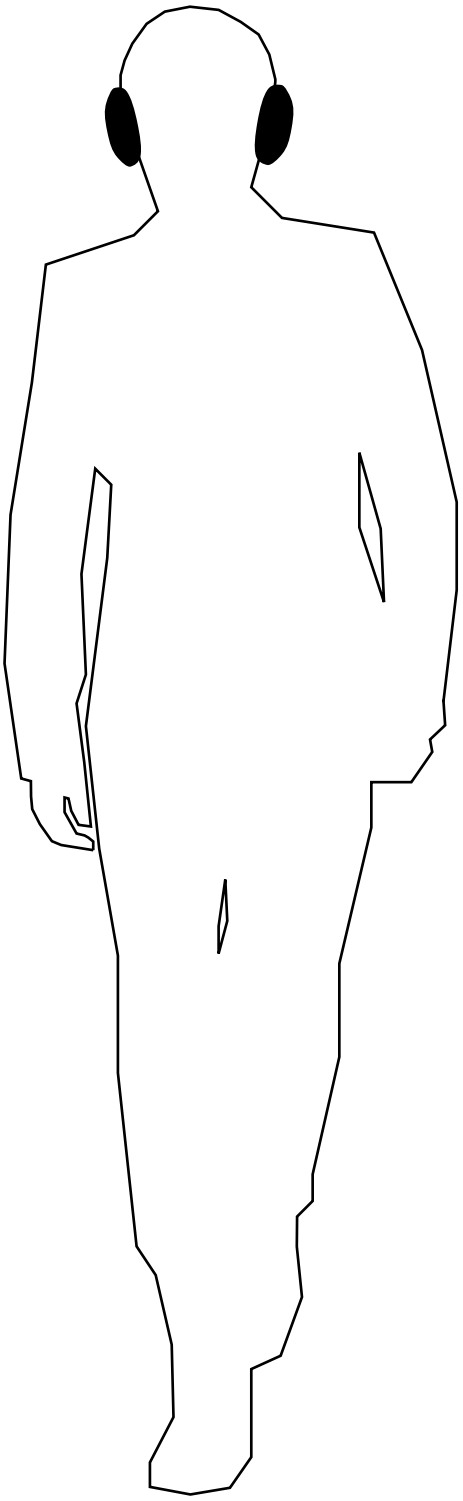
The Effect of Plot-related Walking on Narrative Presence in a Sonic Story

Thomas Dykjær Toft Miksa Medialogy 10th Semester



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Abstract:

This project set out to investigate how plot-related walking enhances narrative presence in a sonic story. This was carried out by investigating sonic storytelling and presence in relation to narrative. From this an experiment design was established according to narrative presence and in order to test the problem statement a sonic story was produced.
The test consisted of two story listening scenarios: one where participants would be walking and another where participants would remain static. The test was conducted on 20 participants through convenience sampling and their answers were given through a five step rating scale together with written elaborations.
The results supported the problem statement in the sense that they were able to show indications that plot-related walking enhanced narrative presence since the walking group generally scored higher than the static. However the results between groups were generally also very similar so it was ultimately concluded that further testing with a larger sample size would be necessary in order to properly confirm any tendencies.

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Preface

This project was made on the 10th semester of Medialogy at Aalborg University Copenhagen, autumn 2010.

Thomas Dykjær Toft Miksa

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Chapter 1

Introduction

Listening to audio content while traveling has today become very common and is easily confirmed by the many people wearing headphones if one glances around public areas and transportation. If you were to ask why a person is listening to e.g. music in these public spaces then some would likely say that it is to mask the surrounding aural environment i.e. suppressing general environmental impressions, creating a division between the real world and their own personal space.
This division could also be acknowledged as a way for a person to reclaim control over their experience of a given environment by manipulating its inherent sonic information. It is in a sense similar to what V. I. Pudovkin (1985) describes when he talks about image and sound relations in film:

> *"Always there exist two rhythms, the rhythmic course of the objective world and the tempo and rhythm with which man observes the world... The tempo of his impressions varies with the rousing and calming of his emotions, while the rhythm of the objective world he perceives continues in unchanged tempo."* [1, p 87]

It seems that people supply their own soundtrack that contextualises their visual reality according to the mood they wish to establish, which is very similar to how sound is used to tell a story in film. Sound in film is usually used to steer attention to a specific part of the

frame or to supply a context that informs the viewer about how to interpret a scene and the overall story. However, what if the story was not portrayed through frames in a film, but entirely through a soundtrack that would use the real world as a setting. A possible implication to before mentioned listening behaviour would be that instead of shutting the real world out, the soundtrack would guide a person through their surroundings, steering their attention and contextualising their environment like in a story. As you walk, the soundtrack would follow by playing on your phone or iPod and in a sense let you move through the story as it unravels in your mind and that is what this project will investigate. The initiating problem is then:

> *"How does walking in accordance to a story told through sound affect the listener's story experience?"*

The next question would then be how is a story told through sound? That and how it can be related to walking will be the focus of the next chapter.

Chapter 2

Pre-analysis

A story told through sound, be it speech or non-speech, is something that most people can relate to through past experiences. Examples could be a parent telling a bedtime story, a piece of music or a radio drama. Out of these examples radio drama is the type that will be used to describe what in this project is referred to as a sonic story.
This chapter will, besides a description of sonic storytelling, provide an overview of different examples of sonic narrative. Narrative should in this context be regarded as the container through which the story is told. The examples will afterwards be discussed in the delimitation and be condensed into the problem statement.
In order to describe and analyse the different examples we first need to understand some of the sonic storytelling techniques that they utilise. This chapter will therefore begin with a description of the different techniques developed through radio dramas.

2.1 Sonic Storytelling

A radio drama can be described as a fictional soundscape and the following section will describe how this can be broken into components that dynamically interact with each other and together communicate a story, but to begin with we need to get an idea of how a sonic story is constructed in the imagination of the listener.

Theater of the Mind

Telling a story through sound requires that the listener engages more actively in the process of decoding it as opposed to e.g. a film where the storyline is fleshed out visually and sonically, leaving it less up the to imagination of the viewer to fill in any gaps. In a radio drama the listener relies on his own past experiences and imagination in order to make up the imagery and time gaps that frame the sonic content. Gary Ferrington (1993) describes this process as a:

> *"... movie" created within the "theater of the mind."* [2]

This means that it can be very subjective how the story will look and be emotionally constructed since the listener in a sense will be directing their own movie based on their own experiences.

Ferrington's model can be seen in figure 2.1 and it illustrates how e.g. a listener or a reader, depending on the medium utilised to send the message, uses past experiences together with a stimulus to make sense of the story and in the process making it more rich by invoking previous stimulus experiences from other modalities.

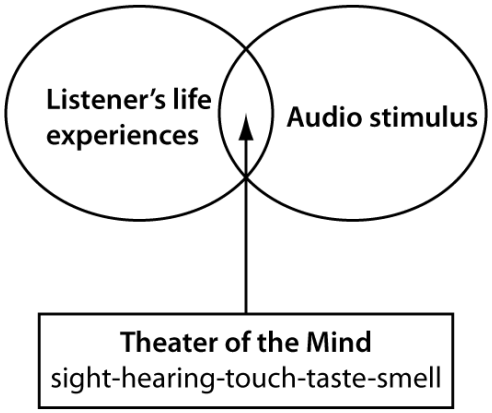


Figure 2.1: *Ferrington's Theater of the Mind model. [2, p 3]*

An example of this could be the following description:

> *It's difficult to make out what's ahead on the dark street as you walk on the gritty and uneven sidewalk. The dim street lights emanate a steady and sharp buzz, far away a dog is barking erratically and gradually it drowns into the distant traffic of the city. Suddenly you hear a metal object falling over followed by two people starting a violent argument that is amplified as it reverberates along the walls in a nearby ally on your right. You get spooked and instinctively turn left to cross the street and as you step over the curve you accidentally walk onto a broken glass bottle.*

The example should stimulate the reader's imagination that frames the described environment populating it with sights, sounds and maybe even smells that is referenced from past experiences [2, p 3]. Depending on how much the reader's imagination was engaged it would be able to fill in blanks that were not described such as other people walking on the street, cars parked along the curve or if it was a foggy night. Details that were not described, and could be more elaborately defined, would be the grittiness of the sidewalk, the size and weight of the metal object falling over and whether the broken glass came from a beer or a wine bottle. The amount of detail in the environment and inhabiting objects will likely correspond to its importance in the story.

2.1.1 Sound design

The soundscape of a radio drama can be divided into five main components: voice, atmosphere, sound effects, music and silence. Each component can function as primary carriers of story information, meaning that they each have inert characteristics that can be used to describe or emphasise certain aspects of a story. Generally the components work together and depending on what the story requires each can move between the foreground and background. This balancing act together with deciding what sounds to include are what defines the sound design process. The process is easily compared to that of a conductor in a symphony orchestra, constantly emphasising, attenuating, muting or soloing either

groups or a specific instrument according to the progression of a piece. [3, pp 97-98]
Just as a conductor needs a written composition before it can be orchestrated, a radio drama needs a script that defines the story before it can be sonified.
Sound scripting has three common narrative formats:

Informational presents things in a direct, informing manner and in a language that makes minimal use of colouring adjectives, similar to the style of a news reader or an instructor.

Personal presents things in a conversational manner, acknowledging the listener, involving them and steers attention to matters and ideas in a less objective manner than the informational.

Dramatic presents things in a dramatic or poetic manner using descriptive adjectives, metaphors and describing things in a coloured language that should provide the listener with a rich sensory response.

A story does not have to adhere to one specific format and depending on the narrative the formats are usually used in conjunction with each other, utilising their individual techniques in response to how the listener should decode various elements of a story. [2]

Voice

The voice be it a narrator or character is usually the component that is in the foreground clearly defined above of the others. The voice can establish context and create the flow that propels a story.
Words can cary ambiguity and in a blind medium such as sound it becomes increasingly important to have a rigid control of this since there are no factors besides the story context to confirm what is being expressed. Even though the dialogue is scripted it is important that it is acted out and performed in a way that provides a context to what is happening [2]. For example if two characters have a normal conversation about climbing a long and steep stair case, which they currently are standing at the bottom of, then it is important,

in case the actual climbing process is not sonified, that the characters as they have reached the top, actually sound physically strained puffing and heaving. The sonified physical strain provides two important story cues: first is that the stair case was in fact very long and very steep, the second is that the characters have progressed in the story line. So a character provides context by acting accordingly to the situation he or she is in. Dialogue should therefor sound natural, providing an immediacy to what is happening. Characters should also have a distinguishable tonal value that makes it easier to differentiate between them and provide personal cues that defines them and their role in the story. [2]

Atmosphere

The Atmosphere (atmos) component is commonly used to provide different cues regarding the location and context in a story. It is through the atmos that a listener can get a sense of the place and space in the story. It also provides a mood and it can be considered the component, which frames and colours the other four.

If you consider the atmos as a container then its possible to describe it through Ferrington's definition of a soundscape. The atmos can then be viewed as groups of sound arranged in layers:

Foreground contains the sounds that get prompt attention such as e.g. a speaker announcement on a train station.

Contextual is in close vicinity to the foreground providing contextual cues such as whether a situation is calm or threatening.

