

An RPG Pattern for Ethical Gameplay in MAGNITUDE

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Abstract: Disaster response works usually contain many problems, which need to be solved immediately. Most of such problems are consisted ethical matters. Therefore, it is essential for disaster responders having an awareness of ethical consideration to make decision accurately. To address such requirement, we designed a training game environment named MAGNITUDE. The game was proposed to improve non-technical skills, i.e. ethical decision-making. MAGNITUDE combined two types of game genre, simulation and role-playing game (RPG). By implementing simulation genre, it is expected to provide realistic-situation like disaster response. Whereas, by adopting RPG genre, we presume that MAGNITUDE encouraged a player to increase the level of his/her non-technical skill from a novice to an expert. In this paper, we explain the RPG pattern, which yields the ethical gameplay implemented in MAGNITUDE game.

Keywords: RPG Pattern, Ethical Gameplay, Ethical Dilemmas, Training Game, Simulation and Role-Playing Game.

1. Introduction

Disaster response works require personal skills in project management, teamwork, effective communication, and other soft skills. The disaster responder, therefore, should increase their soft skills regularly. However, it is difficult to create a realistic exercise due to limited environment. Training game is an approach to deal with the above issue. Researchers in this area found that games have the potential to enhance the training and performance of a disaster response team. Training games may improve the emergency team skill by providing regular training opportunities (Hullet & Mateas, 2009). The idea of enabling games as tools for education and training is not new. With decades of researches on game for learning, the games were usually developed for specific learning outcome, for example the games for emergency rescue and evacuation, emergency preparedness, and decision making (Campbell & Weaver, 2013). Training games takes benefits of gaming technologies for motivating, and interactive virtual learning environment that stimulates situated experiential learning.

The aim of this paper is to describe an RPG pattern in MAGNITUDE. Magnitude is a terminology to measure the earthquake scale. We named the game as MAGNITUDE, because we expect that the game can explode the player skill from a novice to be an expert. The game situates the natural post-disaster environment. It is intended to promote the player to have awareness of post-disaster setting and ethical tension appeared in such disaster response works. The structure of the discussion in this paper is as follows: In section 2, we firstly review the previous works concerning to the ethical model and game narrative. These works discovered that embedding ethical values into gameplay in MAGNITUDE is meaningful for encouraging the players to be aware of the real post-disaster situations. Section 3 explains the RPG design pattern. There are many patterns presented in the success commercial RPG, but we only discuss the specific patterns, which are suitable for ethical gameplay. We also discuss about a quest pattern in MAGNITUDE for transforming ethical values and judgment framework for assessing ethical decision. In section 4, we continue to discuss implementation of the proposed pattern. We finally conclude this paper in section 5.

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2. Previous Work

2.1 Ethical Model in MAGNITUDE

Social and humanitarian action, such as emergency response of natural disaster, usually faces many problems. However, decisions made on a moral basis may have critical impacts on the societies. Ethics has been defined as the study of the general nature morality and the specific moral choices to be made by a person. Schrieber stated:

“Ethics refers to the study of systems of rules which are used to distinguish “right” actions—those which are ethical, moral, and valuable—from “wrong” actions. These systems are referred to as ethical systems, while specific rules that comprise an ethical system are called ethical principles” (Schreiber, Cash, & Hughes, 2011).

To embed ethical values, we pick up six components of moral intensity discovered by Jones, i.e. Magnitude of Consequence, Social Consensus Probability of Effect, Temporal Immediacy, Proximity, Concentration of Effect (Lincoln et al., 2011). We previously studied the model of game elements to implement them in MAGNITUDE (Wahyudin, Hasegawa, & Dahlan, 2013). Figure 1 shows the relationship between ethical components and others.

