

Analyze That!

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Overview

In role-playing games (RPGs), the participants typically "play the parts of characters in an imaginary world that is organized, adjudicated, and sometimes created by a gamemaster" (Wikipedia, 2004). This type of "imaginary world" is already in use in the Educational Technology M.A. program at San Diego State University. In EDTEC 544 (Instructional Design), students design an instructional system for a fictional client company, QED, which is created and managed by the course instructor. The goal of this project is to create an interactive world for the EDTEC Masters student that simulates the actual experiences of an instructional designer. Through a number of problem scenarios, students can participate in meetings with clients, managers, and subject matter experts, each of whom may present unexpected challenges that instructional designers actually face in their careers.

How do you persuade a client that a brief analysis of a given situation could reveal that training isn't actually necessary, when he or she clearly feels that training is the appropriate solution? How do you capture the expertise of a subject matter expert who doesn't communicate his or her wealth of knowledge clearly? How does a meeting with a stakeholder actually work? Without actually experiencing these situations, it is difficult for a student to fully appreciate the challenge of handling them. Providing a comfortable and realistic simulated environment for relatively inexperienced instructional designers to practice facing these situations is invaluable.

The constructivist nature of this game, in which the learners are free to roam the game environment and play their roles as they choose, encourages exploration, active learning, and imaginative synthesis of disparate resources. Through the participation of alumni of the EDTEC program to play the various roles of the clients, managers, and subject matter experts, the interactive experiences of the students will be both realistic and educational.

Instructional Objective

The primary purpose of this game is to provide students enrolled in the EDTEC program with an opportunity to participate in realistic instructional design challenges in a controlled, simulated setting. Working with difficult clients or subject matter experts, for example, will contextualize the subtle communication techniques that instructional designers use in order to be successful. A variety of problem scenarios can address different instructional objectives, depending on the needs of the instructor and the course. For the purpose of our scenario, learners will learn strategic communication techniques while reinforcing the learning objectives associated with the analysis phase of the ADDIE model. The specific learning objectives of our suggested scenario are as follows.

Upon completion of *Analyze That!*, the learner will be able to:

- identify the client's actual and optimal situations;
- describe significant drivers and barriers to success;
- prioritize needs and establish goals;
- communicate effectively with the client and other stakeholders;
- find and use relevant materials to inform analysis;
- determine what solution(s) would be effective; and
- convince the client and stakeholders of the merit of his/her findings and solutions.

The instructional objectives listed above closely match some of those of the Educational Technology M.A. program. While these objectives can be addressed in just one scenario, multiple scenarios would be useful for exposing learners to additional communication challenges.

Learners

This game is designed for students enrolled in San Diego State University's Educational Technology Masters program. These students have Bachelors degrees in a variety of subjects, and come from diverse work backgrounds, including educational institutions, corporate entities, and governmental organizations. Because the students are enrolled in the Educational Technology M.A. program, and presumably intend to work in the same field, they should be highly motivated by the content of the RPG. Furthermore, because the game is online, it can serve the needs of both the campus and online

students of the program with an experience of an equally high quality.

Context of Use

This RPG can be played in any location that has a computer and internet access, either at home or at school. The ideal environment would include one computer per person (or one computer per team, if students are playing together). Given the mix of on-campus and distance students enrolled in the Educational Technology program, this RPG is an excellent way for the two communities to work together. The game can be played repeatedly, as there are various scenarios for the learner. Each scenario can be modified and guided by the instructor to present the particular learning objectives that are desired.

A single game session, which includes a pre-game introduction and a follow-up class discussion, can take the better part of a class period, with each scenario focusing on a different challenge that an instructional designer may face. For example, one scenario could present a client who is resistant to any solution other than training, while another could present a subject matter expert who does not relate his or her knowledge clearly. Multiple scenarios could be presented to students during a course or throughout the entire program, depending on how many scenarios the instructors believe to be necessary.

Before students play the game for the first time, the instructor should provide an overview of the game's format and rules, and should allow the students to practice and experiment with the controls. (A "practice area" within the game could be provided for this very purpose.) Before each real game session begins, the instructor should briefly summarize the content being addressed in that session, and should ensure that all technical equipment is functioning correctly. After each game session, a group discussion of that session's content, and of any issues that emerged during game play, would be a valuable exercise.

