

# Bachelor Degree Project



UNIVERSITY  
OF SKÖVDE

## **THE IMPACT OF SPONTANEOUS INDEPENDENT NPC DIALOGUE IN RPG GAMES.**

How do independent uninitiated conversations between various NPC agents in the player's vicinity affect the player interest in the game narrative?

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# Abstract

This paper explores the impact that spontaneous independent NPC dialogues have upon the player experience within a RPG. The study makes use of adjacent established research where dialogue is concerned as a launching point as spontaneous NPC dialogue has not been directly researched. The tests consisted of a playthrough of a two-part prototype. The first part had spontaneous independent NPC dialogue and the second part was used as a control part. While playing through the artefact participants voiced their thoughts and feelings concerning the prototype. With that and an interview, we measured the amount that the dialogue form used added or detracted from the participant's experience. The dialogue was overall met in a positive manner from participants. However, a small study as this cannot conclusively state that spontaneous independent NPC dialogues are a boon to the RPG experience.

**Keywords:** Dialogue. Believable worlds. Non-playable characters.

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# 1 Introduction

This study focuses on whether or not uninitiated NPC<sup>1</sup> dialogues increases player immersion in text-based role-playing games. In the game development industry, there is a greater focus on creating believable game worlds, narratives, and NPC interactions to the player's actions. Examples of this can be found in *Watch Dogs 2* (2016) where the NPCs are set to react to player behaviour. This behaviour is based on larger events in the game, such as the player committing violent acts in the vicinity or driving recklessly. They are also able to react to the player's use of varying kinds of character emotes, such as dance or insult, within the game in different ways. An example would be if the player begins to dance, they might cheer or comment on it in different ways, thus trying to make the world more believable. But there are few NPC to NPC dialogue moments that are not there as set pieces or part of the larger narrative structure.

When it comes to the academic part of the studies and efforts made to increase character believability the amount of research done on natural language interfaces is abundant, an example of this can be found in *Dialogue Management for Social Game Characters Using Statecharts* (Brusk, 2008). In several of the academic papers mentioned in this study, this is the solution for increased player investment in the game world. However, it is built upon a premise that game developers should develop systems that are exceedingly complex. The assumption the researchers make is partially based on the player character and the player is supposed to be, or represent, one and the same which often is not the case. Beyond that, if the response the player gets is nonsensical or they are unable to answer questions they should be able to answer, it is very possible that the immersive experience they had until that point is reduced.

The previously mentioned approach is costly in time and monetary investment while the impact of those changes is up for discussion when it comes to player immersion. What this paper suggests is a cost-effective method of creating more believable NPCs and game worlds through independent uninitiated NPC dialogues. By creating a world that seems more alive, with randomised uninitiated dialogues between various NPCs in the player's vicinity it is possible to manage development cost and the immersive experience of the player on a more minute level. In an anecdotal fashion, what is often discussed between players in person and on forums about games such as *The Elder Scrolls V: Skyrim* (2011) is not the main quest line or evidently scripted parts of the game experience. Often what is spoken of are the events which are or seem random in nature, such as an NPC running through the forest handing you an item, running away again and evidently being chased by other NPCs or when a giant smashes the player and the physics in the game miscalculate sending them bouncing into the sky. These types of unexpected events are often what players remember and makes them more involved with the game world.

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<sup>1</sup> Non-Player Character

## 2 Background

Within the research field of computational language there is little written directly about uninitiated NPC dialogues in roleplaying games, or any other game genre. As such one needs to find other related topics that touch upon uninitiated NPC dialogues in one manner or another. The information which serves as the base of this study is collected through four main sources: Dialogue Systems, Believable Worlds, Character Design, and RPG NPC Management.

### 2.1 Dialogue Systems

The academic research done surrounding NPC believability is mainly focused around various ways of implementing natural language systems (Brusk, 2008; Brusk et.al. 2007). They mainly argue that to achieve believability within game characters, thus increasing immersion, is accomplished through NPCs using natural language to communicate with the player. There is no consensus on how to utilise this process to its fullest potential. However, the main principles of why it is preferable over the current methods of NPC dialogue seems to overlap among the various papers on the subject (Brusk, 2008; Brusk et.al. 2007; Adolphs et.al. 2010). The researchers of those papers feel that if the player is allowed to communicate in any way they choose to the NPC and that if the NPC were to respond in natural<sup>2</sup> generated language in a way that fools the player into thinking it is not a computer-generated response this will significantly enhance the immersion within the game. Despite papers such as those mentioned in this section having a focus on creating more realistic conversations between the NPCs and player character, little thought is given to creating realistic conversations surrounding the player while being out of their hands, like many conversations within the real world. A person overhearing a conversation or seeing distress of some kind can interject into that situation and thus get a clear understanding of what is happening, alternatively a person overhearing a conversation can also decide to listen without interjecting or ignore that conversation completely. In much the same way, independent uninitiated conversations between NPCs would mimic a real-life situation, creating optional immersion within the world which is not as intrusive or forced as the more common RPG dialogues.

Another approach is to use extensive reputation systems which alter NPC behaviour towards the player. Within this system the NPCs receive “news” and “rumours” within semi-realistic<sup>3</sup> areas affecting how they view the player, world and other NPCs. This system is meant to create tangible feedback to the actions the player takes within the game world, making it feel as if the game is reacting to their actions. These reactions are supposed to be based on the NPCs personality, moral values, and goals. For example, if the player had attacked a caravan and this news reached the town merchants, one sly NPC who wants to see his competitor’s fail might inquire the player if they were interested in ambushing their competitor’s trade caravan for profit. Another merchant might refuse to do business with someone of such ill repute and yet another may cower in fear and try to appease the player for fear of what might

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<sup>2</sup> In this case natural would be with that character’s dialect, vocabulary knowledge, tempo of speech, within that character’s knowledge and within that character’s intellectual scope to understand and learn from a conversation.

<sup>3</sup> Plausible within the game’s world. In this example, how quickly and accurately information would travel in a medieval type game setting over a specific period of time.

be done to them (Allbeck, 2014). What this study wants to add, and expand upon, is another approach in how one may create more believable NPCs and by extension game worlds. It is an approach dissimilar from the academic papers cited in this section, but the goal remains the same. Finding effective ways of representing believable NPCs.