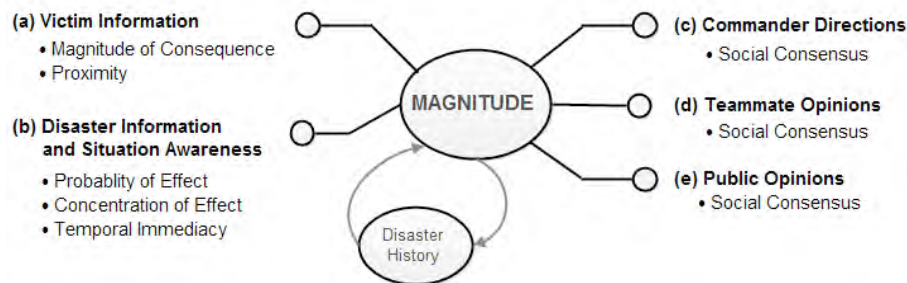


Figure 1. Ethical Model in MAGNITUDE

The following are MAGNITUDE elements. Some of them contain specific components of moral intensity:

- Victim Information is complete data, including the number of victims, illness involved, and social background. This element contains Magnitude of Consequence and Proximity. Knowing information of victims is necessary for the player to distinguish the victims who need immediate help or not.
- Disaster Information is data about the type, scale, and location of the disaster. Situation awareness is knowledge of the circumstances that will occur later. The elements consist of Probability of Effect, Concentration of Effect and Temporal Immediacy. By having an awareness of disaster situation, the player can estimate that the actions in disaster response are potential to affect the environment or community in short or long time span.
- Commander Directions are all advices from the disaster response commander related to the response stages. The commander has a duty to manage and direct the process of response. It is important to keep the process on the track of the actions plan, because the longer the process goes, the more difficult the commander sets up the next step.
- Teammate Opinions are comments or judgements from the other members of the team. As part of social collaborative teamwork, each member of the disaster response team has own rational thinking. Some of them have supporting argument, whereas the others dispute the player's analysis.
- Public Opinions are comments and responses come from community and the victims to the action that has been carried out.

Commander Directions, Teammate opinions, and Public Opinions are MAGNITUDE elements, which contain Social Consensus.

2.2 Narrative of MAGNITUDE

MAGNITUDE is a game based training, which combined two genres of game, i.e. simulation and RPG. By implementing simulation, it provides the real-life disaster environment, such as flooding, earthquake, volcano eruption, and landslide. On the other hand, some literatures discovered that RPG is potential for teaching ethics and it can provide comprehensive ethical gameplay (Simkins, 2010). By incorporating RPG genre stimulate them to choose the best choice among ethical dilemmas that have emerged.

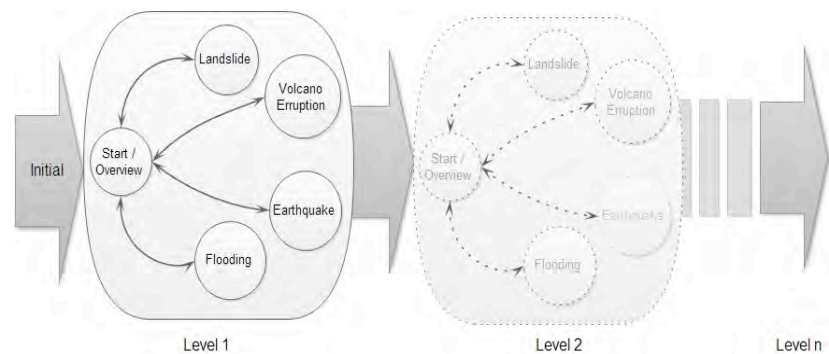


Figure 2. Model of MAGNITUDE Narrative

The main purpose of MAGNITUDE is to improve the skill level of the player from the novice to the expert. It takes place in the situations of post disaster, which player role is a member of a certain disaster response team (Wahyudin & Hasegawa 2014). Figure 2 illustrates the flow of the MAGNITUDE narrative. The game starts with an initial condition. Initial point demonstrates the opening narrative that shows the main character profile and roles. Each level contains branching narratives formed by four quests, which represent the types of disaster.

3. RPG Pattern

3.1 Applicable RPG Pattern

There are a lot of common patterns discovered from established RPG genre. However, in this paper we explain only the necessary patterns needed in MAGNITUDE. The followings are applicable patterns of RPG.