Background contains the ambient sounds such as e.g. distant traffic. [2]

In radio drama the first layer is typically used as "signposting" which is a technique used to quickly establish the location at the beginning of a scene [4]. Continuing with the train station example the second layer could then be the sound of many people walking fast and stressfully, establishing the location as a tense and busy place. The third layer could be

distant trains taking of at the platforms.

Sound Effects

Sound effects (sfx) denotes the different sounds that are related to the characters or specific story elements that require special emphasis. Sfx are also the different objects that inhabit the different layers of the atmos component. Just as the voice component, sfx can carry ambiguity, not nessecarily in terms of what they mean symbolically, but more in terms of recognisability. Once a sound event becomes decontextualised i.e. detached from its visual reference, the event procures a plasticity that opens many design possibilities, but also makes it difficult to distinguish. The possibility of this confusion can be eliminated by using types of sound that are either very iconic or well-known. For example if a character has to be poisoned through a piece of fruit then the act will be more recognisable if it happens by eating a crunchy apple instead of a soft orange, which could be confused with a mandarin or a tomato.

Music

Music can be used to frame the boundaries of a story like the beginning and end. Music in the beginning of a story can be used to establish a mood that will put the listener in a specific state of mind. Using music in the end has the same emotive purpose, but it is also used to mark the end of a story. Music is also used to bridge scenes together, create tension, emphasise actions and more generally cue the listener in terms of how to interpret a scene. [2, p 4]

Similar to the voice narrator, music can exist both within the story world and outside. This sound source relation is also known as “diegetic” or “nondiegetic”. An example of diegetic music could be a piece playing out on the radio in a character’s kitchen and nondiegetic is only what is heard by the listener. [5, p 278]

Silence

Silence should be understood as the momentary absence of either one or more of the four components and depending on the context can be used to signify different things. It can create tension, indicating that something is wrong or about to happen. It can be used to indicate jumps in story time similar to that of a cut in a film or let the listener imagine a completion of actions [2]. E.g. if you have a dinner scene and a character asks for the salt and subsequently replies with a thank you, then the response implies that someone passed it along.

Another important factor when producing sound material is the format in which it will be distributed. Digital media content can seamlessly be experienced on either a computer or most modern mobile devices and the following section presents two possibilities, which are relevant to consider regarding production and presentation.

Delivery and Output

There are two different ways to output the sound material, it can be delivered either as stereo or binaural. It depends on how the material is intended to be distributed. Stereo is of course the most common and depending on how the material is mixed it is the format which translates best to different output systems, which e.g. might only be capable of outputting in mono.

Binaural offers superior spatial awareness and acuity over stereo it however differs in terms of production and output requirements. The perceived difference between binaural and stereo is that binaural positions the soundscape around the listener whereas the latter centre positions it inside of the head. [2, p 6]

In order to capture binaural material, equipment such as e.g. a dummy head is required. The dummy head has microphones planted in molds that replicate the human Pinnae as seen in figure 2.2.

The filtering process, which the head and pinnae performs is described as “Head Related Transfer Functions” that provide spatial depth cues that we use to locate sound [7, p 41].

Figure 2.2: *Neumann KU 100 binaural microphone dummy head. [6]*

This makes it possible to design a realistic sounding soundscape with binaural equipment, however the material requires that the left and right channel material is outputted separately to each ear, therefor requiring the use of headphones. This is due to "cross-talk" where sound material from each channel bleeds into both ears of the listener when outputted through speakers. [7, p 176]

Now that we have gotten an understanding of the difference soundscape components and how they can be used we are able to analyse and discuss some examples of sonic narration.

2.2 Different Forms of Sonic Narration

The following section will present three different methods that has been used to tell a sonic story. The content is very diverse and the impressions, which they provide the listener, is mediated through different ways of engagement in terms to how the story is plotted together. The first examples uses speech to narrate the story, the second is non-speech only utilising sfxs, and the thirds story content requires that the listener experiences real-world locations while listening to the story. All the examples can be found and listened to in the *Sonic Narratives* folder on the project cd.

2.2.1 Radio Drama Shorts

This section will present and discuss three short radio dramas that are part of a series called *Shiver* produced by DR's P1 [8] as seen in figure 2.3. The series have been chosen since the analysis of short format radio dramas will match the scope of the story material designed for testing the problem statement formulated at the end of this chapter.
The following three shorts have been selected due to how they utilised the different soundscape components previously described in section 2.1.1 and how they highlight different narrative aspects, which become relevant in the forthcoming analysis chapter.

Figure 2.3: *Streamer for DR's radio drama series Shiver. [8]*

The Arm

The first drama is titled *The Arm*. It is about two girlfriends who end up in a fatal triangle relationship with an fiancé that returns from the dead. The drama is told without a narrator and the story events are acted out by the character dialogue and the other soundscape components. The characters dialogue are presented as conversational and generally omits any description of their actions. The context is established by the nature of their conversation, the location atmos and music cues. Their actions are expressed through discreet and distinct sfx. The story unfolds through three locations: a beach, inside a car, and inside a house that each has a distinguishable atmos. The beach atmos is made out of wind and waves crashing. The car is located near the beach and once they sit inside, the beach atmos become muffled and the only discernible component left is the wind, which establishes an eerie mood around the characters conversation. The house interiour is sonified by a similar muffled wind that rages outside the windows. In the beginning of each location sfxs are used as signposts making the context more explicit. At the beach it is sea gulls crying, in the car it is car door closing and rustling car keys, and in the house it is a wine bottle being opened and wine being poured into glasses.

Jumps in time are expressed through music cues that also bridges the location changes. Eerie music cues also fade in and out whenever the conversations touches upon the subject of the vanished fiancé establishing a tension. The drama is headed and tailed by eerie music that establishes a mood and a somber voice that presents the title.

The Arm uses very minimal means to tell a story that as a consequence is easy to follow. The drama is told over a span of approximately eight minutes and story time spans roughly three hours. The story content seems appropriate for the time format it had to work within and it maintains transparency all the way through by keeping it simple. This is done by keeping the amount of locations low and establishing them well. The time jumps are linear and is by the listener not perceived as seeming very long. There are three characters and their personas and interrelations are quickly understood and elaborated upon. Without the use of a narrator the scenes get an immediacy that provides the listener an experience of being a silent spectator “inside” the scene alongside the characters.

The Arm is a good example of how a short sonic story can be told in a compelling and easy to follow manner by keeping it simple.

The Gold Coin

The Gold Coin is about a poor girl who has lost here mother and struggles to make money while dealing with an alcoholic father. One night the girl finds a gold coin and later when she shows it to her father, he goes mad, believing she acquired it through dishonest means, and kills her.

The drama uses a mixture between a narrator and character dialogue to drive the narrative. The narrator uses a dramatic language to describe the surroundings establishing a mood and context through the girl's circumstances. The narrator passages creates a flow functioning as a string that connects the different character driven scenes together. The character scenes dialogue are conversational and naturally presented omitting any action descriptions.

The soundscape is generally very rich and the atmos component presents detailed ambiances inhabited by traffic and people. Each location is presented as dense and vibrant sonic environments.

Music alongside the narration bridges the location changes and short cues are also used to emphasise important plot cues like when the girl finds the gold coin on the street.

The character actions are defined through the sfx component and they work to support the details highlighted by the narrator.

The Gold Coin uses a narrator to drive the story and to deliver poetic and mood inducing descriptions of the surroundings. This provides the listener with a rich impression of the spatial characteristics of the environment. This structure furthermore supports the listener's connection to the characters since they are placed both "within" the scenes and "outside" as the narrator provides a deeper understanding of their circumstances.

The Gold Coin is a good example of how the mixture between narrator and character driven scenes can tell a compelling story that is transparent. In addition it shows that a varied use of the different soundscape components can bring the listener along and induce rich impressions of the general space in which the characters inhabit.

I am not here

I am no here is about an interrogator that tries to solve a crime, where a girl was murdered, by questioning her boyfriend and one of his friends. They have become suspects due to some incriminating information that the girl had written down in her diary up to the time of her death.

The story is mainly driven through the character dialog in the interrogation room and narration of excerpts from the diary. The story events and character actions are mainly described through the character dialogue and narration while the other components are scarcely used.

The story is told in a very high pace and it never slows down at any point. This has a detrimental effect on the listeners experience and the overall transparency of the narrative.

The drama employs many time jumps and they are expressed through different components. Whenever the story jumps to the diary excerpts it is cued by a sfx of a page being turned or ripped. When narrating from the diary, time jumps are expressed by stating the specific date where the events occurred. During the interrogations, jumps in time are cued by a plastic click, presumably a recorder, and a steel door closing. One could argue that the sfxs match the context of the scenes, but the pattern is not quickly recognised and requires a precedence before getting interpreted as a time jump cue.

The great variety of locations are only really described through the dialogue and not supported by the atmos component. Generally the atmos component is made out of a eerie drone that establishes a somber mood, however the atmos does not vary and stays the same through out the story. This as a consequence make the different event descriptions seem rather flat leaving no distinguishable traits or memorial events in the mind of the listener, which subsequently ends up having a difficult time separating the scenes.

The storyline relies on multiple time lines, the one expressed in the diary, the flashbacks and the present in the interrogation room. Due to the narrative's fast pacing and the lack of location distinguishability, the timeline construction becomes too complex resulting in the listener loosing track of the story time and is left without any "hooks" to get back in the loop.
The process in which the characters ultimately solves the crime relies on switching letters in a sentence around, i.e. describing information that relies on intuitive visual problem solving. This process would have made sense in a visual medium, but it becomes more difficult to imagine and interpret when its presented through sound exclusively.
The story pace is very high all the way through and it would likely have been easier to follow if the amount of content had been adjusted to the short format.

I am not here is a good example of a sonic story that attempts to describe too many events and details within the allotted time span. Though the crime story is compelling it seems that its structure together with a lack of variation in the soundscape and story pacing have initially been conceptualised on what would work in an audiovisual or visual medium as opposed to sound exclusively.

2.2.2 *The Revenge* a non-speech radio drama

The Revenge (1978) is a non-speech BBC radio drama created by Andrew Sachs. It can be regarded as an experiment of how to tell a story without the use of words. As established earlier the voice and words are usually the component that drives a sonic story and establishes a context. Is is only in the introduction of the drama when a narrator presents it as:

"The Revenge... a play for radio without words..."

that words are used and the title is what frames the context from which the subsequent string of events are understood.

The drama is about a man (The Man) that escapes from a prison and the listener then follows him en route to a house where he murders a man and afterwards make a phone call. The entire sequence of events are told using all components except voice and music. The narrative therefor requires that the listener has to pay more attention to the specific sounds and the order in which they are presented compared to e.g. the dramas in the previous section, where events typically are "padded" with voice descriptions. Since there are no words to e.g. cue about past or present tense, each sound event is important, since the past informs about the present and inversely. This decoding process can be described through two modes of listening; *"causal"* and *"semantic"*. Michel Chion describes causal listening as a mode where the listener has to establish what type of object is emitting the sound and where is it located. Semantic listening is when the listener has to apply meaning, understanding a coded signal and listening to it in a context [9, pp 471, 489]. An example of causal listening is identifying traits of a character through its actions like gender, age, health, and general persona. In the case of semantic listening it leverages a context that helps minimise ambiguity when e.g. establishing the traits and intentions of the character. These modes of listening can be described separately for the sake of discussion, but they are in practice applied in parallel and function as the narrative decoding process.