## 2.2 Flow

Although flow could not be able to be measured within the amount of gameplay time the testers had through the artefact connected to this study, it is still an important factor when it comes to understanding how and why people feel immersion and engagement with an activity or piece of media. To create flow within a game is one of the more challenging tasks game developers face. Flow is a type of intense concentration and feeling of deep enjoyment (Csikszentmihalyi, 2014. pp. 1-6) which involves the complete absorption in that activity. It is often characterised by one's sense of time dissipating, problems disappearing from one's mind and being at the peak of one's abilities. This absolute absorption of the player into the game is one of the goals game developers strive for, when the player enters such a flow the enjoyment they experience is maximised. However, due to the way games handle assets, both virtual and narrative, this absorption into the game world is all too often interrupted. This is especially true when it comes to NPC dialogue in RPGs<sup>4</sup>. The need to always stop and interact to get any kind of information about the world, quests, or the NPCs themselves is inherently disruptive to the experience. Significant progress has happened when it comes to building the game worlds through the asset management, cohesive virtual worlds, and integrating narratives with gameplay. In contrast, there has been little progress with NPC dialogue management. Independent uninitiated NPC dialogue has not been explored to any greater degree.

When creating flow in digital games it is important to know for whom one is developing the game for. Different players will have different "flow zones" depending on their abilities, wants and needs (Chen, 2007. pp. 1-3). To know whether one is tuning the game for hardcore-players<sup>5</sup>, more casual players<sup>6</sup> or someone in between is key for developers to be able to create flow for their intended audience. When creating flow, the player will end up losing their sense of time and temporarily letting go of their worries. To achieve this, a player needs to feel that they are confronting a challenge they have a chance of overcoming; be able to focus entirely on the task at hand; feel that the task they are working on has clear goals; receive immediate feedback from the task; have a deep and effortless involvement which temporarily removes awareness of the worries and frustrations of everyday life; feel as if they are exercising control over their actions; feel their concern for themselves disappear; and have their sense of time altered (Csikszentmihalyi, 2014. pp. 3). It is especially important to when a player loses interest in the activity and/or media. If the same requirements which dictate when a person enters flow are not met, or somehow counteracted, then the person will not enter the state of mind which keeps them engaged, rather it might become a challenge/activity that makes them see it as an activity not worth engaging in. It is imperative to determine whether or not uninitiated independent dialogues between NPCs causes disruptions to a player's sense of flow to be able to determine if this method is actively

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<sup>4</sup> Roleplaying Games

<sup>5</sup> Players who enjoy a more steep and demanding challenge.

<sup>6</sup> Players who enjoy a more relaxing and less demanding challenge.

helping the game gain player interest or deters any interest the player otherwise might have had.

## 2.3 Believable Worlds

Where articles on the subject are concerned there is a larger variation of focus when it comes to NPC believability and creating believable worlds. The importance of dialogue cannot be understated and realising how to deliver information in an effective as well as enjoyable manner is important (Slabinski, 2013). Game dialogue is seen foremost as a means of conveying to the player where the next objective can be found and what they should be doing (Farokhmanesh, 2014). While it may be true that a substantial amount of game dialogue is skipped by players to be able to get to the next bit of in-game “action” faster, this does not diminish the role that dialogue plays in building the world and narrative. In some aspects one can say that to create more believable game worlds the player needs to feel as an intruder, someone disrupting what might be considered the natural<sup>7</sup> way the world they find themselves in (Chmielarz, 2014). One aspect of that would then be dialogue between NPC characters not reliant on the player, but rather overheard and subsequently “intruded upon” by the player.

Game asset repetition is also a factor we need to bring into light at this point. That graphical assets, NPC character models and gameplay loops repeat themselves are commonplace within the game medium. It is also a common occurrence within the RPG genre that dialogue repeats itself, either within specific dialogue loops with a character or by having several characters give similar/identical information. This is often a matter of cost, either monetary or time, which causes studios to try and reuse as much assets as they can to keep those costs to a minimum and create a viable product within the budget available which has caused this to be a prevalent and to a degree accepted practice when creating games which players accept as a norm. Even though this method of working has a tendency to create recognition to the point where player suspension of disbelief may falter (Greuter & Nash, 2014).

## 2.4 Character Design

When it comes to character design it matters little how interesting and complex the creator makes the character’s backstory and personality if that character does not act in a consistent and believable manner in the context of the game world as well as their thus far actions. It makes little to no sense to have a law-abiding character suddenly try to steal from merchants simply because it is an interesting bit of gameplay or the player feels like it. A law-abiding character like that would only act in such a manner if there was some kind of extreme duress, such as a loved one being held hostage (Klug & Lebowitz, 2011. pp. 88-94). Without internal consistency among characters it stands to reason that the immersion players might enjoy from the game becomes frailer and is more easily lost. It takes little to establish a character

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<sup>7</sup> Natural in the context of that simulated game world, i.e. the player character never arrives in the world so the in-game characters would solve the issues themselves one way or another.

and for players to be able to tell if something is reasonable within that character's established framework or not. NPCs may act outside that set framework only due to explicit circumstances which prompts the uncharacteristic action or else the player will notice the discrepancy.

When creating characters there are a few metrics we can use to evaluate their level of believability according to Lee & Heeter (2012, pp. 4-7). These are appearance, personality, goals, emotions and social relations. When viewing a character, a person can quickly make assumptions based on the character's appearance. According to Lee & Heeter it is not enough to reveal demographic descriptors such as age, sex, weight, socioeconomic status and so forth. It is important to suggest other believability descriptors such as emotion and personality, e.g. a straight laced CEO who just outmanoeuvred a competitor and feels smug about it might wear an immaculate suit and wear a smirk to convey the aforementioned personality and emotion. Lee & Heeter also argues that characters have a clearly conveyed consistent personality which makes them distinct from other NPCs increases their believability. Goals tie into the already mentioned aspects, not only is it important to note what goals the character holds, but what goal the developers have for the NPC, as it is important to make these align. It would be strange for a tutorial NPC that is meant to teach the player about combat mechanics in a Viking themed game to be small, skinny, carry a book and use futuristic weapons. A better example of the tutorial NPC, to have it align with the set goals, would be a heavily muscled, rugged, leather and fur-clothed veteran fighter with a braided beard. The latter example would most likely be viewed as more believable by a player due to the setting. Making sure that a character has believable emotions is not limited to a character possessing one set of emotions, rather that would make a character flat and lessen their believability. Instead a character needs to exhibit justifiable emotions based on the current context and their inner processes which is influenced by their natural temperament, their physical state, their goals, their personal history and what has transpired in the world around them. Lastly, it is important that the NPC's social relationships are viewed as believable as well. It is important that it is believable that the NPC that the player is interacting with would do so and that they act within the range of believability given the situation, history and social status that the character's share. For example, it could be considered strange if the player character could get an audience with a mighty country's king if the player character is an unknown peasant starting their heroic journey. However, that encounter with the king might be considered more believable if the player character had happened upon one of the king's aides being attacked by bandits and then proceeds to save the life of the aide who in turn facilitates an audience with the king. How that audience would turn out should then depend on the character traits discussed in this section if one would want the encounter to be more believable.