Because the game is to be played online, it should (and does) work on both Windows and Macintosh, the two platforms most widely used in instructional settings.

Scope

Although we envision that multiple scenarios could be developed and implemented effectively in various EDTEC courses, we will focus on the details of one scenario for the sake of clarity.

Each game session should take one to two hours, depending on the complexity of the content. This length allows the students to play one session of the game during a class session, with preparation time beforehand and a period of discussion afterwards. A thorough introduction to the game and the scenario along with an analytical discussion period are critical to the learning experience for the students. The learners will only be presented with a brief introduction to the problem from the client via email.

Before a game session, each non-student "character" in the game will be presented with the scenario and scripted guidelines that describe the role of his or her character (e.g., a resistant client, or a busy subject matter expert). Although each character will be playing a certain role, the actual dialogue between characters and learners will be left open for natural communication to occur. Ideally, the individuals playing the different characters will be able to draw upon their extensive experience to better illustrate the challenges facing instructional designers, while also subtly revealing some of the strategies they have learned along the way. In addition, including these individuals in the class discussion following the game session would be quite beneficial to the learning experience, through their provision of critical feedback.

This game strives to simulate the interactive and communicative aspects of instructional design, rather than the independent aspects of design and solution development. Accordingly, those steps of the instructional design process that are typically worked on independently are left out of the game scenarios. Our example scenario, presented here, includes interaction with six individuals (sources or stakeholders) that would typically be involved in an instructional design problem. Each character or group of characters will be located in their own respective "offices" or "meeting rooms."

Object of the Game

The goal of Analyze That! is for the learner to communicate with various stakeholders effectively in order to identify appropriate actuals, optimal, and potential solutions, and to convince these stakeholders of his or her findings. The game is constructivist in nature, in that the player experiences communication challenges within the realistic setting of an instructional design problem in a dynamic, interactive fashion. The instructor may decide whether an individual learner has achieved the learning objectives adequately, or whether he or she needs to replay the scenario. However, due to the time commitments required of the individuals volunteering to play the different character roles, replaying scenarios would be a challenge.

Design Details

This game was developed and runs on a Manor server (MadWolf Software, n.d.), which allows the game creator to design a customizable, multi-room, graphical environment that players can roam at will. The rooms within each "Manor" (or set of rooms, objects, and characters) can have graphical backgrounds that consist of photographs or other images uploaded by the game creator.

The game environment should look realistic, so that players feel as if they are immersed in a genuine setting, yet uncluttered, so that players do not become overwhelmed by the complexity of their surroundings. To this end, the rooms within the Educational Technology RPG have as their backgrounds computer-generated images of rooms within a typical corporate office. These rooms will be instantly familiar to players as a boardroom, an office lobby, and so on, but the cleanness of the lines and the lack of extraneous objects will allow players to focus on the issues at hand without distraction.

The Simulated World

The world depicted in this scenario is that of an office, specifically the headquarters of a fictional company called XYZOnline.com. At the beginning of the game, the player is in the Lobby of the office, where an administrative assistant is waiting behind a desk, as shown in Figure 1 below.



Figure 1: Screenshot of the Lobby.

The players and other characters are represented by easily customizable avatars; in this case, the player's avatar is an orange moon, and that of the assistant (whose role is played by a remote third party, as discussed below) is a yellow face. All characters can move freely around the room, and can speak to the whole room or to individuals within the room by entering text via their keyboards.

In this game, the Lobby is not the only room available. The player can move to other rooms by clicking on the doors leading off the Lobby. For example, the door to the left on the lower level of the Lobby leads to the CEO's Meeting Room. When the player clicks on the door with her mouse, she is instantly taken to the Meeting Room, where the CEO is waiting at the conference table, as shown in Figure 2 below.



Figure 2: Screenshot of CEO's Meeting Room.