As an example there is the sequence when the Man arrives at the victims house, but just misses him driving away in his car. The Man grunts annoyingly and walks across some pebble rocks and steps onto a hard solid surface and stops. The next event is some creaky metal hinge fiddling that turns into rapid knocks on a wooden door. The door knock contextualises the previous events and informs the listener that the character walked across the victims driveway, reached his stone doorstep, fiddled with the door knocker and knocked on his front door to check if anybody was in the house.

The events leading up to the door knock had some ambiguity in them, since they did not really inform about what is happening and the intentions of the character. The narrative can therefor be viewed as a long sequence comprised of many small sound events that usually terminate with an iconic sound that contexutalises the previous and informs the listener about story progression.

An example is when the Man has broken into the victims house. The Man is walking on a non carpeted surface and opens and closes some drawers he rummages through. Next is some subtle clonks and then he chews on some biscuits while moaning delightfully. The clonks occur again and warps a bit, like a vibrating metal lid. He takes a couple of steps and opens a refrigerator with glass bottles in the door, grabs a canned beverage, opens it and drinks.
In this sequence the iconic sounds are the biscuits, the refrigerator door, and opening the canned beverage. He could e.g. have eaten a parma ham sandwich and grabbed a halfway consumed bottle of merlot of the kitchen counter. Though that could have been just as probable and provided personal cues about the victim, their sounds would not have been easy to recognise and established where the Man was located without ambiguity.
The sequence of sound events provide a thorough description of where the Man is located and what he is currently doing in the house. He looks through some drawers, eats something crunchy established as biscuits due to the Man's subsequent action of putting the lid back on the biscuit tin can. He has a fizzy beverage indicated by the released gas sound when opening the can he grabbed from the refrigerator indicated by the glass clonks. This ultimately informs the listener that the Man is in the kitchen and via his reactions while consuming the food and beverage he is exhausted from everything leading up this point in the story.

The Revenge manages to provide a fairly detailed storyline without the use of words instead it uses what can be described as chain structures terminated by iconic sounds in order to establish a context. The drama is a good example of how important context and elimination of ambiguity is when telling a story through sound exclusively.
Its structure also reveals factors that can be difficult to express in detail through the non-speech form. Long timelines and jumps in time can be difficult to express succinctly without e.g. the use of words that can explain complex matters in a short and precise manner using past and present tense. In addition to this the amount of detail and specificity, e.g. defining a smell and its effect on a character, is leveraged over on the listeners

interpretation instead of the author.
These factors are of course not relevant for all stories, but it should at least be considered when deciding on a form in which to tell it.

This was the last of the radio drama examples and the following will present forms that require the listener to get out of the chair and move about.

2.2.3 Listening and Walking

The following examples diverge a bit from the previous since their content require that a person actively moves through locations while listening in order to fully engage in the story. Since the person has to actively engage in more than just listening in order to decode the narrative it seems, in this context, more appropriate to refer to the listener as a participant.

Soundwalks

A soundwalk is according to Hildegaard Westerkamp:

> *"...any excursion whose main purpose is listening to the environment."* [10]

The purpose of a soundwalk is in a sense a way of creating your own narrative through the process of opening your ears and becoming aware of your own surroundings. Soundwalks can be done on your own or as a group of people. The location can be arbitrary and comes down to interest, however it becomes easier and more pleasant if the chosen surroundings are not greatly polluted by mechanical or industrialised sounds, which tend to be loud and masks other less intense i.e natural soundscape components out. When walking it is possible to zone in on specific components and also to experience change. When moving from one location to another the soundscape gradually changes and through this it becomes easier to distinguish characteristics of the previous place once they disappear. This mentally also provides personal indicators of how the soundscape affected you, whether it was interesting and pleasant or quite the opposites.
As the following example shows, soundwalks can be mapped and designed so it can be

experienced by others who wish to explore a location through its sonic characteristics. In an article from *Sound Heritage* (2001) Westerkamp outlines a soundwalk through Queen Elizabeth Park in Vancouver as seen in figure 2.4 showing a map of the numbered locations. [10]

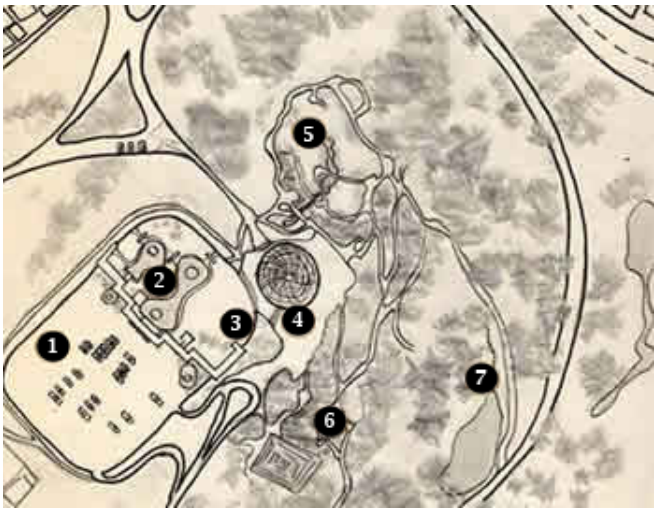


Figure 2.4: *Queen Elizabeth Park soundwalk map. [10]*

In the article she provides directions on where to go and what to listen for at specific locations. She also asks the participant to sonically explore a given surrounding by performing certain acts and then listen to the results. An example of this is:

> *"6) The main acoustic feature of the Quarry Gardens is its echo. Discover it and find out where and how it is produced. Which of your sounds produce the clearest echo? Play with all possibilities of producing an echo and enjoying the acoustic interplay between you and your environment."* [10]

The soundwalk concept is simple in itself, however for some it can require practice to explore a place by listening instead of relying on vision. The act itself opens up for a participant to experience its surroundings at a greater depth and eventually realise that many locations even mundane can be perceived in a different way once exploring it through the rich components of its soundscape.

Another type of soundwalk, carrying a resembling name, are audiowalks that utilise digital content to present story information about a specified environment. In this case the participant is not required to make their own stories since the chronology and mix of sound components are controlled and designed according to a specified experience along a given route.

Audiowalks

The Canadian multimedia artist Janet Cardiff who together with her husband George Bures Miller has made different installations using sound, video and narrative constructions to create experiences that raises questions about representations of reality. Some of the most prominent works are her audiowalks where participants follow Cardiff's narration around different locations.

The participant is in the beginning equipped with a CD player and headphones and then asked to position themselves at a specific spot and press play. The listener is then guided by Cardiff's voice, telling them e.g. to turn left, sit down or to focus attention to specific objects or events in the scenery. In the latter participants attention can be steered to information residing both in the real world environment or the diegetic soundscape.

Cardiff structures here audiowalk using many layers of sound, establishing a soundscape that contains different narrative elements such as mood cues for a given location or plot points. The different sound components have been recorded from the actual location where the listener is walking around and Cardiff utilises this location specific connection to create a transparent border between the real and diegetic world. She records all the material in binaural creating a 3D sphere around the listener making it sound like the diegetic events are occurring live in the real world environment [11, p 15]. Figure 2.5 shows Cardiff using a dummy head to record material for an audiowalk.

Figure 2.5: *Cardiff recording binaural sound material. [12]*

One audiowalk example are *Her Long Black Hair* (2004) that was made using Central Park in New York as location for the story [12]. The walk also included numbered photographs, which the listener had to study at specific spots along the route as seen in figure 2.6.

Figure 2.6: *Person experiencing the Her Long Black Hair audiowalk. [12]*

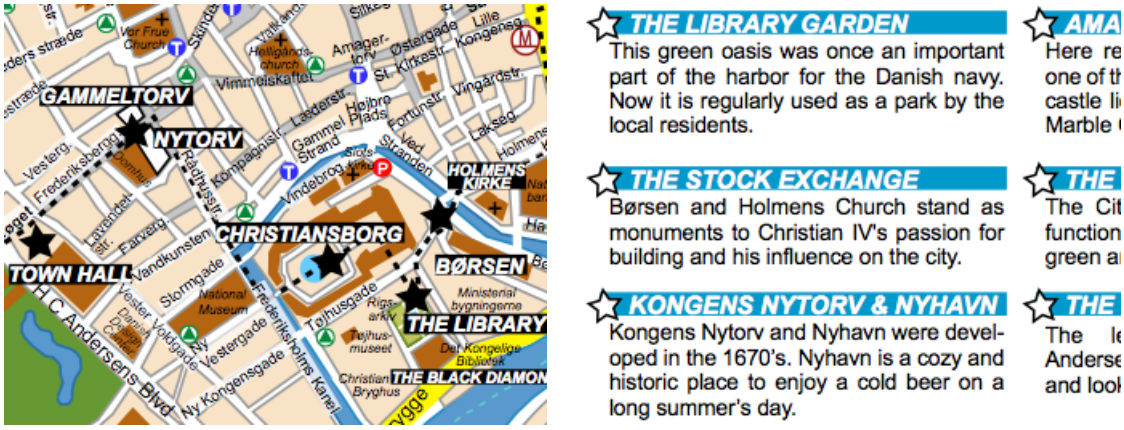
The photos show the location from another point in time and Cardiff's disembodied voice asks the participant to switch their attention between the photo and location while she describes personal and fictional experiences from both. The soundscape changes according

to the focus and this creates a feeling of moving back and forth in time as seen in Figure 2.6 where a participant is looking at a photo showing the current location during winter, which is the time where the story takes place.
This audio visual incongruence does not seem to diminish involvement or understanding of the story, to the contrary it adds temporal and contextual depth to the location in the sense that a participant is tapping into a flow of personal historical events residing in the place, providing an experience that adds an imaginary layer to their current reality.

The participant becomes part of the story, traversing it not just through a mental abstraction, but also the body, experiencing the environmental stimuli and feeling it in accordance to the context created by the story. The audiowalk makes you hyper-aware of the environment around you and the soundscapes embedded with Cardiff's voice, steers the participant's attention to various details and exploratory aspects of a given location. It gives the participant a feeling of experiencing the current reality through another person or a context that changes its perception of the surroundings and relation to it.

Audioguides

Audioguides presents another interesting form of storytelling where the participant walks around on a specified route while being guided through a recording on a mobile audio player that they carry with them. The participant is also supplied a map that provides an overview of the different locations so it is possible to know where to walk next and also function as a backup in case they get lost as seen in figure 2.7(a).
They usually consists of a voice over narrator that supplies both historical facts and traveling tips about a location as seen figure 2.7(b). An example of a company that makes these audioguides are Audiowalks that supplies the guides through their website [13]. They have different types in terms of the locations covered and amount of required walking.
The guides are supplied through a number of MP3-files, which the participant can download to their own mp3-player or phone and then go explore the sites. There is a MP3-file for each location and information is supplied through a narrator. The narrator supplies



(a) Map showing some of the covered locations. (b) List of locations.

Figure 2.7: *Excerpts from an audioguide package. [14]*

the participant with historical facts, lists important dates and describes how the location is used today. Once the description is done, the participant could do their own exploration or just walk to the next location on the map and then listen to the respective file.