## 2.5 RPG NPC Management

Many RPGs use the *Baldur's Gate* (1998) approach to dialogue. It is completely player focused. Whether it is *Final Fantasy VII* (1997) or *The Elder Scrolls: Skyrim* (2011) we see dialogue dependent on the player and their subsequent actions. This paradigm is mainly seen in western RPGs due to the player centric approach, where the player is the harbinger of change in the game world (Tychsen, 2006, p.80). Dialogue does not happen unless it is part of a cutscene, the player progressed the story, or the player interacts with an NPC directly. What makes these worlds with their fantastical lore and detailed world building flatter is the lacklustre nature of the NPC lives and their static player dependent dialogues (Brusk, 2008,



p.219). Some games have tried to integrate a little bit of uninitiated NPC dialogue, *Dragon Age: Origins* (2009), *The Legend of Zelda: Breath of The Wild* (2017) and *Mass Effect 2* (2010) are three examples. In the *Dragon Age: Origins* (2009), one's companions can at fixed points start up a conversational piece between one another depending on their relationship, each character's relationship to the player and the surrounding area creating dynamic and interesting conversational pieces which add to the characters and the world. *Legend of Zelda: Breath of the Wild* (2017) the player can overhear a conversation between two NPCs, if interacted with they will call the player an eavesdropper and stop the conversation. To be able to listen in the player must walk away and hide behind a wall or other obstructive game asset and listen in as they reinitiate the conversation. In *Mass Effect 2* (2010) the player is at certain points in the game able to overhear conversations which loop and listening in can give the player interesting pieces of information about the worlds, the various alien races or what is happening in a NPC's life at the time.

The RPG genre is heavily focused on its world building and narrative which is apparent in games such as the *Dragon Age Series* (2009-2014), *The Witcher Series* (2007-2015), *Fallout: New Vegas* (2010), *Divinity: Original Sin* (2014) and the *Icewind Dale Series* (2000-2014). A large part of the world building is presented to the player through NPC dialogues and various quests within the games. An example of this is if the player wants to know what is going on in Flotsam, a town in *The Witcher 2: Assassin of Kings* (2011), they can get a general understanding by simply following the main quest objectives. However, if the player wants a deeper understanding of the town then they need to speak to merchants, prostitutes, farmers, hunters, drunks, scribes, and all other manner of people within and just outside of Flotsam's borders to get a more comprehensive view. In the game the player needs to initiate all these conversations to get any kind of information about the town and the situation, to some degree barks<sup>8</sup> are used to try and entice the player to start conversations. But the amount of information delivered by barks is limited and often gives little to nothing to the world building or narrative itself. Independent uninitiated conversations do hold the potential to give larger snippets of information surrounding the world and NPCs as well as pique player interest in the NPCs conversational topic.

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<sup>8</sup> A one-line bit of dialogued "barked" by an NPC.

### 3 Problem

The problem which this study focuses on is the credibility of NPCs which also to some degree ties in with creating believable worlds within game development. Due to the strong focus on player control, random events in games have been limited unless that particular game genre focuses on a certain amount of randomness, e.g. “rogue-likes”<sup>9</sup>. But in narrative driven, character focused game genres as RPGs the number of random occurrences and dialogue is almost non-existent. This study poses that an effective way to create believability in an effective manner is through random uninitiated NPC dialogues without any player input. As such, the question this study is posing is: How does independent uninitiated conversations between various NPCs in the players vicinity affect the player’s interest in the game world?

Something that is often brought up within game development is player control<sup>10</sup> and believability. When it comes to NPCs and player control this tends to mean that the player has some kind of direct control and/or impact upon the NPCs, whether this is through dialogue or combat the basic premise remain the same; the player needs to be able to exert some kind of control in the situation to be able to achieve flow and degrees of immersion. Believability in concert with NPCs tends to mean that the developers use as believable language as possible in such a way that the player can suspend their disbelief, that the NPC reacts to actions and/or prompts in reasonable fashion and comes to the point of the dialogue in as timely fashion as possible. Neither of these allow for dialogue to occur without the direct input of the player. Barks are the notable exception to this, but as it is a kind of one liner for the player’s benefit rather than a dialogue between two NPCs it falls outside of this study.

The focus on uninitiated NPC dialogue spawned due to the fact that it is so very rare within games and especially RPGs where that kind of dialogue could fit so very well. It is unclear why this kind of dialogue is not used within games as it holds the potential to be very cost effective in comparison to other methods which have yielded little but ridicule from various player bases. An example of a not very cost-effective way to make NPCs seem more believable is in *Watch Dogs 2* (2016) where they are supposed to react to the player’s various actions within the world, which rather than being something that helped with the player immersion caused players to lose it and instead find ridiculous ways to make the NPCs react.

#### 3.1 Method

This study is based on the previous research which touches upon this study’s intended topic of independent uninitiated NPC dialogue, the result of the prototype tests as well as its subsequent feedback. As can be seen in section two of this paper, most previous research touches upon natural language research, systems to create databases to handle complex situations within games and creating overall believable game states. This leaves the topic of independent uninitiated NPC dialogue largely unexplored territory as this paper is written.

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<sup>9</sup> Games that include some or all of the following examples: random generated; levels, loot, abilities, enemies.

<sup>10</sup> What players can and cannot do. What players can and cannot affect within the game.

### 3.2 Artefact

The artefact consists of two primary parts; the first uses wholly independent uninitiated NPC dialogue; the second has uninitiated NPC dialogue which the player needs to interact with, thus making it player dependent dialogue even if it is uninitiated. This means that during the first part the testers may miss the dialogue or parts of it and in the latter part they cannot proceed with the game without clicking through the dialogue. The artefact was made with *Game Maker MV* (2015) a development tool focused on helping developers create turn-based RPG games. The first part of the game takes place in a small town with a minimum of eight NPCs and a small quest to be completed. The player is able to initiate conversations with any of the NPCs and there is be uninitiated dialogues between various characters in the area as the player moves through it. However, after hearing the dialogue the player can act upon these dialogues and the information gained from them when talking to the appropriate NPC. These uninitiated conversations are to the player random in when they are prompted. The second part is in a small city with a minimum of eight NPCs and a small quest to be completed. While the player traverses the area, they can happen upon uninitiated conversations which need player input to move forward. These uninitiated conversations in the have scripted timings. Each part of the artefact should be on average ten minutes long if the players limit themselves to the quests.