3.2 Character

A character is the game personality. The character may either controlled by the player, or by the computer. The character has characteristics, such as age, gender, strength, etc. that differentiates one by one. In a specific purpose, the character in MAGNITUDE can be classified into two classes, these are:

Classes of character based on type

- Player Character (PC): A PC in MAGNITUDE is named Pandu, which mean a boy scout. He is a teenager and a student in high school. He becomes an active student after joining a student organization at his school, which focuses on outdoor and humanitarian activities.
- Non-player character (NPC): NPC types can be distinguished into two categories. First NPC type is an interactive character, for example victim's family, and basecamp commander. Interactive character has the big contribution to present ethical tension and they will be involved in dialog trees. Another type is non-interactive character, with which the player cannot communicate with the others. Usually, non-interactive NPC is the only ornament for the game world.

Classes of character based on behavior

- Protagonist: This character has good behavior. The player usually acts as a protagonist.
- Antagonist: This character has bad behavior. Antagonist might come from the disaster response team or from the community. For instance, it always has a bad judgment to any actions taken by the player or annoys the main character actions.
- Dynamic: This character is usually an NPC appeared in all situations. In some situations the NPC expresses good behavior, but in another condition it conducts bad behavior or does not react anything to the main character.

3.3 Character Point

Character point is awarded to the player when he/she completes the quests, overcoming the obstacles. It is an incentive given to the player to encourage. It also performs the results of the activities' appropriate acquisition parameters. Character point in MAGNITUDE is determined by a combination of the following factors.

- Success reward: It is an incentive given to the player to encourage him/her show up the period and success to pass the difficulty or solve the problem.
- Social Reward: It is an incentive given to the player when the NPC was satisfied with his/her act. If he/she does satisfied job, the NPC will give him/her one point of Social Reward and vice versa.
- Failure Reward: It is negative rating given to the player when he/she commit to a fatal mistake.
- Teammate Reward: It is a satisfaction of the disaster response team when the player shows good collaborative works.

3.4 Hit Points

Hit Point is also known as Health or Life. The player's ones are status of the character's health during disaster response works. Doing a lot of work, he/she will lose his/her Hit Points. If his/her Hit Points decreases, he/she needs to add source of energy or take an enough rest. It can be added by earning food items found in the game world. For the NPCs of the disaster response team, Hit Points will lead to the slow of their response, and it is related to the mood of those NPCs. For the NPCs of the victims, once Hit Points lost rapidly, it will affect loss of the opportunity to save their life.

3.5 Resources

Resources are properties with limited quantity in the game world that the player may get, manage and consume in certain ways. For instance, he/she should find food to keep the energy in sufficient level. He/she may fight with the bad NPC to obtain the food items so that he/she can assure that his/her energy is maintained. On the other hand, if he/she discovers the victims who need food items, he/she can expend the reserved foods to help the victims' life.

3.6 Quest Pattern for Transforming Ethics Values

Quest provides the player with purpose and direction of the disaster response works. It also promotes him/her to explore the game world and make interaction with the NPC or static objects. The followings are typical patterns of RPG quest, which are possible to transform ethical values (Smith, 2011).

3.7 Actions

Actions are abstractions of the player's steps to complete the quests. For example, a quest which pushes him/her to do search and rescue operation when a natural disaster strikes. The player should distinguish between injured victims and died victims. The injured victims have priority to be evacuated than died victims. The following are elements of quest actions applied in MAGNITUDE.

- **Options:** It is the element which, the player will be confronted with the ethical dilemmas. Every option has Type and Outcome. Type is the kind of being made by the player such as, amputated victim's leg, destroyed hill, etc. Outcome is the result based on what the player opts.
- **Equipment:** It is a specific item needed to solve confronted problems. The variables of this element are the amount and function of them. For example, when the player discusses the response works, he/she will be asked to prepare safety equipment's and should determine and gather the necessary equipment related to the type of disaster.
- **Moxie:** The element pushes the player to use his/her personal knowledge to attain the objectives. This is a very important element in MAGNITUDE, because it endorses him/her to use his/her skills for making decisions rather than just exploiting the virtual skills of his/her character.

3.8 Objectives

Objectives are tasks needed to solve to complete the quest. The player will be assigned the main objectives, such as, determining the type and scale of the disaster, preparing emergency equipment, collecting the food items, searching and evacuating the victims, gathering information, and making decisions when response actions faced the dilemmas.

