CHAPTER 11

ATLAS: Preparing Field Personnel for Crisis Situations

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11.1 Introduction

ATLAS (Advanced Training, Learning and Scenario Simulator) is a serious game that was developed in conjunction with an intergovernmental organisation to deliver bespoke training simulations in virtual reality to assist field personnel in making decisions in difficult situations during operations. This chapter describes the concept of ATLAS and the developmental process that led to the full-fledged game.

11.2 The ATLAS Concept

When members of humanitarian agencies work in areas of high risk or conflict, it is not uncommon that their safety is compromised. In life-threatening situations or times of immense stress, it can be hard to remain calm and faithfully carry out the correct actions. To prevent serious harm or even loss of life, it is thus vital that staff are trained appropriately and feel prepared should they encounter an emergency situation.

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Realistic training simulations through virtual reality aim to make reactions in emergencies and stressful situations feel like second nature – based on the idea that trainees have encountered the full complexity of such situations before going into the field and are thus mentally and physically better prepared. ATLAS is a reaction to this need, with the objective to prepare trainees to make better decisions when they are faced with critical situations in the field.

ATLAS is a proprietary modular serious games development system for virtual reality simulations. This system allows for the rapid development of serious games scenarios and provides a platform to create highly customisable bespoke virtual reality training sessions for a range of security-based application domains. The approach is based on the understanding that a scenario-based learning paradigm helps to improve practical skills such as situational awareness, analytical thinking, problem solving and decision making (see, e.g. Chaps. 4 and 10). At the same time, the final design had to minimise potential adverse effects of using virtual reality (see Chap. 3).

The first iteration of ATLAS developed a virtual reality training simulation for field operatives working for an international non-governmental organisation. The scenario was developed in response to an attack on a convoy of humanitarian aid workers in South Sudan in 2017. Tragically, two people died of gunshot wounds as a result of this attack (Dumo, Houreld, & Williams, 2017). The scenario which was designed to replicate some of the events of this attack aims to train field staff on how to react if they encounter a similar situation. The scenario commences with the trainee sitting in a car which is part of a convoy. This convoy then comes under attack and the trainee has to vacate the vehicle and find a safe place to retreat.

11.3 Development of ATLAS

As the purpose of the serious game is to teach skills which could prevent harm during incidents to front line staff, it was necessary that ATLAS should be made as accessible as possible. Therefore, it was important that the system can be deployed easily and does not require a large space for participants to move around during training, as this limits the number of locations where the training can be deployed. This requirement was met by requiring trainees to press a button on a handheld controller to move in the simulation, as opposed to moving around physically in the real world.

Moving in this way can introduce problems of simulator or cybersickness, although there are ways to reduce the likelihood of such episodes (see Chap. 3). The first technique that was considered to help with this is teleporting. Teleporting in VR refers to a technique in which the user moves by either looking or pointing at the position where they would like to move to and then pressing a button on the controller to immediately move to that position. Often the user first presses a button to bring a marker into view. This marker is shown on the ground at the position to where the user will be teleported. The user can then move this marker, either by moving their head or by pointing with the controller in their hand. Once the marker has been moved into the position the user wishes to teleport to they can release the button to execute the teleportation. Whilst this technique is effective and does help to alleviate symptoms of cybersickness in some people, it does somewhat detract from the feeling of immersion the player experiences whilst engaging with the application. As this serious game is intended to recreate a potentially stressful scenario, it is important that the feeling of immersion is kept as high as possible to make the simulation feel real. As a consequence, it was decided that for this project, teleportation would not be an effective method for allowing the trainees to move within the simuation.

The next method that was evaluated is called 'tunnelling'. Tunnelling is a technique in which the user's peripheral vision is restricted whilst they are in motion (Tambovtsev, Floksy, & Pesh, 2016). When the user presses the trigger on the controller they will begin to move forward; simultaneously their peripheral vision will be restricted, so that they are effectively given tunnel vision (see Fig. 11.1). As soon as the trigger is released, the movement will stop, and the peripheral vision will return to normal. After an evaluation period, it was decided that this technique sufficiently lowered the potential feelings of disorientation linked to simulator sickness and was also more immersive than teleportation. Hence, for the ATLAS project the tunnelling method was used.

The next step in the game development was to generate the training scenario. As the intention was to train people in how to deal with a situation similar to the Sudan convoy attack, it was decided that the scenario should take the user through a simulation essentially replicating this attack.

To begin, the trainee is asked to sit in a chair and to put on the VR headset. The simulation begins with the trainee in the rear seat of a vehicle so the seated position helps to increase the feeling of immersion. The scenario then commences with a 2-minute gentle car ride through the desert,

Fig. 11.1 Use of tunnelling in ATLAS

giving the trainee time to adjust to and take in their VR surroundings. In the simulation, the car which the trainee is seated in is part of a convoy of similar vehicles. They can look around and see a virtual representation of their body; they can also move their hands if they wish. Once the car drives past the remains of old buildings, a gunshot is heard, followed by the sound of shattering glass, this signals the start of the attack.

The trainees are expected to assess the situation and respond in an appropriate manner. This means, they must evacuate the car and find a safe place to take cover. This scenario is designed to test their situational awareness, particularly to test whether the trainee noticed the ruins during the car ride as a suitable place to take cover. Once the trainee has taken cover in a suitable place, the scenario is complete and the simulation ends. At this point the trainee is debriefed and informed which of the decisions they made were correct or problematic and what they could have done differently. For instance, if they made no attempt to take cover behind the engine block of a car, if there was one close by, they will be advised that this would have been a good decision.

This preliminary application with one very specific scenario acted as a trial version for ATLAS as a training tool. The long-term intention is to develop further scenarios, using the same framework as in the first scenario. These new scenarios can be rapidly developed and deployed whenever a new threat for field personnel emerges that requires additional targeted training.

ATLAS is currently employed as a supplementary training tool within a classroom environment. As part of a hostile environment awareness training, the ATLAS platform is used to encourage social learning as students watch their peers' actions. Decisions during ATLAS training can then also serve as a platform for discussion. This form of cooperative training helps students prepare for real-world exercises, ensuring they respond appropriately and correctly to field situations similar to the ones encountered during the training.

11.4 Conclusion

ATLAS aims to ensure that field staff deployed in conflict areas are able to act to their full potential in a crisis situation. It aims to achieve this by training staff to control their emotions, organise their thoughts and develop a plan of action even in times of extreme stress. ATLAS supports trainees in improving their situational awareness by encouraging them to increase their level of attention towards their immediate environment. At the time of writing, ATLAS is at the prototype stage and consists of a single scenario. However, ATLAS has been successful in terms of demonstrating what can be achieved with a VR-based training application. The success of this initial development suggests that such serious game applications have considerable potential in the preparation of field personnel for crisis situations. Future updates and extensions with new scenarios using the framework may be added as needed.

References

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