### 3.3 Evaluation method

There was both lab tests and remote testing of the prototype. For the lab tests six participants were recruited to test the artefact and participate in a qualitative post-test interview after their observed testing. This qualitative interview was based around the questionnaire created for the testing of the artefact, allowing for a semi-structured interview of the tester. This is meant to supplement all qualitative data gathered through the remote tests and too counteract the possibility of false reporting or overly skewed self-reporting. For the remote tests, five people were recruited to complete the testing over the internet, besides that the structure remained the same. If there was more time to complete this study, there would be several more testing periods, allowing for new variations of the artefact after each test and larger test groups to make sure arbitrary variance would not skew the results.

The main parameters which were judged are; how much the testers felt that the uninitiated independent dialogue disturbed their play session during the various sessions; if the dialogue felt satisfying; did they read the dialogue; did they feel any interest in the world; did they feel any interest in the narrative; did they lose interest in the world/narrative, if so, when. Apart from the player's self-reporting, observation from the lab tests helped determine any and all of these factors from an observer perspective. From this base interest, disruption to game-flow, satisfaction and experience of the game world the tester felt was measured for each part of the prototype.

## 4 Implementation

The artefact is created in *RPG Maker MV* (2015) and is a very basic adventure game in two major parts with identical gameplay but in different areas with different characters. Both parts of the artefact give the player in control of a pair of characters who banter with each other and other characters within the game. In the first half the player is tasked with finding the town mage<sup>11</sup> to seal up the magical barrier which keeps the village safe. In the second half the player is in a small city where they are tasked with finding their sister. In the latter half of the artefact, there is no spontaneous independent NPC dialogue, rather, all dialogue is dependent on player response to move forward. Testers complete both halves of the artefact during the test.

### 4.1 Progression

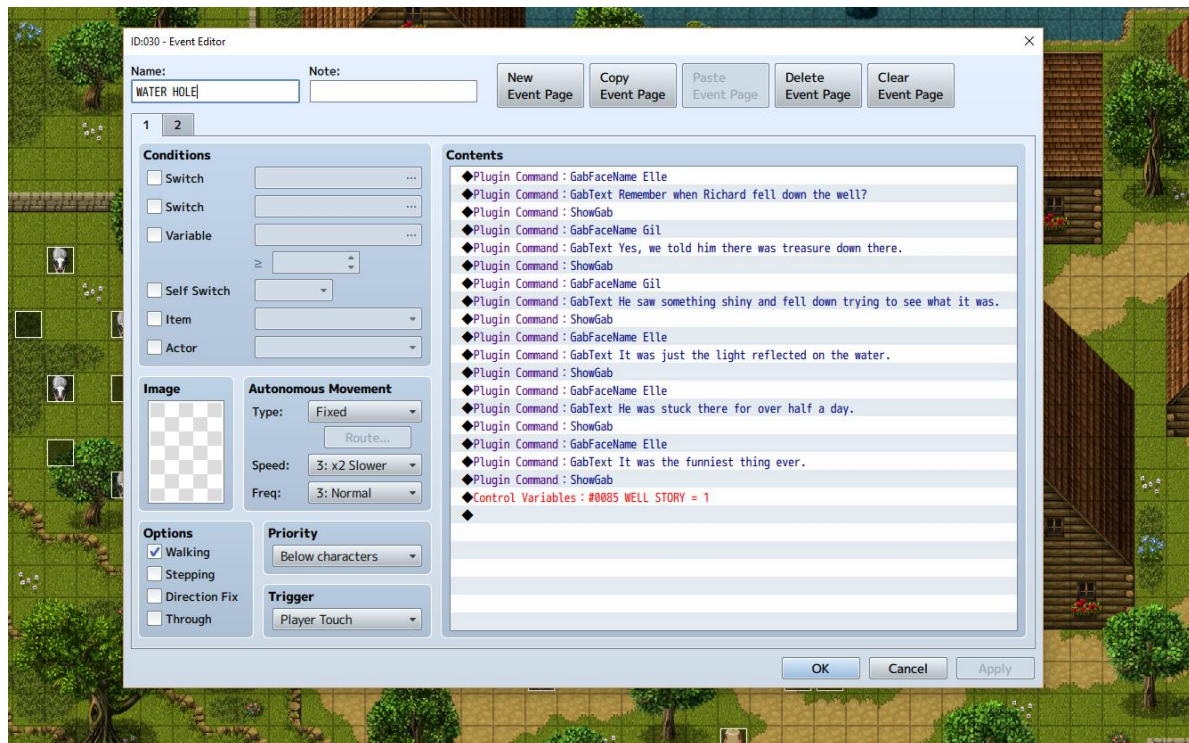
#### 4.1.1 Game engine

The choice of creating the artefact within *RPG Maker MV* (2015) was strongly influenced by the fact that the basic functions which were needed already existed within the engine, thus allowing focus to be put into finding and/or creating the system for independent uninitiated NPC dialogue within the engine.

The artefact itself did not deviate in any notable degree from the original plan during the process of creation. There was an issue with getting the independent NPC dialogue to function as intended within the game engine. At the start, there was an attempt by the researcher to modify the code and write scripts to create the desired effect. However, this was unsuccessful and through further research surrounding the modification community surrounding the engine a modification which suited the study was found. A modification created by a person going by the internet handle “Yanfly” had created what they called the *Gab Window* (2015) which allows for separate dialogue boxes from the engine’s built in function. This allowed for using easy to access script commands which allow for dialogue control when it comes to timing, attaching pictures, cutting them short or giving them priority as well as other functions.

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<sup>11</sup> A magic user.



Picture 1. Script from the first part of the artefact showing the gab script commands.

#### 4.1.2 Genre/Plot structure

The two parts of the artefact have an identical basic plot structure. This was important so that even though the setting and narrative differ slightly, the underlying gameplay and story structure remain the same thus trying to eliminate any errant or difficult to analyse data from having two different plot structures in the artefact.