3.9 Quest Structure

Quest Structure causes the actions and the quest merging together. In MAGNITUDE, Quest Structure consists of:

- **Ethical Dilemmas:** The player will be confronted with the problems of search and rescue activities. Every problem contains at least one of six components of moral intensity.
- **Deadline:** It is a set amount of time. The player should complete the quest before it mechanically ends. If he/she cannot complete such tasks in a particular time, he/she will get the false point and the quests will be marked as failed.

4. Example of MAGNITUDE Quest

An example quest takes place in the situation of flooding disaster. Figure 3 shows narrative for this quest. The quest starts with a narrative that explains the objective of the quest. He/she requested to meet a commander (interactive NPC), who will guide the discussion to plan disaster response. He/she asked about disaster type, location and scale of the impacted area, and the number of the victims. To do quick response, he/she needs to determine the priority area, which area is fatal destruction. On the other hand, he/she should measure the possibility to save as much as possible the victims in this area.

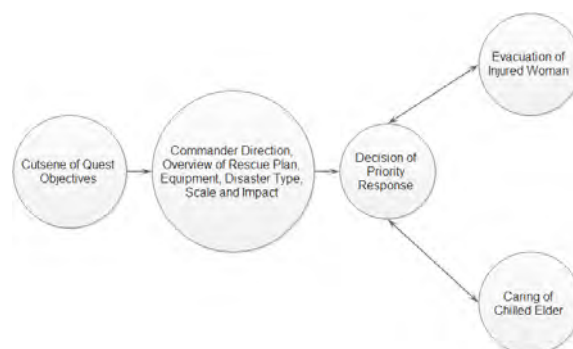


Figure 3. Flow of flooding quest

The player would continue to select priority of response actions. There are two jobs, i.e., caring the chilled elders, and evacuating the injured woman. In first location, there are many elders who need blankets and hot meals to prevent them from hypothermia. The problem is prepared blankets are not enough to meet the needs of all refugees. Some of the teens contend to get the blankets. Some of them have bad behavior that aggressive to annoy the player's act. However, if

he/she meets the teens' refugees who provide dialogue (interactive NPC), he/she can argue that they will survive without blankets. Now, he/she face the ethical problems associated to Proximity, which emotional and social closeness influence the decision to be taken. If he/she prioritizes the teens, elder refugees who cannot get the blankets will punish him/her with minus Social Reward. If the condition of elder refugees is critical, perhaps the refugees will lose their hit point. In this case, he/she will get Failure Reward. If he/she cannot satisfy the needs of teens' refugees, on the other hand, the refugees will stop to annoy the response activities, but the response action will be delayed and it causes the response team members or commander giving minus point of Teammate Reward.

Now we continue to see the next job at the location of the injured woman. There is an injured woman trapped under a collapsed bridge. Her leg was broken, and she is unconscious. Weather center reports that the heavy rain is happening in the headwaters area. In the next few hours, the river waves will be raised and lead to subsequent flooding. The player has a responsibility to evacuate the injured woman before next flooding hit this area. The problem is that he/she does not carry enough equipment to cross the river with a swift current. He/she can request to the command center to deliver required equipment, but it takes time because the injured woman needs help immediately. These circumstances give him/her Deadline. If he/she cannot evacuate, he/she will lose the opportunity to save the injured woman's life that perhaps break the woman family's hope. If woman's family felt let down, he/she will get minus point of Social Reward. On the other hand, because of its inability to evacuate on time, he/she loses the opportunity to save the woman. Hence he/she will get the Failure Reward.

5. Conclusion and Future Works

We have identified the RPG pattern of ethical gameplay. We found that the pattern of RPG applied to the example quest shows the game is potential to produce the meaningful of ethical gameplay. We are now working in progress of implementation of this pattern into complete playable game. However, there are still missing pattern for our research purposes. In the future, we expect to solve this weakness by studying other RPG patterns of established game. Another important work is to measure the effectiveness of the implemented pattern for training outcome through play testing of the playable game.

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