The game environment consists of the following rooms:

| Room | Occupant(s) | Function |
|--------------------|--|---|
| Lobby | Assistant | Starting point of the game; central "hub" off which all other rooms branch. |
| CEO's Meeting Room | Pamela Simmons (CEO) | Discussion with the CEO; attempting to persuade her that analysis is necessary; gathering data from her. |
| Manager's Office | John Smith (Manager) | Gathering data from the Manager. |
| Work Room | Frank Rizzo, Kathy Kittles, Timmy Thompson (employees) | Gathering data from the employees. |
| Reference Room | None | Contains books, manuals, employee records, and other documents that the player can use to learn about the company; in a multi-player game, the players can also use this as a space for private discussion. |

These rooms are represented in the flowchart in Figure 3 below, which shows that all rooms are connected to the lobby, and that the player can move freely between each room and the lobby.

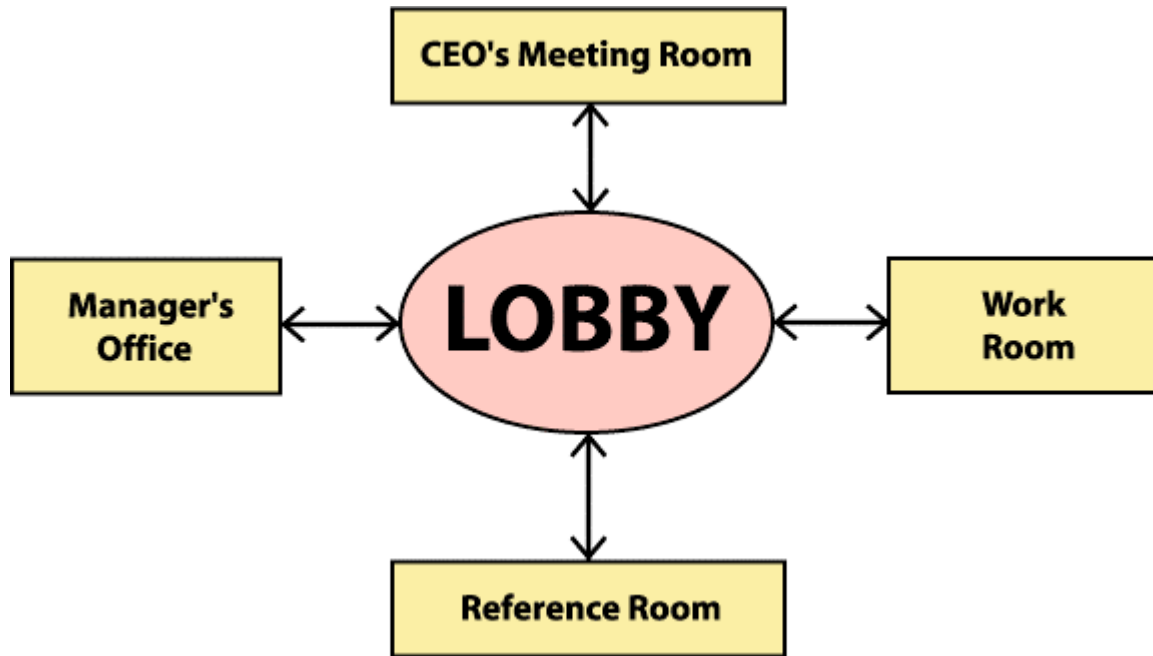


Figure 3: Flowchart of the game's rooms.

The Player

In this scenario, the learner plays the role of an instructional designer who has been summoned to XYZOnline.com in order to help the company with a problem. The client (Pamela Simmons, the CEO of XYZOnline.com) believes that the weekly company meetings are ineffective due to poor public speaking skills in the managers, and is asking the player to design and develop a training course to address this issue. The client is resistant to the idea of an initial analysis, and part of the player's goal is to convince the client of the need for analysis, instead of rushing to create a training "solution" that may not in fact be needed.

The player's goal is to determine the cause or causes of the company's problem, and to derive a solution system to address the problem. In other words, the learner's goal in this game is to conduct an analysis. To be successful, the player must:

- persuade the CEO of the need for an initial analysis;
- interview the CEO, the Manager, and several other employees in order to gather information about the problem and their perception of it;
- consult manuals and documents available in the Reference Room and provided to the player

by the other characters;

- communicate with all characters effectively and diplomatically;
- synthesize all gathered information to determine drivers/barriers and derive a solution; and
- report findings to the CEO, and convince her of their validity.