It was important to create a basic structure for the narrative before beginning to build the artefact. After debate and thought the five basic elements needed to create a complete story are, for the purposes of this study; setting, protagonist, obstacle, tool and overcoming the obstacle with the tool. The protagonist is the player character and the rest of the characters are “supporting cast” to allow for independent NPC dialogue to occur. The narrative points used here are extracted from the hero’s journey (Schell, 2014, pp. 308-309) after being condensed to their essential basics to create a functioning narrative. The obstacle in both parts of the artefact is finding a way or reason to go through the door and find their objective. The tool in the first part of the artefact is one piece of information then an item which allows for transportation through the door, in the second part it is two pieces of information that lead the player down the correct path. And overcoming the obstacle with the tool in the first part is going to the door with the item so they can achieve their goal and in the second part the player overcomes the obstacle by forcing down the correct door when they are in possession of the relevant information.

The genre and setting were chosen for the game due to the classical nature of 2D RPGs spanning from the *Super Nintendo Entertainment System* (1990) such as *Final Fantasy IV* (1991) bringing with it some preconceptions when it comes to dialogue within the genre. Making use of the genre and fantasy setting allows for the use of the testers preconceived

perception of the classical genre and familiar setting making the process of world building easier as the base concept is most likely already familiar to the tester. Other genres would have worked as well, whether it be science fiction or steampunk, but since fantasy is easy to identify and requires less unique assets, it was chosen for the game.

The first part of the artefact plays out as follow; The player starts the game and after their first step a young woman runs into the screen and exclaims that bad things are coming through a weakened barrier; the player character takes it upon himself to fetch the mage and the woman locks herself in a house. Trying to enter the mage's home causes them to be teleported a few metres away and triggers a new set of conversations and reactions from the characters in the town. After this, the player needs to find the town gossip, talk to her to get the information they need, find the person the town gossip speaks of and were then be able to teleport directly to the mage by interacting with the door to his house. A last cutscene began with the mage and afterwards the player was be forwarded to the next part of the artefact. During most of these conversations independent NPC dialogue occurred, most often by the companion character of the player-controlled character, allowing for levity, character development and small hints at times.

In more compressed form the first part's plot can be summarised as follows;

- Introduction
- Obstacle is introduced
- Information is gathered
- Key interaction is made
- Obstacle is overcome



*Picture 2. Area 1 of Part 1 of the artefact.*

In the second part of the artefact the player-character who walks out of the house is confronted by the player character's mother who is worried for his sister and asks the player character to find her. The player can then explore the part of the city open to them until they enter the open door to a twin house and hears some strange sounds in the other part. Seeing that the door to the other part of the twin house is locked, they then hear from a character who has returned to the city that they heard the player character's gang of thugs he used to hang out with were looking for him. After talking to the information broker, learning that the



thugs are squatting in part of the twin house the player can return there, kick in the door and retrieve their sister, returning to their mother and then the game ends. In this part of the game there are no independent uninitiated NPC dialogues, rather every piece of dialogue which appears must be interacted with by the player for the game state to move forward.

For the second part of the artefact, the plot in compressed terms is as follows;

- Introduction
- Obstacle is introduced
- Information is gathered
- Key interaction is made
- Obstacle is overcome



*Picture 3. Second part of the artefact, outside of the twin house.*

#### **4.1.3 Dialogue**

The dialogue in the game is meant to be as natural as possible given the context the characters find themselves in, with much the same goal as Brusk et.al. (2007) in their study. There was a deliberate choice to make the great majority of the independent NPC dialogue to be spoken by the player character's companion. The choice was made to create a more streamlined approach to the game overall. Rather than have several different strings pull at the player's attention, it was decided to have them focused on finishing the game rather than to see if the dialogue could make them explore the rest of the game world. The companion characters are not strictly necessary from a narrative aspect or gameplay aspect as they do not fulfil any imperative function. Rather they act as outlets for social behaviour in the game, often coming with comments and quips that can be argued would be uttered by certain personality types in similar situations, often trying to be part of what is happening though they are largely ignored by the parties active in the conversations or actions happening around them. Within the prototype a conscious effort was made to try to convey believable characters in a short time span. Giving NPCs strong personality that is reflected through a small amount of dialogue Lee & Heeter (2012) to try and convey believability to the player. This is especially true with characters that know one another better, they avoid mincing

words or hiding their opinions of people, instead they have a blunt way of conveying information.

In the style of Allbeck and Mooney (2014), a reputation was set in place in the game world to make every interaction more realistic. In the first part of the game, in the small town, each character is aware of one another and local gossip is used to further the game state. Using the premise that all characters know each other to differing degrees makes sense in a small town, thus all the NPCs can hold pertinent opinions to the player's objective, such as the grouchy elderly man who wants nothing to do with the mage and therefore would not want to help the player find him, we have a more believable environment where characters have a larger shared knowledge base. In the second half of the game, the small city is a lot bigger and there is not as much of a natural tightknit community to make use of. Therefore, the player character's backstory involves being part of a small gang, leading to rumours and hearsay, also any kind of criminal gang creates a complicated and tightknit social structure where each member inherently becomes dependent on the group for their own and the group's survival and ability to prosper. Using that element, it was possible to replicate the rumour aspect of the small town in the comparatively larger city.

#### 4.1.4 Game Design

The setting in the game is visual, for the purposes of this study all that was needed was a virtual physical space for the characters and events to take place. The choice of visual aesthetic was very deliberate in that it harkens to predecessors within the game genre, such as *Final Fantasy IV* (1991) and newer titles such as *Bravely Default* (2012) which share visual similarities in their design despite the progress of graphics within games during that time period. The visuals lean on this graphical style of earlier games to create a sense of recognition. As the focus of the study is not the visuals of the game, they were made to look somewhat generic when compared to several other 2D RPG games.



Picture 4. The starting town of *Bravely Default*.





*Picture 5. In the castle of Final Fantasy IV.*

The design choice to have the main characters have an accompanying character was to easier facilitate natural banter and allow for independent NPC dialogue in a controlled manner. Most of the other NPCs are there to help facilitate the dialogue and trigger non-obtrusive interjections from the companion character during dialogue.

It was important to make sure it was clear what the player should do at most times throughout the game as there is no focus in this study concerning how players find information within the game, but the focus is around the NPC dialogue which is out of the player's control and their experience in that regard.

## **4.2 Pilot Study**

Two pilot studies were completed to make sure that the desired results could be gained from the chosen method described in this paper.