The audioguide's intention is not to create a fictional story, it however allows a participant to gain factual information about different locations while actively exploring them in a more seamless manner as opposed to e.g. switching attention back and forth reading a guidebook. The soundscape is made out of the voice component exclusively and there are no sound cues supplied as the narrator speaks about different facts and situations. There is also given no indication in the content whether the locations on the walk have an overarching connection or an intended unifying experience. It could be argued that since the information supplied is of a more general historical nature than a personal story, the latter would provide a more subjective experience of a given location and as consequence supply a participant a different exploratory depth.

This marks the end of the examples and now each of their sub conclusions will be discussed in the following section that also delimits the project scope.

2.3 Problem Delimitation

Through this chapter we covered different aspects of sonic storytelling. We first got an understanding of the sound components used to sonify a story and how it can be viewed as a soundscape in constant change. It was also gathered that two of the most important expressive aspects in sonic storytelling are context and elimination of ambiguity. They are vital for decoding the story and are what keeps the listener in the loop.

We afterwards moved on to some examples of narrative. Each of the examples highlighted different aspects that seemed inherent to a chosen form. From the radio shorts it was gathered that keeping it simple in terms to storyline, soundscape density and the amount of locations and characters are a good way of maintaining story line transparency. Depending on the story line this could vary, however when it came to presenting a sonic short that had rich character and environment descriptions alongside a clear story line, the best blend was using a narrator and character dialogue since it made it possible to provide much detail in a short amount of time.

This was further evident in the story without words. The story line was clear, however the lack of words made it difficult to provide much more than surface detail in relation to the environment and character. This of course depends on the language chosen to tell the story, but still this type of narrative seemed to require more time in order for it to provide the same content richness as the other examples. This longer time format would not be feasible within the test scope of this project.

Time and the importance of keeping it simple was highlighted in the last sonic short example. The story consisted of a number of timelines that were jumped between in a rapid pace and combined with a soundscape that lacked contextual diversity, the story line quickly became convoluted and alienated the listener. What could be gathered from that example was that time jumps should not be excessively used in order to make a story line fit within a short time format.

The narratives that worked while the listener was walking was interesting since it emphasied the process of listening, becoming aware of the surroundings and your presence in it. The purpose of the soundwalks was to make a participant explore an environment through sound and in a sense discover its story through yourself. This was applied a fictional dimension in the audiowalks where the premise was the same, find the story in the environment. The audiowalks also applied an interesting temporal dynamic, where the soundwalks used the present, the audiowalks had a timeline that also exposed the past, which consequently framed the present. This creates an immersive experience where the participant is placed in a shared space between the story world and real world moving through both at the same time. The audiowalks were structured through directions that lead the participants onwards as they walked through the story line.

Cardiff's story *Her Long Black Hair* was presented in a very fragmented way as opposed to most of the radio dramas and it could be interesting to create a narrative that mixed the storytelling aspect of the two forms since they in a sense have been made for two different listening modes and environments. Radio dramas could be listened to anywhere and they only require a listener, but audiowalks are dependent on the listener's movement in a real world location from which the story revolves, making the listener's story participation more physical. What becomes interesting then is whether this has an effect on the participant's involvement in the story, does it e.g. enhance plot understanding or character actions? And considering Ferringtons's Theater of the Mind model does the audiowalk's additional modal stimuli provide stronger sensorial percepts than those of the listeners memories consequently enhancing the story experience? In continuation to these questions and considering what has been discussed so far an interesting problem statement could be formulated:

2.3.1 Problem Statement

How does plot-related walking enhance narrative presence in a sonic story?

Plot-related walking should be understood as when the participant is walking according to the directions supplied trough the story. This description also implies that the listener is walking in the real world location where the story takes place in order to create the same dual reality space as in the audiowalk.

Through this chapter we have gotten an understanding of how to tell a story through sound, covering both the components and the method in which they can be assembled to communicate with a listener, however not much has been described on how it involves the listener. It is similar to the premise of the soundwalk, where you by exploring the sonic aspects of an environment, become more aware of the general surroundings and consequently your own presence in them. That aspect constitutes the unanswered element in the problem statement described as "narrative presence" and that will be the focus of the next chapter.

Chapter 3

Analysis

After having formulated the problem statement there is one element that needs to be investigated and that is presence and its relation to narrative. This chapter will begin by defining presence in context to this project and afterwards look into its relation to narrative, which will subsequently be denoted narrative presence. The chapter will then be concluded by outlining the method from which this project will test narrative presence.

3.1 Presence

The term "presence" is somewhat ambiguous and it is easily interchanged with "immersion" depending on the definition which the author sets forth in connection to a certain field or context that induce or highlight this phenomenon which we all experience in daily life [15]. The process of "letting go" when engaging in e.g. physical exercises through sports or "being there" when reading a book is something that everybody can relate to. However it is not usually something you are aware of until after it has actually occurred, when suddenly realising that your muscles are sore after straining them beyond their limit for the past five minutes or when the surrounding dry air in a bus brimming with people re-enters your conscious reality. This means that the experiences can be difficult to describe since it in a way has to be reenacted through memory when explaining it to others, making

the testament very subjective.
Janet Murray (1997) describes immersion as:

> *"... a metaphorical term derived from the physical experience of being submerged in water. We seek the same feeling from a psychologically immersive experience that we do from a plunge in the ocean or swimming pool: the sensation of begin surrounded by a completely other reality, as different as water is from air, that takes over all our attention, our whole perceptual apparatus. We enjoy the movement out of our familiar world, the feeling of alertness that comes from being in this new place, and the delight that comes from learning to move within it. "* [16, p 98]

This definition describes immersion as a process that a person actively seeks to experience, getting transported into a different reality that could be established through e.g. a story in a book or a sonic story. This other reality is something that Mary Laure Ryan (2001) describes as the "textual world", a world that is constructed in the imagination of the person and framed by the story. The story content inhabits the textual reality through objects and characters and together their inter-relations form a world. [17, pp 90-92]
This correlates well with Ferrington's Theater of the Mind model described in section 2.1 of the pre-analysis where the theater is a metaphor for the imaginary construct that Ryan refers to as the textual world. So immersion can in this context be seen as transportation, a process in which a person experiences the parameters of the story world mediated through e.g. a sonic narrative and accept that reality to the same extent as the real world one.
Lombard and Ditton (1997) describes something very similar and even though they acknowledge that many perspectives can be applied in regards to what causes or induce presence, the central idea and effect of it is the experience of nonmediation:

> *An "Illusion of nonmediation occurs when a person fails to percieve or acknowledge the existence of a medium in his/her communication environment and responds as he/she would if the medium were not there."*[15]

So presence or immersion can also be described as a process in which the mediated is perceived as nonmediated. This aligns well with Murray and Ryan's view so in this case presence or immersion can be said to describe the same phenomenon, which is when the medium and the mediated becomes transparent and the person is transported into another reality which is accepted and perceived as real suppressing the real world surroundings.

To paraphrase the problem statement what it seeks to answer is whether walking in a story location will enhance a participant's sense of place and involvement in a story i.e. experience that they are "being there" in the story world as it unfolds. So using the term presence to denote that experience instead of immersion seems more descriptive in the context of this project.

Now that we have gotten a better understanding of what presence means in context to the problem statement we move on to presence and how it can be related to narrative.

3.2 Narrative Presence

So far the discourse on presence has been focused on trying to describe the process between a person and the medium, which in this case is sound and the mediated content is a story. For someone to experience presence they have to accept the interaction parameters of the story i.e. they have to get involved in it and this section will outline parameters describing this process. Mary-Laure Ryan describes them as spatial, temporal and emotional immersion and they represent three forms of getting involved in a story [17, p 121]. These are useful for understanding the relation between presence and narrative and in conjunction they will be used to describe narrative presence.

3.2.1 Spatial Immersion

Spatial immersion is the response to the setting and space in the textual world. The textual space is defined through distinguishable locations that become connected and it is through their various relations to each other that a coherent geography is established [17, p 123]. Images e.g. have the power to instantly transport a viewer to an elaborate and expansive setting, but with sound a listener gradually has to chart out the black space as the world expands trough elements in the soundscape or narrated environmental descriptions. In a sense sound should be considered the same way as Ryan regards language describing it as a medium of absence [17, 122].

Spatial immersion can be described through two experiences of space: the first is sense of place where you get an impression of the emotional atmosphere: the second is through a mental model where you locate yourself according to a mapped topography. [17, 123]

A good sense of place can be created through proper naming. The name should not be used to describe the characteristics of place, but rather to call attention to itself making it present in the textual geography and work through its connotations in order to become memorable and easily recognisable [17, 127-128]. Describing additional context enhancing objects in a scene can also facilitate sense of place [17, 130]. For example

> "Leaving the veranda I noticed that many birds were singing in the trees at the end of the walkway".

Even tough a scene can be described through many details it is important that they relate to each other. If the details do not connect properly it can challenge the immersive aspect since it will provide a less stable construct of the mental model. This can be exemplified by modifying the previous description to:

> "Leaving the veranda I noticed that many birds were singing in the trees at the walkway".

By removing "the end of" the relationship between veranda and walkway changes from being logically connected to disparate, since the walkway now might as well have belonged

to the non-described neighbors across the street. [17, 124-125]
It is when the landscape formed from the listeners memories blend with the textual geography, providing a rich sense of the atmosphere and topography that spatial immersion is experienced at its fullest. [17, p 122]

Spatio-temporal Immersion

Spatio-temporal immersion is a process that occurs together with spatial immersion adding a temporal dimension to the experience. It occurs when the story describes events that are temporally and spatially distant to a current location [17, 131]. This could e.g. be when a character tells a story describing the events and implicitly the setting where they take place. The story events might have happened a hundred years prior to the present where it is currently being retold. This relation is described as the "narrative window" through which the listener experiences the current story event as they happen [17, 131]. It could be regarded as a point of audition which changes perspective according to what is currently described in the story. So when the character describes the story the narrative window changes to show these events and eventually change back to the current location where the character is situated.
These shifts are marked through the point of audition and the use of past or present tense to describe the events [17, 134]. The point of audition could be from an external narrators perspective on a scene or the character inhabiting it, providing its perspective through its perceptual stimuli [17, 134]. It is when the distance between the listener's narrative window and the occurring events become zero i.e. transporting the listener into the location that spatial-temporal immersion is experienced at its fullest. [17, 131]

3.2.2 Temporal Immersion

Temporal immersion is when the listener is propelled by the desire to know what happens next in the story and eventually obtain closure. As the story progress time gradually

distills the amount of possible outcomes so whenever there is a significant plot point the story follows one branch, severing other possible branches by doing so [17, pp 140-141]. In the beginning of a story anything can happen and as the amount of possible outcomes decrease, suspense intensity increases because it eventually comes down to the terminating climatic choice between success or failure. For example when the hero has overcome many obstacles on his quest and in the last hour finally stands before the face of evil in a fight where only one will survive. [17, p 141]

Some intensity features of suspense are "dramatic tension" which is driven by the listener wishing the hero too succeed so whenever an obstacle occurs intensity increases. Another is "a structured horizon of anticipation" where the story makes it possible for the listener to foresee parts of possible outcomes, however the roads leading to it are not clear. [17, p 141]

Suspense is controlled through the way story information is presented to the listener and Ryan distinguishes four pattern types presented in decreasing order of intensity [17, pp 143-146]:

What suspense When the story presents parallel lines of events that eventually meet and the listener anticipates what will happen when it occurs.