If the player conducts this analysis correctly, he or she will identify a number of causes for the unsuccessful meetings, including:

- unnecessary information is presented during meetings;
- some information is relevant only to certain departments;
- unscheduled topics are introduced into the meetings, pushing the meetings over their scheduled time;
- many departments have weekly deadlines which fall immediately after the weekly meeting time; and/or
- employees don't pay attention because they can simply read the minutes of the meetings on the company intranet following the meeting.

Potential solutions that the player might suggest include:

- reschedule weekly meetings and/or department deadlines so that they don't conflict or overlap;
- make information available on the company intranet to be accessed as needed;
- introduce a discussion forum into the company intranet for employees, including management, to discuss concerns and new topics of interest; and/or
- shorten meetings to include only critical and relevant information.

Additional Characters

Beside the player (or players, if several learners play together in teams), there are several additional characters in the virtual XYZOnline.com environment, as follows:

- **Pamela Simmons** is the company's CEO, who makes the most important decisions. She is resistant to the idea of analysis, and instead insists on the rapid development of a training program. The player must first convince Ms. Simmons of the need for an analysis before conducting it, and reports back to her at the end of the game with his or her findings.
- **John Smith** is one of the company's Managers. He frequently makes presentations at the weekly company meetings. He feels confident that his presentation skills are exceptional, and is insulted that his speaking skills are coming into question.
- **Frank Rizzo, Kathy Kittles, and Timmy Thompson** are office employees, responsible for general administrative tasks, such as correspondence, technical support, and accounting. They attend the weekly company meetings, and find them uninteresting/unnecessary to varying degrees and for various reasons. Conflicting deadlines, useless information, and the availability of weekly meeting minutes all contribute to their dislike of the meetings.
- An **administrative assistant** sits at the front desk in the Lobby. He/she knows a great deal about the general workings of the company, overhears a lot of gossip, and is able to direct the player to resources as needed.

These additional characters are not played by the server, which does not have this capability. Instead, they are to be played by third parties, such as other instructors or students, or, ideally, volunteers

and alumni of the EDTEC program working in the field. Because this game is played online, these third parties can be based anywhere in the world, as long as they have a computer with an internet connection. The roles that they play are semi-scripted; they are aware of the scenario, and of the type of characters that they are playing (resistant/skeptical CEO, cynical employee, and so on), but are free to respond to the learner as they wish, in conformance with their general roles. A sample guideline script can be found in [Appendix 1](#).

Objects and Obstacles

In some rooms, the player will find "props," or inanimate objects such as books, documents, and multimedia recordings that the player can read, view, or hear. For example, the player can click on a document on a table, and read the text of that document on a Web page created by the game author. In this way, the learner can glean information essential for success in the game from workplace manuals, reports, audio recordings of meetings, and other realistic sources of extant data.

The objects incorporated into our XYZOnline.com scenario are as follows:

1. Minutes from the December 6, 2004 meeting, showing that the meeting was filled with information irrelevant to many of the employees, and that it ran late.
2. A schedule of upcoming meetings and their presentation topics, showing that these presentations are usually on topics unrelated to most employees' work.
3. A letter from the Manager, John Smith, to the employee Frank Rizzo, giving him a project with a deadline landing very soon after a meeting.

The information contained in these items, combined with that gained from his or her interviews with the game characters, should be sufficient for the player to determine the real causes of the failure of the meetings.

Obstacles that will challenge the player may include:

- resistance to analysis from the CEO;
- hostility from the Manager, who is annoyed that his speaking skills are being questioned;
- lack of responsiveness from employees due to their heavy workload;
- reluctance of employees to speak honestly about the meetings, because they see boring meetings as being at least a chance to relax, or because they fear that their managers will find out what they said;
- making sense of conflicting information from different characters;
- having to ask the characters for sensitive information in a diplomatic fashion; and/or
- ethical issues, such as having a character ask the player to conceal the truth or manipulate data.

Evaluation

Given the free-form, constructivist nature of this game, and the vast number of directions that it can take, there is no feasible method of objectively scoring this game based on "right" or "wrong" responses or behavior. Instead, the course instructor must evaluate learners in a holistic manner, by observing their behavior and responses throughout the course of game play.