The first study was conducted at the researcher's home, making use of an acquaintance to test the method of study. The test subject was given the basic instructions for the game control layout and an approximation of how long it would take to play and answer questions, about 20 to 30 minutes. The test subject was then allowed to play during observation. During the playtest, the participant was allowed to ask questions, and did so once, and that was to make sure that the second part of the artefact had begun. The test subject completed both parts without any difficulty and then participated in the short interview. The interview centred around the following base questions; What were your thoughts concerning the dialogue? What were your thoughts about the game world? What were your thoughts on the narrative? What were your thoughts concerning the characters? The follow up questions centred around why the participant felt these various things and if he could describe how. These questions were answered in a satisfactory manner and often more than one question was answered at a time by the participant expanding upon the original question posed.

The second pilot study was nearly identical with the distinct difference that the tester was asked to say anything he was thinking concerning the game, gameplay and decisions out loud while testing the artefact (Patton, 2014, p.416). From this there was instant improvement from the previous pilot study as any impressions the tester had was immediately spoken and thusly noted down by the researcher rather than having the test subject forget their thoughts and impressions before the interview part of the study began. This shed light on several of the questions that would be asked during the interview before the interview began. This allowed for more inquisitive questions, relating back to the earlier comments made by the test subject allowing them to reflect and expound on their experience. A more nuanced interview which allowed for call-backs to interesting and pertinent comments made during the playthrough was allowed to flourish due to this. There were a couple of times during this playthrough that the tester became quiet and needed to be reminded to say anything they were thinking in conjunction with the game aloud. A possible risk with this method was that it may skew the questions answered after the playthrough enough to make the interviews unnaturally asymmetrical which was taken into account.

## 5 Evaluation

### 5.1 The Study

The study was conducted with eleven participants, six in a controlled lab environment and five through a remote environment. This decision was made to allow for a broader selection of participants in the study. Participant age ranges spanned between seventeen years of age and forty-one. Five of the participants were female and six were male.

Each session started off with a quick summary of what would happen. This was represented as the following.

- Quick introduction, establishing genre experience and restating that the process would be recorded.
- Information regarding game controls and how the stream of consciousness, which refers to Patton's (2014, p.416) method, is supposed to work and that the testing session will be recorded.
- Informed that the prototype has two parts.
- Finishing off with an interview connecting back to the experience.

The introduction consisted of exchanging names and determining to what extent they had experience within the RPG genre and afterwards video games in general. For the purpose of clarity, this paper will use ten or more games within the genre to be considered extensive, five to nine titles to be considered moderate, one to four titles to be narrow and zero titles to be considered no experience. Out of the participants two had extensive experience, three had moderate experience, five had narrow experience and one had no experience with the genre. When it came to video games in general the participants self-reported as having a lot of experience (six participants), a moderate amount of experience (three participants) and little experience (two participants). The participants' general experience with video games was deemed of secondary interest and was therefore not quantified in the same manner as the genre specific information gathered.

Participants were informed that the movement could be conducted with the arrow keys on a keyboard and that the interaction key is set to Z. They were told that they would need to other inputs or in game actions to be able to complete the prototype. The participants were then asked to endeavour to verbally communicate all thoughts pertaining to their experience with the prototype. They were informed that the prototype has two distinct parts and that it would be evident during the playthrough when it switches over to the second part. It was also emphasized that the prototype is not finished until they have returned to the start screen.

When the participants played through the prototype, all but one needed prodding to keep voicing their thoughts at least once as it was easy for participants to get too focused and stop speaking. Throughout the first part of the prototype there were a few common reactions. The first was surprise when they noted the independent NPC dialogue being carried out for the first time as the dialogue box for that dialogue is on the top of the screen rather than the bottom of the screen. A few of the participants felt as if they might have missed something of importance but most accepted it and kept an active eye out for more of the perceived spontaneous dialogue. Several of the participants voiced concern over not being certain of whom to speak to or what to do to forward the game progress after about ten minutes of

gameplay. The spontaneous dialogue was openly appreciated by most as a fun addition which drew them in more by a majority and several of them actively searched to see if they could trigger more such dialogue throughout the prototype. Most of the participants commented that they thought this kind of dialogue would suit voiced games better than text-based games. Two participants found the main character's sidekick NPC to be annoying throughout the first part of the prototype.

The second part of the prototype was completed at a much faster rate by all participants, on average it took them half the time to finish it. This was commented on by several of the participants, following up that they recognised the pattern allowing them to clear this part faster. Most of the participants made comments when they found the trigger which would allow them to find the main character's sister in the general sense of accomplishment. There were less comments during this part of the prototype overall from the participants. This is something which will be reflected upon in the analysis part of this section of the paper.

During the interview portion of the testing several interesting insights came into light. One person found the uninitiated independent NPC dialogue in the first part annoying; this was a participant with narrow genre experience. Two participants, one of narrow genre experience and one of moderate experience, found it to neither detract nor enhance the experience. The rest of the participants had positive feedback concerning the independent uninitiated NPC dialogue within the first part of the prototype. When it came to the second part of the prototype none of the participants reacted to the uninitiated NPC dialogue as they found it to be close to their normal experience with the genre or video game experience overall. The dialogue as a whole had a positive response from the participants, and none claimed to have lost interest in the game world throughout the experience. All participants reported reading all the dialogue, with a few adding on that they did not know if they missed any spontaneous independent NPC dialogue in the beginning of the first part. Seven of the participants voiced varying levels of concern as they were uncertain of whether or not they had missed some of the spontaneous independent uninitiated dialogue. A peripheral comment that was lifted by several of the participants was that the text speed felt slow, this was something that had not come up during the pilot study but more than half of the test participants commented on.

## 5.2 Analysis

From the limited number of testers who participated in this study spontaneous NPC dialogue does not impede on the player's experience and in fact seems to enhance it. One thing that was evident after the testing had taken place was that having experienced the basic structure of the gameplay and plot it made the participants play through the second half at an accelerated speed as they recognised the patterns. This might have skewed the participants to have a favourable opinion of the part of the game where they spent the most time. Thus, even though a majority of the participants had more positive comments concerning the first part of the prototype it cannot be definitively said that had we swapped the order in which the participants interacted with the prototype that they would have felt the same.

The novelty of the spontaneous independent NPC dialogue had on the participants seemed to pique their interest as they actively looked for more such dialogue throughout the prototype. One such comment from a participant during the interview went as follows "I didn't want to miss any of the [random] dialogue, which was difficult because it could

happen at the same time as other [standard] dialogue.”<sup>12</sup> There was also a noticeable shift among the participants after the first encounter with the spontaneous independent NPC dialogue, they would glance towards the top part of the screen where such dialogue was situated. When the dialogue popped up unexpectedly most participants reported enjoyment where the small bit of banter and world building between characters was concerned. One such comment was as follows “I liked how that character that followed along with me commented on things. It almost felt as how you speak about things when you do things together.”<sup>13</sup> This comment from the participant helped clarify the importance of how one portrays believable NPCs within games. As mentioned in the background section of this paper in conjunction with Lee & Heeter’s (2012) research, creating characters with personalities that feel unique add to the believability of the NPC. The actions of the character commenting on things throughout the artefact evidently did not clash with the participant’s view of how the NPC would act, seemingly adding to the feeling of consistency.