How (Why) suspense When the listener is presented with the story's final outcome in the beginning and then has to follow the indeterminable branches leading up to it.

Who suspense Is the typical crime mystery type where the listener has to guess who the real perpetrator is by finding clues in the information that is presented in a non-chronological order.

Meta suspense When the story events are presented in an seemingly indeterminable order and suspense lies in the desire to see how the story manages to work itself and ultimately make sense.

It is when the listener, carrying the knowledge of what has happened in the past, eventually reaches a point where the number of branches are known, but which will be the terminating

one is not, that temporal immersion is experienced at its fullest. [17, p 142]

3.2.3 Emotional Immersion

Emotional immersion can be considered both a discrete and ubiquitous stimulant to the narrative presence process since the latter aspect is a factor which in part drives the two previous parameters. For example as described under temporal immersion suspense intensity derived from dramatic tension will very much be affected by a listener's investment in a character. In spatial immersion the sense of place and the provided richness of that experience is formed by the intensity and vividness of the listeners memories of a similar setting.

As a discrete process emotional immersion can relate to the empathy established between a listener and a character as in the real world where you likely will be more moved by the actions of people you know than strangers. In a story it is possible to experience a character through narratorial omniscience and internal focalisation [17, 149]. Meaning that a listener can monitor a character's actions externally as well as internally getting an insight to thoughts and the emotional mechanics that fuel them.

When a story exposes the listener to a situation, it is attached some emotional investment value when the listener mentally simulates the event. Depending on the investment intensity this can be experienced as real and pleasure can be derived from it since the listener at the same time regards it as safe due to the acknowledgement that it is only a simulation. This is e.g. why you do not run out of the movie theater screaming when being shocked by a scary film. The balancing act between real and simulation especially when the latter is momentarily forgotten is in a sense when emotional immersion is experienced at its fullest.

Through this section we have gotten an understanding of how presence in context to experiencing a story can occur through three different parameters: spatial immersion describes how a person creates the story world landscape, is able inhale the atmosphere of a setting and placing it in relation to textual geography. A subset to the previous parameter was

spatio-temporal immersion, which described how a person is able to transport to different locations both in time and space in order to experience story events and by doing so expand the textual world map.
Temporal immersion described how a person becomes involved in the story line, by being propelled through various degrees of suspense. It also provided examples of different suspense patterns showing how a listener experiences them.
Finally emotional immersion described how a person becomes emotionally involved in a story through the relationship of its characters.

Having reached a definition of narrative presence we now have a proper understanding off all the elements expressed in the problem statement. Next step is then to define how it can be tested.

3.3 Testing Narrative Presence

In conjunction with what has been described regarding presence and its relation to narrative, this section will outline how narrative presence will be tested in relation to the problem statement which read:

"How does plot-related walking enhance narrative presence in a sonic story?"

Story
To begin with a sonic story has to be produced and its story line will be designed according to the conclusions made in the delimitation discussion. One of the conclusions were to keep the amount of characters and locations low and adhering to a simple story line.
The story has to be structured around the location so the participant's walking and environmental influence will make sense in the context of the story. The story content will have to be presented through a sufficient amount of material in order to support the narrative presence questions. It also needs to contain memorable events, which the questions can

point to. In addition it will also have to be structured to fit within a short time span that is feasible to test.

Depending on the environmental noise levels of a location it is a parameter that has to be taken into consideration when choosing one, since it can introduce a risk of being too prevalent over the sonic content listened to through headphones.

Scenarios

In order to get an idea whether walking in a location has an effect on narrative presence, a baseline has to be established through a context where participants will not be walking and situated at the location. So the test has to include two scenarios: one where participants do not move around while listening to the story and one where they listen to the story while walking at a location. This also means that even though there might have to be a scenario specific version of the story, the story content has to remain identical in order for their data to be commensurable.

Questions

After each test, participants have to fill out a questionnaire containing questions that would identify whether they experienced narrative presence. They would answer according to a rating scale, providing a broader answering scope as opposed to just yes or no. The first line of questions should provide some general indication whether a participant experienced presence through listening. For example "did you pay much attention to the real world sounds as opposed to those of the fictional soundscape?". The subsequent questions would then relate to the narrative presence parameters, e.g. "could you relate to the main character's actions?".

Some of the questions should also require some written elaborations from the participants giving them an opportunity to better describe their subjective experiences of the story and by doing so provide a more nuanced picture of how to ultimately view the collected data.

Data Expectations

The three parameters of narrative presence does not have to be equally distributed in order for a story to make sense and be engaging. In relation to the participants answers it depends on how well they are able to elaborate on the different questions, since that would indicate whether they were present enough to construct and move within the different parameters of the story world.

In order for the data to support the problem statement it has to show a rating difference between the scenarios and at the same time be high enough to indicate tendencies that show whether participants experienced narrative presence and to which extent. The extent will not be solely defined through the rating scale, but will also be interpreted according to the balance between the narrative presence parameters and their answers in the written elaboration.

Now that we understand all the different elements of the problem statement, we move to the design of the sonic narrative that will be used in the test.

Chapter 4

Design

This chapter will present the story developed for the test. It will begin by outlining the test requirements and then move on to describe how the story was designed according to them and developed in relation to the chosen location where participants will walk. After that the chapter will conclude with a section describing how the storyline will be sonified.

4.1 The Story

As outlined in the previous section the story had to work within certain premises established by the test. The story content had to fit within five to ten minutes in order for it to be feasible to test. This time limit is defined by the fact that the test will use quantitive measures, the location will have logistical requirements, and human resources limited. The short format will also make it easier for participant's to remember the entire story, which is beneficial when having to answer the questionnaire.

The story is created according to the knowledge gathered from the pre-analysis, where keeping it simple would facilitate story transparency and from the analysis cater to the three narrative presence parameter's as a way to involve participants.

The following is a synopsis of the story developed for the test. It is titled *The Statement* and the full manuscript can be found in the appendix section 10.1.

> **Synopsis**
>
> A young man named Robert is walking home from a party when he unwillingly witnesses two men disposing of a dead girl's body. Robert tries to sneak away unnoticed, but the men eventually spot him and they hunt him down as he tries to make a run for it. Robert is beaten unconscious and eventually ends up in interrogation as a suspect for murdering the girl.

The story contains three characters that were all made easy to distinguish from each other: young Robert Clark the main character, Neil Smith a seasoned and cynical crime investigator, and then two homicidal men.
The story uses a crime theme since it is an easy recognizable genre where participants will quickly get the story's premise. It also provides the opportunity to describe a lot of story content outside of the told story line in a short amount of time. In other words being able to establish a quick exposition within a short time frame utilising Ryan's How (why) suspense model described in analysis section 3.2.2 and creating a dramatic moment of arrival that drops the listener into the story [18].
This is executed through the interrogation scene where the detective is able to provide an objective summary of the past events and at the same time establish the main character all in a context that make sense to the upcoming story events.

The narrative is stylistically divided into three parts. The exposition is structured as a radio drama, the middle part a blend between radio drama and audiowalk and the ending is again radio drama. The reason for doing so is that it is really important that participants understand what happened in the first and last part in order to fully understand the story. Those parts therefor use the rigid structure of a radio drama making sure that participants will grasp it all. The middle part is of course also important, but if a participant would miss some of the narration due to the fragmentary discourse they would still be able to

understand the story, however the first and last part would not make as much sense without the middle.

The first and middle part of the story are intended for the participant to develop empathy and dramatic tension for Robert making his future obstacles more suspenseful. This is executed by presenting Robert's thoughts through the middle part of the narrative establishing him as an honest everyday guy that is easy relating to. In the middle part when Robert is walking his voice works as a narrator similar to the one in the *Gold Coin* radio drama that establishes the setting through mood inducing descriptions of the surroundings. The descriptions also function as walking directions and they are described indirectly since if Robert would respond directly to the participant, he would in a sense be acknowledging them and their role as a listener potentially breaking their presence experience. It is similar to when a character looks into the camera in a film breaking the story illusion.
Since the directions are provided indirectly and Robert will be describing his whereabouts during the interrogation, the walking participant needs a clear indication of when to begin following his movements. This will be indicated by two distinguishable auditory beeps that marks the point from which the participants should begin to follow. This might break their sense of presence, however it should only be momentary. The beeps will not be included in the nonwalking scenario version since they would have no purpose.

4.1.1 The Location

Choosing a location and developing a crime story for it, is kind of a chicken and egg situation, however the location had to fit certain requirements. It had to include some obvious landmarks that could define an area in which to map a route. This relates to spatial immersion where the mental map is charted through the inter-relations off textual geographical objects. These landmarks should also be generally known since it will likely aid the nonwalking participants to imagine where the story line takes place if it e.g. is a place they have previously visited. Ryan describes this as an efficient way to create a sense

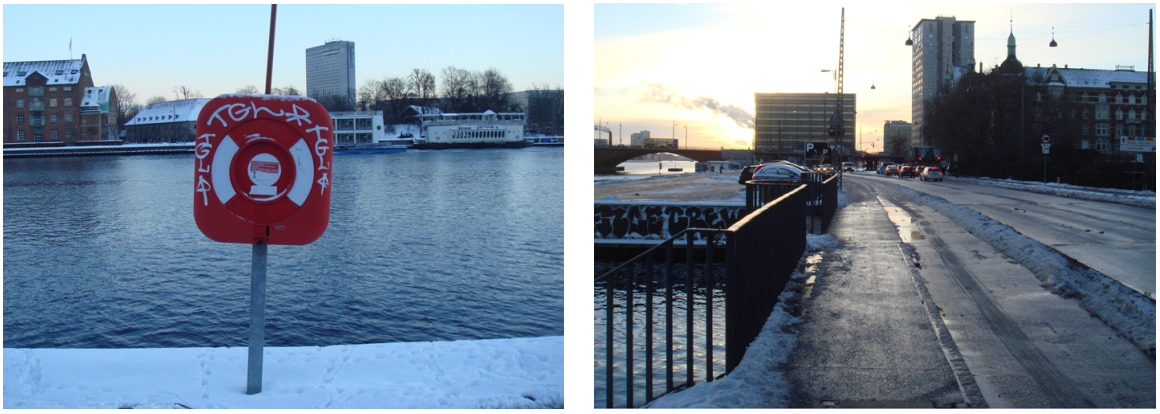
of place without using elaborate descriptions and something that can aid spatial immersion when textual imagery is based on personal experiences [17, pp 127-128]. The location also had to work well with the crime premise and lastly allow participants to roam freely on the route.

Scouting Locations

Different locations were considered: Ørestaden was interesting since it is a young part of Copenhagen providing fertile ground for developing a story around its construction. It was however dismissed since it was deemed too windy for a participant to hear sufficiently with headphones while walking around outside. The Assistens Cemetary was also considered due to its historical significants and mood inducing setting, however time options for the testing would be too constricted by the opening hours.
The Royal Library also known as the Black Diamond and the area surrounding it was chosen since it had a varied scenery with obvious landmarks such as the building itself and the two bridges Langebro and Knippelsbro as seen in figure 4.1 showing a picture taken from Langebro pointing towards the Black Diamond and Knippelsbro.

