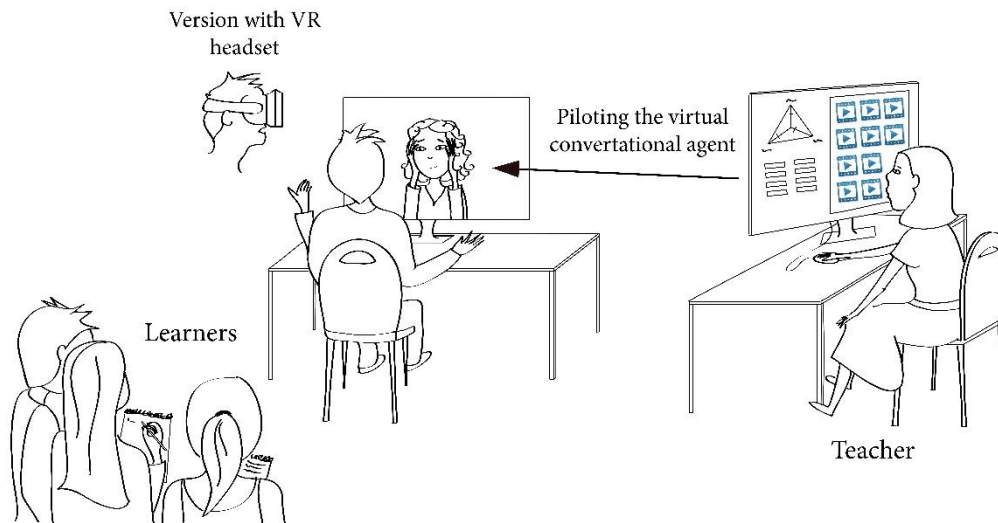


Figure 1. TGRIS setting

For the virtual agent, we choose GRETA, an agent that has the specificity of providing a very large pallet of multimodal emotions, combining the tone of voice, facial expression and body language (Pelachaud 2009). In addition, the GRETA agents react to the sound of the user’s voice by nodding and shifting eye contact, giving the impression they are really listening. Thanks to these features, the virtual agents convey emotions and seem to have their own personality. It is important to note that GRETA’s visual aspect is not very realistic. Surprisingly, this is actually an advantage. Indeed, according to Masahiro Mori’s *Uncanny Valley* theory (Seyama et Nagayama 2007), virtual agents that appear almost, but not exactly, like real human beings, create feelings of eeriness and revulsion.

Like the other VR tools described in the previous section, the virtual agents in TGRIS are piloted by the teacher, via a Wizard of Oz interface. The top part of this interface is composed of a dialogue tree that contains the pre-defined reactions that the agent can say. The teacher also has access to several basic answers such as “yes”, “no” and “I don’t understand”. They can also write a new text if they cannot find the response they need. In addition, the teacher can launch non-verbal reactions such as crossing arms, raising shoulders or looking down. On the bottom of the interface, the teacher can adapt the emotional response of the agent with an emotion charts (happy, surprises, scared, angry, disgusted and sad) and several scales (e.g. agree or not, interested or not).

TGRIS also records and interview simulation via a Web cam so that the teacher and the learners can play it again during a debriefing session and analyze the way the student and the agent reacted.

³ The first prototype works with HTC Vive

Before the simulation starts, the teacher will be able to set up the interview situation they want their students to work on by choosing the face of the agent, its emotional state (e.g. nice, neutral, angry, sad) and the background and ambient sounds of the VR world (for the time being we only have one classroom with the typical sound of a school playground). Most importantly, teachers can import new interview scenarios. These scenarios contain the sequence of answers and responses for the virtual agent. For the time being, teachers can create these scenarios with a free mind mapping software (see Figure 3) and then export them to xml file.

4 First Experimentations

In order to provide solutions that fit the real needs of teachers and students, TGRIS was created by following the User Centers Design principals (Gay et Mazur 1993). As a matter of fact, the project was initiated by a group of ET's and their teacher, who wanted to improve their training methods. It was therefore natural to include them at all the staged of the project. At the beginning of the project, we attended one of their training sessions to understand their current training methods and needs. We also made them test different scenes with a VR headset to see if this would help them simulate an interview situation. Four out of the twelve ET's did not like the idea of talking to a virtual agent but all the others (eight out of twelve) were very eager to use VR for their future training. They were very impressed by the immersion brought by the VR and felt that it could be a good tool to relive interview situations. In order to make the simulations more realistic, they expressly asked to have a VR environment that looked like a middle school classroom with the sound of a school playground in the background.

The TGRIS setting presented above was also co-designed with the ETs' teacher. The possibility to record the interview simulation and play them back during a debriefing session was especially important to her as a large part of her teaching method is based on analyzing interviews. She even mentioned the possibility of letting the ETs pilot the agent in order to mimic novice teachers they had interviewed.



Figure 2. four GRETA agents: Poppy, Prudence, Spike and Obadiah

During one of the ET's training sessions, we presented four of GRETA's virtual agents to see how the ETs felt about simulating interviews with virtual agents. We purposefully choose four very different emotions and faces: happy Poppy, neutral Prudence, nasty Spike and sad Obadiah (Figure 2). Even with just a photo, the encounter with these agents immediately generated a flow of emotions. Here are a few examples of their reactions for Poppy: "she looks like a teacher" "she is nice" "she is sure of herself" "she is ready to listen", "she seems worried", "she probably thinks she did a great job", "she is a pest". It appears that the use of virtual agents uninhibited the ETs to express their feelings. These spontaneous reactions would have been impossible to obtain if we had used real people (Rimé 2009). The use of virtual agents could therefore turn out to be better than training with actors.

The ET's also decided which interview scenario they wanted to be able to practice with TGRIS. After listing several challenging interview situations, they unanimously decided that they wanted to train on the introductory phase of the interview, traditionally starter by the question "What do think of your morning class?". Indeed, the beginning of the interview with the novice teachers is a very tense moment and a misplaced remark can radically annihilate any change of constructive dialogue. The ETs collaboratively came up with a list of possible answers that the novice teachers could say and that they didn't really know how the react to. Seven cases of answers are presented in figure 3.



Figure 3. scenarios for the introductory phase of an interview between Educational Trainers (ET) and novice teachers (played by a GRETA virtual agent)

5 Conclusion and Work in Progress

In this paper, we propose TGRIS, a Virtual Reality interview simulation tool that allows teachers to create authentic emotional simulations to train their students during their class. The teacher can set up various interview situations by choosing the looks and the emotional state of the virtual agent and the virtual environment in which the interview will take place. During the simulation, the student sees the agent on a screen or through a VR headset if the school is equipped with one. The student simply talks to the agent and the teacher pilots the verbal and non-verbal reactions of the agent, in real time. TGRIS was designed in close collaboration with end-users: a group of twelve ETs and their teacher validated the choices regarding the VR environment and the virtual agents. The ETs also supplied the dialogue scenarios for interview simulations.

The fact that the agent is piloted by the teachers gives the impression that the agent is truly taking part in the conversation. It also allows teachers to trigger the right sequence of reactions that lead to a “difficult” interviews depending on the students’ experience and their teaching objectives. However, the fact the agent’s reactions are triggers by a human, via a Wizard of Oz interface, can also lead to slow reactions from the agent and interactions that do not have the right rhyme. The interface must offer a large variety of responses yet be simple enough so that the teacher can trigger the right response as fast as possible. This is the main challenge we are working on at present. A first prototype of TGRIS will be tested with colleagues in Mai and we have planned on testing TGRIS during the next ETs training session, in June 2018.

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