It is worthy of note that the lack of spontaneous independent NPC dialogue in the second part of the prototype, from the participants’ self-reporting, did not detract from the interest they felt while playing the second part of the prototype. One comment from a participant highlighted this quite thoroughly during the interview part of the study “[I] liked the entire thing, it was fun to play... Kept my eyes open for more of that [spontaneous] dialogue but [it] was exciting, wanted to know what happened to his [missing] sister.”<sup>14</sup>

There were a couple of noteworthy moments when several of the participants lost some sense of flow or immersion as they were taken out of the moment (Csikszentimihalyi, 2014). Each person who struggled to solve the sequence of events needed to trigger the unlocking of dialogue with the barmaid NPC in the first part of the prototype which allows them to enter the mage NPC’s house was brought out of their immersion due to frustration at one point or another. A few comments from different participants that highlighted this were “But what am I supposed to do now?”,<sup>15</sup> “How can no one know when this bastard mage is!”<sup>16</sup> and “[I] must have missed something. But I’ve already spoken with everyone and can’t go anywhere else.”<sup>17</sup> The aforementioned participant comments were uttered during the stream of consciousness (Patton, 2014, p.416) while they were playing through the artefact. This break from immersion was each time clearly lost until either an unsuspected bit of uninitiated independent NPC dialogue popped up to pique their interest or until the participant found the next chronological step in the game sequence allowing them to move forward.

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<sup>12</sup> Translated from Swedish. Original quote “Jag ville inte missa något av dialogen, vilket var svårt då den kunde komma samtidigt som den andra dialogen.”

<sup>13</sup> Translated from Swedish. Original quote “Jag gillade hur den där karaktären som följde med mig kommenterade på saker. Det kändes nästan som hur man pratar om saker när man gör grejer tillsammans.”

<sup>14</sup> Translated from Swedish. Original quote “Gillade hela grejen, det var kul att spela... Höll ju ögonen öppna för mer av den där dialogen men var spännande, ville veta vad som hände med hans syster.”

<sup>15</sup> Translated from Swedish. Original quote “Men vad ska jag göra nu?”

<sup>16</sup> Translated from Swedish. Original quote “Hur kan ingen veta vart den här jävla trollkarlen är någonstans!”

<sup>17</sup> Translated from Swedish. Original quote “Måste ha missat något. Men jag har ju redan pratat med alla och kan inte gå någon annanstans.”

### 5.3 Conclusions

From the participant feedback and observations made during the testing period it would seem that for a majority of the participants the spontaneous independent NPC dialogue does not negatively impact their immersion and flow (Csikszentmihalyi, 2014. pp. 1-6) during the playthrough. If anything, it seems that it helped immerse several participants further and made them more attentive during the playthrough. This enhanced immersion could be noted during the playthrough of the artefact as several of the participants seemingly became unaware of the flow of time while playing through the artefact. This loss of awareness of the passage of time is best exemplified through one of the answers a participant gave to the question, *“How long would you say it took to play through the prototype?”* The answer given by the participant was “Maybe ten or fifteen minutes,”<sup>18</sup> while they had spent 37 minutes playing through the artefact. It is difficult to say whether any further immersion was due to the novelty they felt at how the dialogue was represented or whether this would be a viable option even when the freshness of the mechanic has worn off. However, it is clear that the mechanic was received in an overall positive manner by the study’s participants. A few examples of comments directly tied to the spontaneous independent NPC dialogue would be “[I] liked how there could be comments made whenever. They were fun.”<sup>19</sup>, “It was fun how she who accompanied you commented on the dialogue you were in sometimes”<sup>20</sup> and “It was a bit like the companion characters from Dragon Age when she [the companion NPC] spoke [randomly and independently], [I] liked it. [There] could have been more of that.”<sup>21</sup>

One possible flaw in a longer experience than the prototype offered the participants in the study of spontaneous independent NPC dialogue might turn out to be a prolonged sense of tension or fear that one might miss out on something interesting or important to the overall game, story or world building. However, this state might be preferable over flat and lacklustre NPCs with little to no feeling of life of their own that detract from the overall world building (Brusk, 2008, p.219). While spontaneous independent NPC dialogue might cause dissonance in certain players when they are introduced to dialogue that exists solely to try to make the game world and characters therein more believable rather than, what is the norm, as a conduit to point players to their next objective (Farokhmanesh, 2014). This possible flaw is an extrapolation from the participants who felt unease at the thought they might have missed something due to the independent nature of the dialogue. However, it is quite possible that players would quickly adapt to this new way of conferring story or world building and thus rendering this possible flaw naught. Neither of these possible outcomes can be concluded without further study on this specific point and thus lies outside the scope of this paper.

The positive results from the spontaneous independent NPC part of the prototype need to be viewed with a critical eye for a couple of reasons. Firstly, the study’s participation size is quite limited and cannot make claim to a quantitative result. Secondly, due to the oversight in the prototype creation, by not swapping the two parts around and handing that over to a

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<sup>18</sup> Translated from Swedish. Original quote “Kanske tio eller femton minuter.”

<sup>19</sup> Translated from Swedish. Original quote “Gillade hur det kunde komma kommentarer lite närsom. De var roliga.”

<sup>20</sup> Translated from Swedish. Original quote “Det var kul hur hon som följde med en kommenterade på dialogen man hade ibland.”

<sup>21</sup> Translated from Swedish. Original quote “Det var lite som companion characters från Dragon Age när hon pratade, gillade det. Kunde ha fått vara ännu mer sådant.”

control-group to ascertain results are not skewed by order of introduction and other such factors. With those limitations in mind one can view the results in a critical, but fair manner.