Figure 4.1: *Picture of the Black Diamond and Knippelsbro in the background.*

The area also contained a great variety of various easy recognisable objects such as a small bridge crossing, parking dispensers, and large parking signs that could function as waymarkers for the walking directions as seen in figure 4.2. The location would also support the crime theme, since the place is not generally inhabited by people at night, making the story events seem plausible in a real world context.



(a) Life ring waymarker next to the canal. (b) Small bridge crossing waymarker.

Figure 4.2: *Shows two waymarkers used on the walking route.*

Similar to the audioguide example participants could have been supplied with a map, which showed the walking route, however this would have been an unfair advantage over the participants in the nonwalking scenario. The map is regarded as an accessory not an object inherent to the location so it would have provided too significant a clue to the mental map, which the walkers should generate from the walk and story context.

The Route

The route had to make sense with the story and it had to take roughly half of the story's time to traverse, since the beginning and end parts would not require walking. Figure 4.3 shows the mapped route beginning at a large metal sculpture in front of the Black Diamond.

The route then continues across the bridge and along the side of the canal. The beginning

Figure 4.3: *Shows the mapped walking participant route.*

spot was chosen since the bridge crossing next to it would be easy to spot when initiating the walk. The route then continues towards the Langebro bridge. Along that stretch Robert will point out different waymarkers such as the train stopper, life ring, and parking dispenser. These function as confirmations that the walking participant is en route and for the nonwalking they will provide information about textual objects inhabiting the textual world, gradually charting out the textual geography. Each waymarker will be described with anecdotal or explicit mood information in order to make them memorable for the participants so they can easily follow them when they have to backtrack quickly. Another waymarker example can be seen in figure 4.4 and the following line is how Robert will describe it:

> *"The light on the parking dispenser on my left is flickering frantically, calling attention to itself in the dark."*

At the point in the story where Robert is spotted by the men, he panics and begins to run back and as the participants follow he quickly describe his route according to the previous waymarkers. The route continues across the street, into the parking lot, and terminates in

Figure 4.4: *Shows the first parking dispenser waymarker.*

the narrow street behind it.

Besides following Robert's directions the walking participants are supposed to move at roughly the same speed as him in order to stay synchronised with the different waymarker descriptions along the route. This should facilitate the experience of walking through the story line and also roughly control the test time for each participant. In order to control this dynamic participants will hear Robert's footsteps as he moves along the route and they should then adapt to it while walking.

4.2 Sonifying the Narrative

Having established the story line and developed it around the location, next step is to outline how the various story events will be sonified. Maribeth Back (1996) describes the task of the sound designer as the following:

> "The sound designer does not attempt to replicate "real" sounds; the task is rather to create a sound in the listeners's mind, the sound designer is aided by

> user expectations based upon cultural experiences as well as physical experiences." [19]

From the manuscript sonic requirement are identified by breaking the parts into sequences and from there into events. Walter Murch's (2001) "most with the least" principle is what forms the basis for selecting the different sound components to sonify the storyline [20, p 15]. Following this principles means that the soundscape should only consist of just enough sounds to make sense of a sequence and then let the participants imagination fill in the rest.

While mapping the route on location, components of its soundscape were also identified:

- Distant traffic on the bridge
- Wind
- Water squelching
- Cars passing by on the street
- Footsteps on tarmac
- Footsteps on cobbles
- Footsteps on wooden planks

It should be noted that many other sounds of course occurred, however this is what will be most prevalent in the location at the time where the story takes place. These were picked out on the basis of the many sequences and their events that make out the route. The same soundscape breakdown was done with the interrogation scene:

- Fluorescent light buzz
- Door opening and closing
- Office activity

- Footsteps on laminated floor
- Pulling chair across laminated floor
- Adjusting chair
- Plastic button push

To exemplify this break down method lets take the sequence where Robert witnesses the men moving the plastic wrapped body onto the floating shed. The discrete sound events can be described as: plastic rustling from the wrapping, footsteps on tarmac when the men move, shoe scuffs since they are walking sideways, hard footsteps on wooden planks when they initially move onto the shed porch, footsteps on wooden planks as they move into the shed. This is then compiled into a sound asset list that provides an overview of what sounds need to be acquired and that process will be described in the next chapter. The sound asset list can be viewed in appendix section 10.2.

Chapter 5

Implementation

This chapter will describe different parts of the story's sound production process beginning with the walk component and then conclude with field recording and mixing.

5.1 The Route

There were two aspects of mapping the route. First was identifying different waymarkers that could be used to make out the route and the second was making the story temporally match the length of the route and have the events sync up with the waymarkers. This was important for the walking participants since it would confirm they were en route and create the experience that they were treading in Robert's footsteps. For the nonwalking it meant that they would not experience longer periods without narration since it would be possible to spread Roberts narration evenly along the route. This was important for keeping them engaged since they would not have the same type of environmental location information to occupy them when Robert was not narrating.

The timing was mapped by walking the route and then vocally describing what Robert would be looking at and how fast he would walk between the different waymarkers. Whenever passing a waymarker it would be described if they occurred to Robert's left or right and are loud "now" was uttered whenever a waymarker would be perpendicular to Robert's

position. Through the descriptions it was then possible to extract the time information from the recording and roughly identify where Robert would be positioned on the route at a given time.

The recording was then imported into Pro Tools audio software where it would work as a guidetrack to map out the different story events using timeline markers as seen in figure 5.1.

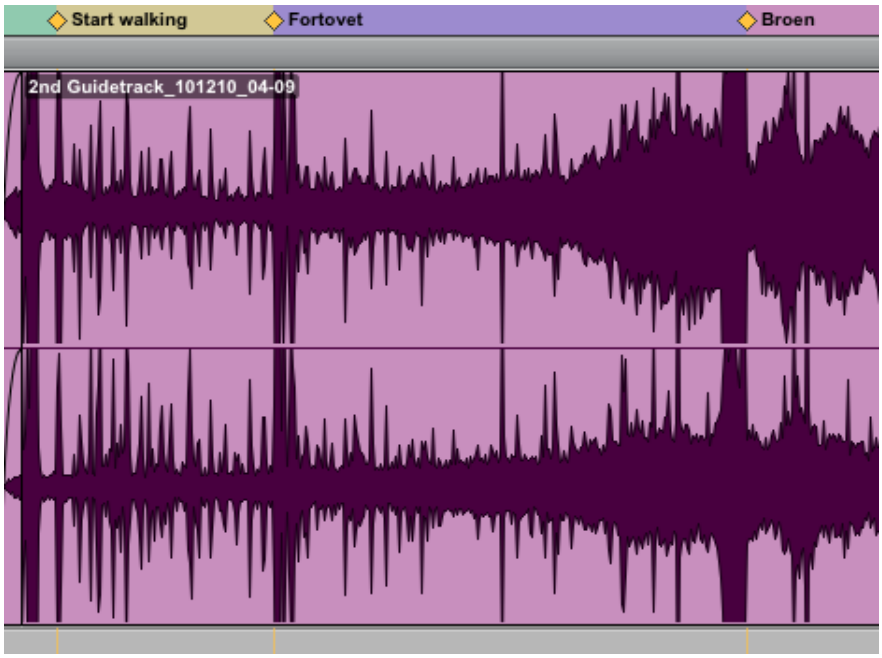


Figure 5.1: *Guidetrack recording in Pro Tools.*

The "now" word visually provided clear peaks in the recording's waveform and the timeline markers were then placed according to these. The markers would then precisely show the time intervals between each waypoint establishing the timing for Robert's narration. The guidetrack can be listened to in the *Product* folder on the project cd.

5.1.1 Footstep Recordings

Another aspect of the route timing was walking pace. The walking participant's will be instructed to adjust their pace to Robert's and that requires a clear footstep track.

When recording the guidetrack, the microphone was generally pointed towards the feet capturing the footsteps and pace only to be turned away whenever a waymarker had to be described. The guidetrack was recorded during the day so besides containing waymarker notes it was also polluted by loud car traffic and other people. This would not be usable for the story since Robert is supposed to walk alone and late at night meaning that his footsteps had to be captured separately in a clean recording.

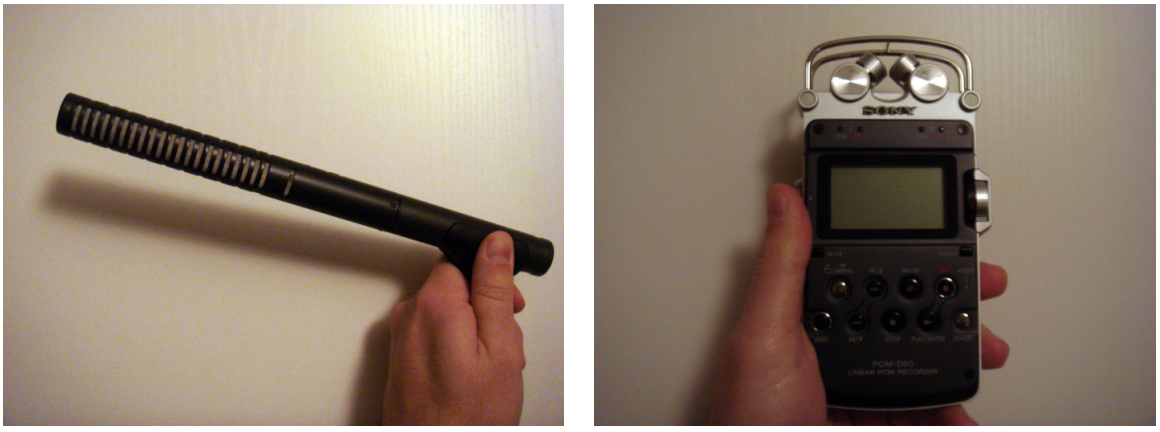
The footsteps were recorded on the four different surfaces Robert would be traversing along the route: tarmac, snow, cobbles, polished granite. As opposed to just recording everything on tarmac, the different surfaces would provide valuable information to the nonwalking participants about Robert's progression through the scenery. The recorded footsteps would be paced according to the different speeds identified in the guidetrack. Figure 5.2 shows how footsteps were recorded in snow that would be used for when Robert crosses the parking lot.

Figure 5.2: *Recording footsteps in snow.*

One compromise had to be made in terms to Robert's walking speed and that is when the men spot him and he starts running. Since the story's timing is based on the pace of the footsteps it would become increasingly difficult to estimate where a walking participant would be positioned along the route at a given time. This meant that the footsteps changed to brisk walking instead of running. This incongruence might seem strange to participants, however it is a compromise taken to make sure that walking participants will be able to complete their scenario correctly.

5.2 Field Recording and Mixing

The different soundscape components were recorded using either a mono shotgun or stereo microphone. The shotgun was used for the voice and sfx components and the stereo for the atmos component. The recording equipment can be seen figure 5.3 where subfigure 5.3(a) shows the shotgun and subfigure 5.3(b) shows the stereo microphone which also worked as a recorder.



(a) Røde NTG-2 shotgun. (b) Sony PCM D50 recorder.