To do this, the instructor can either watch the game over the player's shoulder, or watch from another computer by joining in the game as a "non-participant observer" and following the player from room to room. If the instructor cannot observe in either of these ways, then the player can save the game's log (a text file showing the player's movements and the dialogue of all characters in the game), and email it to the instructor for later analysis.

Technical Specifications

This game was authored using the Manor server software, which is available from MadWolf Software (n.d.). This software is available for the Linux and Macintosh OS X operating systems. In order to run this server software, the administrator must purchase a registration key for the client version of the software for \$20. This client software is the version that the learner uses to play the game. A 30-day trial version of the client software is available for download, but the server software will not work until the client software has been paid for and registered.

When the server software is running correctly, the game developer can configure the game through the client software by logging in with the administrator username and password, which unlock the room creation and editing tools. Using these tools through a graphical interface, the developer can create and edit individual rooms within the game, adding graphical backgrounds and props, setting various preferences and privileges for the different rooms, and configuring the "doors" that connect the rooms to one another.

The client software is available for the Windows, Macintosh OS X, and Macintosh Classic operating systems, and the game can therefore be played on any relatively recent PC or Macintosh computer with an internet connection.

The screen size of the game is dependent on the size of the rooms created by the developer; in this game, no room is more than 600 pixels wide, ensuring that it is viewable on all but the most ancient of monitors. The game will look best at millions of colors, but will be playable (although less aesthetically pleasing) with fewer colors available. When played on a Macintosh computer running OS X, the player can choose to have all player dialogue spoken aloud by the operating system's native speech software. The only other sounds in the game are those added by the developer, such as a

noise to signal that the player has switched rooms.

Room background images must be uploaded to the server in either PNG or JPG format, via the client software. Sound files must be in WAV format. Filenames can be of any (sensible) length, but are case sensitive, and cannot contain spaces or special characters such as asterisks or question marks. In addition, filenames should include the relevant extension (such as lobby.jpg for the JPG background image for the Lobby) so that the server knows what type of files they are, and to ensure that they are uploaded as binary files.

The state of game play is not saved when the client software is closed. However, the log of each game can be saved as a plain text file in registered versions of the client software.

Competing Products

There exist a large number of role-playing games (RPGs), both text-based and graphical, and both educational and non-educational. Popular and well-designed RPGs include *Second Life* (Second Life, 2004) and *EverQuest*. Of the educational RPGs available, there appear to be none similar to *Analyze That!*, which is a graphical RPG on the subject of the analysis phase of the instructional design process.

The existing products that come closest to this RPG are educational MUD (Multi-User Dungeon) and MOO (MUD Object-Oriented) games, which are online, text-based virtual worlds. These educational MUDs and MOOs cover a broad array of subjects. There is one MOO on the subject of educational technology, the TecfaMOO (TECFA, n.d.), which was developed in 1994 at the University of Geneva in Switzerland. This MOO is described as a "Virtual Space for Educational Technology, Education, Research and Life at TECFA" (TECFA, n.d.), although its exact purpose and the nature of its content are difficult to ascertain without membership in the MOO. However, it is certain that this MOO, due to its text-based nature, differs vastly from *Analyze That!*, with its graphical interface and hypertext capability.

It is clear that MUDs and MOOs are quite popular among the educational technology field for the simple creation of text-based virtual worlds for use in a wide variety of educational settings. However, a graphical RPG designed specifically for the audience of educational technology professionals and students has yet to be developed. *Analyze That!* aims to fill this niche.

Motivational Issues

Simply stated, motivation is a function of both' confidence and value. According to Keller and Suzuki (1988), players are motivated if a game keeps the player's attention, is relevant to the player's life, gives the player confidence, and gives the player a sense of satisfaction. This model, formally named Keller's ARCS Model, is instrumental in game development. Initially, players may not possess the desired level of confidence in the subject matter. However, by playing through various situations with the guidance of classmates, mentors, and information support in the Resource Room, the learner will experience a gradual increase in confidence. The game's graphics, sound, content, and steady stream of unknown information will attract and maintain the learner's attention. Finally, the student will be able to see the value and relevance of this game without even having to play it, in that the game allows the student to walk through a real-life scenario without being penalized for mistakes, as they would in a real environment (e.g., getting fired).