## 6 Concluding Remarks

### 6.1 Summary

This paper has been trying to delve into the impact of spontaneous independent NPC dialogue in RPG games on players. As this avenue of study is a new branch within dialogue management that has not been investigated in any great depth, as such we looked at adjacent research to ground this paper within. Several other studies are clear in their view that believable dialogue, preferable natural language systems, is preferred over the heavily scripted and often repeated dialogue (Brusk, 2008; Brusk et.al. 2007; Adolphs et.al. 2010) that is prevalent in the commercial RPG genre. This study agrees with the premise that believable dialogue is preferable over what is often described as stilted dialogue but believe that there is, at the very least, a stopgap between the current state of video game dialogue and natural language implementation in commercial video games that can help the believability of NPC dialogue and world building. A large part of believability is internal consistency among the world's rules as well as character's actions and motivations being in synch with one another (Klug & Lebowitz, 2011. pp. 88-94). One way to convey these characteristics where NPCs are concerned might be to use spontaneous independent NPC dialogue to inform the players of the NPCs internal characteristics as the players explore the game world.

One common issue in creating believable world building within a game is the repetition of game assets (Greuter & Nash, 2014). To avoid that trap within the study conducted in conjunction with this paper it was decided to have the prototype be shorter where limited resources would not be reused in such a way that it would take away the player's suspension of disbelief unnecessarily. To make the best use of the limited time for this project, the prototype was created using *Game Maker MV* (2015) which already had a majority of the tools needed to create the experience aimed for in this study, what tools the development tool lacked was supplemented with community modifications.

Two pilot studies were conducted, in the first one the participant got basic instructions, played through the prototype while the researcher made notes of behaviour throughout the playthrough and then answered a series of questions in a follow-up interview. This method was considered lacking and a new method was tested. In the second pilot study the participant was given basic instructions and then asked to voice their inner thoughts concerning prototype in a stream of consciousness manner (Patton, 2014, p.416), then the follow-up interview was had where it was easier to return to and explore what the participant had experienced during the testing.

The method mentioned above was then used with eleven participants to evaluate the effect of spontaneous independent NPC dialogue in the artefact. Most participants felt that the dialogue method did not detract from the experience and several of them voiced positive reactions in conjunction with it. A few of the participants voiced certain amounts of anxiety when it came to missing dialogue as it is independent of the player's actions. This is a possible negative effect of the method proposed in this paper.

## 6.2 Discussion

It is not possible to draw any kind of decisive conclusions from a small study such as this, all one can do is to look at the results and draw limited conclusions directly connected to these participants' experience. While natural language dialogue models (Brusk, 2008; Brusk et.al. 2007) may be the natural evolution of game dialogue, until such a time that natural language models are a cost effective way to handle dialogue, there should be a place to further explore and maybe even implement spontaneous independent NPC dialogue to help create the believability that researchers think would help elevate these experiences. It is of course imperative that further testing be done where spontaneous independent NPC dialogue is concerned if one is to further validate that it is in fact a benefit to the believability of NPCs and the world building of the experience created. Extra importance should be taken to make sure that the feeling of immersion and enjoyment of feels when immersed in flow (Csikszentmihalyi, 2014. pp. 1-6) is not disrupted as it is an integral part of the player's experience and an implicit goal in game development.

While the current paradigm of western games is a player centric approach where the player is the harbinger of change (Tychsen, 2006, p.80) is prevalent and can be argued to be an important part of the player's experience, that does not exclude the world from functioning parallel to the player's actions. This might help elevate the suspension of disbelief for the player further, especially if it is coupled with internal consistency so that NPCs do not act out of character (Klug & Lebowitz, 2011. pp. 88-94). An example of a game that tries to create such consistency among characters in relation to player action is *Dragon Age: Origins* (2009). In the game there are several companion characters who can accompany the player on their journey and depending on their temperament they will approve or disapprove of the player's actions. If those actions stray too far from what the companions approve of they will eventually leave the player and be unavailable as a companion for the remainder of the game. Unfortunately, in the example of *Dragon Age: Origins* (2009) this falls somewhat flat as a highly morally virtuous character who cannot abide by wrongdoing can be bribed into staying in the party with simple gifts that heighten their affection for the player character. This creates internal inconsistencies when a character who can abide no wrongdoings stands by a player who slaughters innocents in front of them because the player gifted the companion a medallion they kind of like, it creates an almost comical situation but one that is in defiance of the companion's established character.

It was important to the writer of this paper that each participant was aware that the tests would be recorded for accuracy and that their consent was given before they accepted to be part of the study. While it may have been of interest to keep the participant recordings and information for further review it was decided that preserving such data in a non-secure environment was ethically unsound as permission was only given to use the data for this study. As such, in accordance with GDPR<sup>22</sup>, it was important that identifying data with reference to the participants of this study was removed as consent to save it was not acquired during the process.

A conscious decision was made by the author to limit the study to qualitative research methods. When this process began there was an intent to use quantitative research methods to try and see an overall trend over a larger sample size. However, the benefits of qualitative research methods were noted, and using both methods together were considered to try and

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<sup>22</sup> General Data Protection Regulation.



cover the weaknesses of the other. In the end it was noted that this would most likely end with neither method being utilised to its full potential. As such when both options were weighed against one another it was decided that the qualitative research method would be used as it gives more flexibility and allows for more nuanced information to be gained from a smaller sample size, even if the results are more inherently tied to individuals rather than trends.

### **6.3 Future Work**

Future work might expand upon the study of spontaneous independent NPC dialogue in RPGs by utilising similar tests with larger test groups and more rigorous control-groups to make certain that any results gleaned can be viewed as viable. Supplementing qualitative results with a robust qualitative study would lend further credence to any trends that future studies may yield. However, when qualitative methods are used it might be of interest to continue using Patton's (2014, p.416) method of having the participant voice thoughts and feelings while performing the task set before them in the study to take note of participant thoughts that might otherwise go unexplored.

It might be of interest for future studies to have a wider set of prototypes that use the same basic principles to make certain that results are consistent over various types of storytelling, voiced dialogue, text based dialogues and other factors to be able to see a commonality within the results given. If a larger amount of different prototypes were to be used it might be of interest to put together a prototype that defies best narrative practices to see if spontaneous independent NPC dialogues are still seen as interesting even in a lower quality prototype. An example of what one might do is to create a prototype where characters lack consistency, e.g. moral characters perform immoral acts without any convincing reason or duress to motivate those actions (Klug & Lebowitz, 2011. pp. 88-94). Another angle one might explore is to create a prototype where the player is not the harbinger of change within the game world (Tychsen, 2006, p.80) but rather a minor player in the grand scheme of the overarching world plot and seeing if spontaneous independent NPC dialogue can convey the larger story and keep player interest while they perform more mundane tasks. Until such a time that this area of research becomes more established it is important to keep looking at the adjacent areas of study to make certain we make use of the latest research available to inform us in our studies.

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