Figure 5.3: *Recording equipment used to gather sound assets.*

Almost all sound assets were field recorded at the test location or environments similar to

it and a few were sourced from a sound library. Since it was important that test participants were able to distinguish between the characters each were performed by different voice actors.
The story was produced in stereo and not binaural since the latter required special equipment and it was believed that narrative presence would be possible to experience in stereo so the more acute sound localisation of binaural was not required.

Once all the recordings were tracklayed the story was mixed using extensive panning to either segregate sound events in order to make them more audible or to establish pseudo spatial relations between characters [7, p 186]. For example to establish the fact that Detective Neil is sitting at the other side of table to Robert then he is panned slightly to the right and Robert far to the left. With headphones this creates the sensation that they are at a distance to each other. In regards to segregation then it was necessary e.g. in the busy part where Robert tries to sneak away from the men: Robert's voice narrates in the centre, his back treading footsteps are panned far left, and the sounds of the men moving the body is panned far right. By doing so it was easier to quickly distinguish between the different events occurring in parallel.

The only difference between the two scenario versions are two nondiegetic beeps used to mark when the walking participant should begin following Robert's directions. They were omitted in the nonwalking version since it had no function and would likely cause confusion given that they would receive no information regarding their meaning.

The Statement can be listened to in the *Product* folder on the project cd and it is highly recommended that the reader hears it preferably using headphones.
With the sonic story complete we move on to testing.

Chapter 6

Testing

Now that we have gotten an understanding of how the sonic story has been designed and implemented next step is testing. This chapter will provide a general description of how the test was conducted and describe a few of the formalised questions alongside the expectations of what they would be able to extract from a participant's experience of narrative presence. The chapter is then concluded with a section presenting the test results through a number of highlights that are descriptive of the general tendencies. The results will then be discussed in the following chapter.

6.1 Test Procedure

The test was conducted on 20 participants, 10 for each scenario. Participants were chosen through convenience sampling and consisted of 13 males and 7 female [21]. The first group, denoted "walking", consisted of 6 males and 4 females with an average age of 31. The second group, denoted "static", had 7 males and 3 females with an average age of 28. The gender and age ratio was not pre-determined since the sonic story was intended to cater for a wide range of ages except younger children due to the nature of the story content, however the aim was to make the group diversity as similar as possible. The sampled participant's also came from many diverse educational backgrounds such as health care,

computer science and media studies.

Figure 6.1 shows an overview of the test design where the data from both scenarios are extracted from the questionnaire. The data will then be compared to see if the walking group scores higher than the static or displays any significant differences.

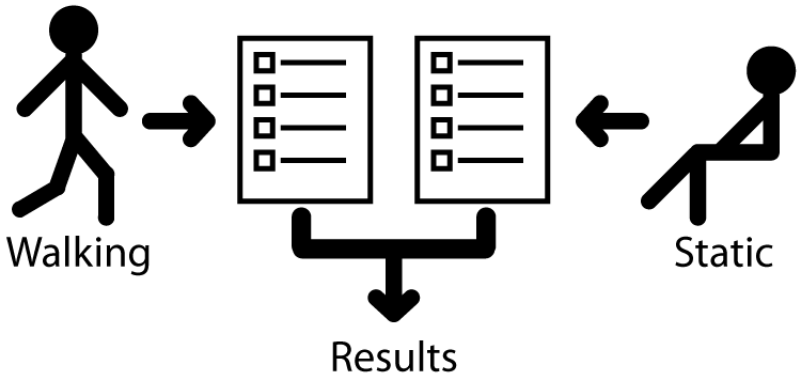


Figure 6.1: *Test design overview.*

At the beginning of each test participants were given instructions through a written document on how the scenario would proceed. The full instructions for both scenarios can be found in the appendix section 10.3. After having listened to the story participants were asked to fill out a questionnaire.

The test used a between subjects design and consisted of two scenarios: a walking and a static [22]. The walking made participants listen to the story while walking through the location.

Each participant was told that they would listen to a story while walking around and were then escorted to the beginning spot. They were asked to roughly match the pace of the main character's footsteps at all times and to follow his direction on where and how to walk. Once at the beginning spot they were told not to start walking to the main character's directions until after having heard the two electronic beeps.

The scenario had to be conducted in the evening after 19:00 since the location otherwise would contain too much rush hour traffic noise. This meant that the route was traversed

in darkness only lit up by street lights. This had a small narrative side effect in that it would support the story's primary environmental context, which is that it occurs late at night, as seen in figure 6.2 showing a participant about to begin walking the route.
Each participant walk was monitored from a distance by the facilitator so he could note down whether they followed the route or were going astray. If something unintentional happened the participant's number would be noted down since this might reflect in a participant's answers if they e.g. walked completely astray. This luckily never happened and facilitator only had to intervene once when a participant began the walk turning in the wrong direction. This however did not seem to be reflected in the respective participant's data.

Figure 6.2: *Walking scenario test participant.*

The static scenario made participants listen to the story while sitting on a chair in a dimmed room with a minimal amount of environmental distractions. The room was dimmed in order to minimise potential environmental distractions from outside the windows and also so it would come closer to the lighting conditions experienced in the walking scenario's exterior location. The only thing participants were told was that they should sit down and listen to the story, as seen in figure 6.3 showing a participant about to begin the story.

Figure 6.3: *Static scenario test participant.*

Common to both scenarios were that participants listened to the story through a pair of Beyerdynamics DT250 circumaural headphones and an iPod Nano. Circumaural headphones were used in order to attenuate general noise and ambiance influence that might become to protruding in the testing environments.
All participants were tested individually in order to diminish any distractions that might occur if two or more sat together or walked along the same path simultaneously. Even though the listening and walking experience should work with more than one participant following the story path, it was considered a variable that would not fit within the scope of the tested problem statement.

A pilot test was conducted prior to the real test in order to make sure that a participant would be able to hear and understand the story content through the circumaural headphones at the exteriour location. It also had to verify whether a participant with no prior knowledge to the test scenario would be able to follow the directions at the designed pace and at the same time walk the route and terminating it at the correct spot. The pilot test proved successful in all aspects and locked down the sound mix used for the final test.

6.1.1 The Questionnaire

This section will present some of the questions from the test questionnaire and the remaining can found in the appendix section 10.4. Each question will be followed by a description of what they were intended to signify.

All participants had no prior knowledge to the story content and the only information given was that of the previously described instructions. The lack of knowledge was imperative since this would likely impair the suspense and tension, buildup through story. Also participant's should roughly have the same amount of first-time exposure time to reflect over the story when providing their answers since they would be based on memory.

Majority of the questions utilised a rating scale because they enable a participant to answer an abstract experience within a range of responses providing a more nuanced measure of presence. The scale was made of five points ranging from 1-5 and the ends were anchored with the descriptors: "not at all" and "very much" as seen in figure 6.4. Five points where used since it seemed easier to map as e.g. "not at all", "a little", "moderately", "a lot", "very much" as opposed to e.g. seven points. [23, pp 401-403]

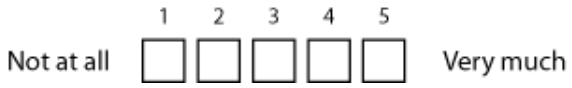


Figure 6.4: *Rating scale used in questionnaire.*

The questions also had to be phrased and balanced so they would work in both scenarios. For example a typical question in relation to presence is to ask "how much were you aware of your surroundings during the test?" [24, p 232]. This would work in the static scenario, but not in the walking since part of that experience is to explore the physical surroundings and it would not even be possible to specify e.g. "how much were you aware of elements in your surroundings that were not related to the story?", since the entire environment is a plot element.

Question Examples

The first question was asked to get an idea of whether they experienced presence.

"Did you feel that you became part of the scenes as they played out through the story?"

If they rate this high it could indicate that they forgot they were listening to the story and experienced the events as if they actually occurred in the real world.

Spatial immersion question

"Did you feel a sense of the atmosphere when Robert is walking home from the party?"

If they rate this high it could indicate that they were able to get a rich experience of the atmosphere and mood and also able to plot and follow Robert through the environment based on their textual mental map.

Temporal immersion question

"When Robert was hiding behind the van, were you curious to know whether the men would find him?"

If they rate this high it could indicate that they felt suspense and were eager to know what would happen next in the story and to Robert.

Emotional immersion question

"Was it possible to relate to Robert's situation throughout the story?"

If they rate this high it could indicate that they could relate to Robert and understand what he must emotionally go through in the situations he finds himself in.

There were also questions that required written elaborations for example:

"Did you experience problems with following the spoken directions?"

This does not relate specifically to any of the presence parameters, however it could be

used for diagnostics if e.g. a participant rated questions very low, then it would be able to check if the reason was that Robert's directions required too much attention, impairing the story experience as opposed to just concluding that the person did not experience a high level of narrative presence due to an uninteresting story line.
The questionnaire was before testing reviewed by a number of people with different educational backgrounds in order to verify that the questions were clear and interpreted correctly. The final questionnaire design can be found in appendix section 10.5

Having highlighted some of the questions and provided a general idea of what they are expected to extract from the participants answers the following section will present the results.

6.2 Results

This section will highlight some of the results that showed clear tendencies or interesting relationships. The remainders can be viewed in the appendix section 10.6. To indicate from which scenario the different highlights are from, data and participant examples will be appended a "w" (walking) or "s" (static). For example participant number 5 from the static group will be denoted "p5s" for easier reading. The questions will also be denoted Qx where x is the order it occurred in the questionnaire. The results will be presented through their mean ratings and standard deviation. Some will also be presented through the participants written elaborations in order to show how they answered those specific questions.

Q1 "Did you feel that you became part of the scenes as they played out through the story?"
The walking group scored a significantly higher mean rating of 4.7±0.48 compared to the static that had 4.2±0.79. The mean difference between the two groups can be seen in figure 6.5.

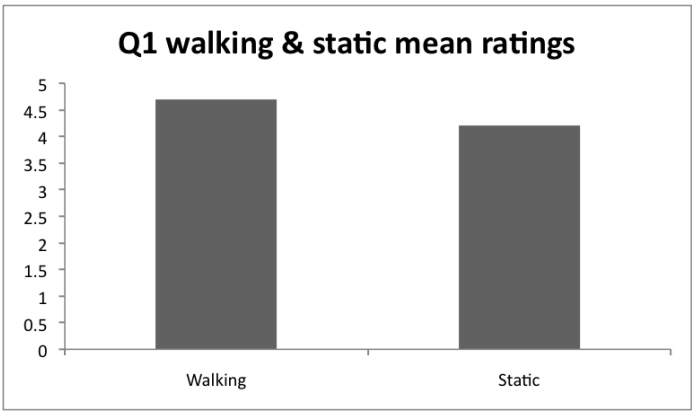


Figure 6.5: *Compares the Q1 mean ratings between the two groups.*

Q2 "Did you feel a sense of the atmosphere in the interrogation room?"

The walking group scored a slightly higher mean rating of 4.1±0.99 compared to the static that scored 3.9±1.19.

Q3 "Did you feel a sense of the atmosphere when Robert is walking home from the party?"

The mean rating between the two groups were the same at 4.8±0.42 however the static group had a slightly higher standard deviation 4.8±0.63.