Students will find themselves fully engaged by the challenges presented. The game could even be made into a competition with other students where the client, Pamela Simmons, selects the analysis that best meets her company's needs. The learner will be applying the knowledge acquired during his or her educational technology courses in an authentic virtual setting. The authenticity and meaningfulness of the scenario will be motivating for the learner. This game will put the learner in a challenging situation where he or she will have to apply basic concepts to navigate to the correct person and place to ask the right questions, and to use the data gained from realistic interactions with the game's characters to derive solutions and make decisions.

Design Process

Why Educational Technology?

Our initial idea involved the learners role-playing their way through high school. However, since we lacked knowledge of and experience in today's high school environment, and understanding of the high school curriculum, we opted for a domain with which we were all familiar: educational technology. One goal of the Educational Technology program at SDSU is to prepare graduate students to interact and communicate with clients in the real world, as professional instructional designers and performance technologists.

Streamlining the Audience

We initially thought that the game could cover the basics of educational technology, and be used primarily in EDTEC 540. However, because we felt that everyone in the program could benefit from

the RPG experience, we broadened our audience to include all students in the Educational Technology Masters program. After all, practice makes perfect.

Fine-Tuning Objectives

Part of the Mission Statement of the Department of Educational Technology at SDSU is "to encourage wise use of systems, environments, tools, products, and strategies that can enhance human learning and competence" (SDSU Department of Educational Technology, 2000). After changing our game idea to an educational technology RPG, we began brainstorming ways in which students could gain real-world experience through the virtual game environment, with the purpose of the game staying in alignment with the EDTEC department's mission statement.

Our first take on the game's objectives addressed all five stages of the ADDIE instructional design model. Later, feeling that this was too ambitious for the purposes of this project, we narrowed our focus to the Analysis stage only. However, this product could easily be expanded at a later time to include the entire design cycle.

Gathering Information

We gathered background information by searching the web for educational MOOs and MUDs. There are several of these in existence, but we found only one specific to the field of educational technology: the Swiss TecfaMOO (TECFA, n.d.). Furthermore, MOOs and MUDs lack graphics, an element that we believe to be vital to this game. Dr. Dodge guided us toward the Manor RPG software, which we eventually used to build the game.

The [References](#) section of this document lists resources that were useful to the design team in the conception and development this game.

Designing the Game

Using the Manor software, we created rooms corresponding with each game character's job title. We felt that learners will derive the greatest benefit from the game if they have to make realistic decisions about where and from whom to seek information. Furthermore, this organizational method corresponds most closely with that of the real world, where a real instructional designer would travel to different locations to gather specific information from a variety of resources.

Prototype and Feedback

We developed a basic prototype of the game, consisting of a subset of the rooms, characters, and objects that would appear in a full version of our scenario. During an EDTEC 670 class session, we demonstrated and discussed this prototype before several of our peers, who provided oral and written feedback.

From this feedback, we determined that we needed to articulate in greater detail how the additional "characters" in the game, to be played by alumni and other third parties, would know what to say and how to act during game play. In addition, we found that we needed to explain more clearly how and why the game would be motivating for its players, and how the game can be integrated into the existing course curriculum.

Finally, on the basis of the feedback described above, we revised both this document and the game itself.

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Appendix 1: General Script for Characters

This script is intended to aid the characters in developing the story for the student. Characters may deviate from the script, but should guide the student toward reaching his or her goal.

| Location | Character | Line |
|----------|-----------|------|
|----------|-----------|------|

| | | |
|-----------|---|---|
| | | used to get nervous in front of the employees, but now I'm very confident and can really keep their attention. |
| | Student | (Should ask more questions.) |
| | John Smith | (Answers Student's questions.) |
| Work Room | Student | (Introduces self, and asks about meetings.) |
| | Frank Rizzo, Kathy Kittles, or Timmy Thompson | I don't really like the meetings. They are such a waste of time. We get information that could easily be passed through email, and we learn stuff that doesn't even apply to us and our jobs. |
| | Student | (Should ask more questions.) |
| | Frank Rizzo, Kathy Kittles, or Timmy Thompson | (Answer Student's questions.) |

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Last updated December 13, 2004