Q4 "In which location does most of the story take place?"

In the walking group 7 answered the correct answer, which was the stretch between the Black Diamond and Langebro and 2 answered Knippelsbro. P2w forgot to mark this part of the question, however he answered that he had physically been there as did the 9 other group participants. In the static group 7 answered the Black Diamond and Langebro while 3 answered Knippelsbro. 6 had physically visited, 2 had never been there, and 2 noted other:

> P3s: *"I have seen the Black Diamond from the outside, but I can not place Langebro."*

P7s: *"Rode past both places on bicycle, nothing else."*

Q5 "Over what time span did the events in the story take place?"

In the walking group 7 answered *less than a day*, 2 answered *2 days*, and 1 *5 days*. The static had 5 answering *less than a day*, 4 answered *2 days*, and 1 *5 days*. P6w answered 2 days and further elaborated:

P6w: *"He got lost some time, don't remember how long as I have visual memory."*

Q6 "When Robert was hiding behind the van, were you curious to know whether the men would find him?"

The walking group scored a slightly higher mean rating of 4.3±0.67 compared to the static that scored 4.1±1.19.

Q7 "What do you think happened to Robert after he passes out?"

Generally all participants in both groups, except one, were able to follow the story logic: that the men planted evidence from the dead body on him so he would be framed for the murder and end up being interrogated, which is where the sonic test content begins. P4w omitted answering this questions. Below is an answer examples:

P9w: *"The men beat him up until he passes out and they instead of killing him, decide to frame him for the murder they had committed. Cover him in the victim's blood and leave him under the bridge."*

P3s: *"I think the men, who murdered the girl, planted the girls DNA and blood on Robert and have him appear as the killer, when the police would find him."*

Q8 "Are you curious about what happens to Robert after the interrogation?"

The walking group scored a slightly lower mean rating of 4.0±1.05 compared to the static that scored 4.1±1.19.

Q9 "Was it possible to relate to Robert's situation throughout the story?"

The walking group scored a significant higher mean rating of 4.9±0.31 compared to the static that scored 4.2±0.63. The mean difference between the two groups can be seen in figure 6.6.

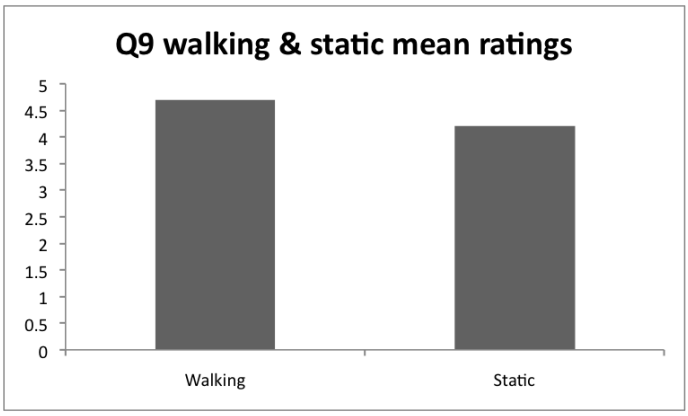


Figure 6.6: *Compares the Q9 mean ratings between the two groups.*

Q10 "Did it feel like you were walking in Robert's shoes?"

The walking group scored a significant higher mean rating of 4.6±0.51 compared to the static that scored 3.9±0.73. The mean difference between the two groups can be seen in figure 6.7.

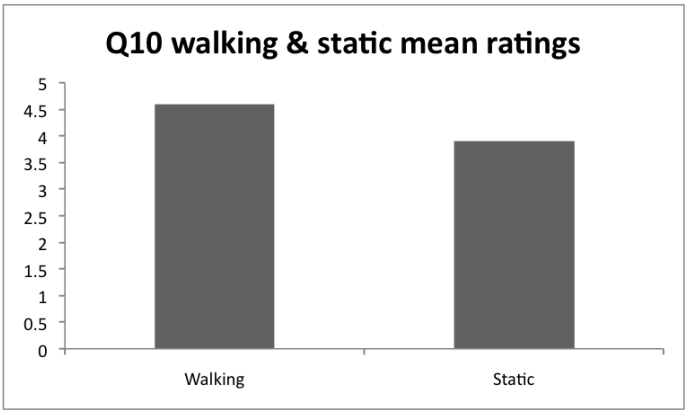


Figure 6.7: *Compares the Q10 mean ratings between the two groups.*

Q11 "Did it feel like you were being chased by the men?"

The walking group scored a higher mean rating of 3.9±0.73 compared to the static that scored 2.9±0.99. The mean difference between the two groups can be seen in figure 6.8.

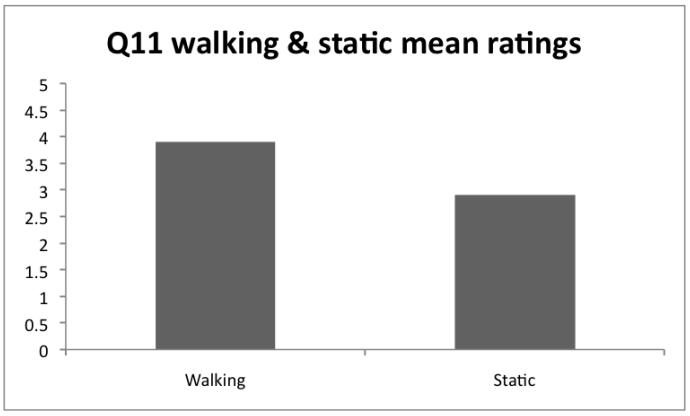


Figure 6.8: *Compares the Q11 mean ratings between the two groups.*

Q12 "Did listening to the story through headphones affect how you experienced the story?"

The walking group scored a slightly lower mean rating of 4.1±1.45 compared to the static that scored 4.2±0.78. This question also required a written elaboration an example from each group is listed below:

> P6w: *"I found the audio coming from all directions so it was sort of surround."*
>
> P3s: *"Differing from listening to the story through speakers you are almost enclosed in your own little crime story-world and get completely close to the story and the main character."*

"Q13 Did you experience problems with following the spoken directions?"

The walking group scored a significant lower mean rating of 1.9±1.10 compared to the static that scored 2.8±1.39. The mean difference between the two groups can be seen in figure 6.9.

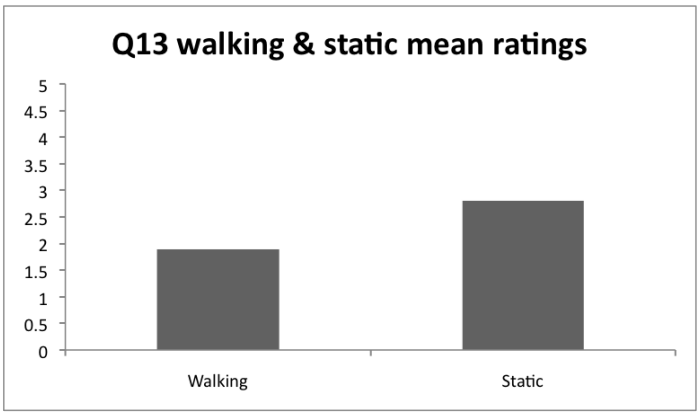


Figure 6.9: *Compares the Q13 mean ratings between the two groups.*

This question also required a written elaboration. In the walking group 4 out of 10 participants commented that they had some trouble with adjusting to the main character's footsteps and walking direction in the beginning of the route:

> P8w: *"Had problems with following the footsteps in the beginning, but it quickly became easier once you had gotten used to the tempo."*

In the static group 7 out of 10 commented on different problems, however 2 of them seemed to evolve around the story's location information conflicting with their own memories of the real world location:

> P9s: *"Some of the things described weren't clear, I at times became confused because I've been there and thought I knew where Robert was, only to discover I was wrong when another landmark was mentioned."*

> P10s: *"... comparing my own experience at the place with directions from the speaker, which did not match up. I think it would have been easier with a non-existing place - leaves more space for imagination - quite annoying to be "faced" to imagine a place in reality."*

"Any additional comments"

At the end of the questionnaire participants had the chance to write elaborations or comments to the different questions and test execution. This is presented in the results section since there was a point in the story line that 10 out of 20 participants commented on. It relates to the fact that Robert says that he is running, however his footsteps do not sound like running. In the walking group 3 out of 10 participants commented on this fact. In the static 7 out of 10 commented on it. An example from each group is listed below:

> P1w: *"To the Q about "being chased" didn't feel as immersed because I was supposed to be running, but was just walking fast."*
>
> P1s: *"The footsteps when running sounded like he was walking calmly instead of running."*

A full transcription list of all the participants written answers can be found in the appendix section 10.6.1.

Now that we have gotten an overview of the test results we move to the next chapter were they will be analysed and discussed.

Chapter 7

Discussion

As seen in the previous chapter the results of the test seemed to vary slightly between groups, however generally the walking scored higher in relation to narrative presence and in some cases significantly.

Q1's answers as seen in figure 6.5 show that the walking group rated this higher than the static, suggesting that they either had an easier time obtaining presence or maybe even to a higher degree. This result can not stand on its own and has to be considered in conjunction with the others before something more can be inferred from it.

The questions related to spatial immersion's sense of place Q2 and Q3 showed no significant difference between groups. This was a bit surprising since at least Q3 was expected to be rated higher by the walking participants since they would be physically moving through the real world environment and to a large degree be presented with much richer information than the static participants. Q2 related to a location where both groups in a sense would be experiencing it under the same circumstances, since the walking participants would not be walking through it. Here the walking scored slightly higher than the static and the reason for the overall lower ratings compared to Q3 might be in the way the scene was presented. Meaning that it was not as explicitly described as the canal walk where Robert constantly

highlighted different environmental aspects, which also established a more gloomy mood. Another aspect of spatial immersion is being able to chart a textual mental map and this was what Q4 was trying to find indications of. In Q4 the same amount of participants across both groups, excluding p2w who did not mark his choice, answered the correct stretch that was between the Black Diamond and Langebro. In the static 3 put down Knippelsbro and what becomes interesting is that 2 of those participants also commented on having problems with the spoken directions in Q13. P9s and P10s elaborates that Robert's direction did not correspond well to their own memories of the place and created mental map conflicts:

> P9s: *"Some of the things described weren't clear, I at times became confused because I've been there and thought I knew where Robert was, only to discover I was wrong when another landmark was mentioned."*

> P10s: *"... comparing my own experience at the place with directions from the speaker, which did not match up. I think it would have been easier with a non-existing place - leaves more space for imagination - quite annoying to be "faced" to imagine a place in reality."*

The fact that the main character is walking towards the Langebro bridge is stated twice in the story line:

> 1. *"I start walking towards the boardwalk in order to cross the bridge on my left so I can get to Langebro."*

> 2. *"After that I turn right and walk towards Langebro."*

So the participants in question must have missed those lines and as a result gotten confused. This is difficult to confirm, however one way to overcome this mystery might have been, after testing, to have them point on a map, which bridge they thought he was walking towards, since it might very well have been the case that they got the bridges mixed up. In hindsight the location's clear, but similar landmarks might have compromised the mental

map structure, given the fact that participants could get confused by the two bridges at opposite ends. Even though the story states which bridge is Langebro, through Roberts narration and directions, testing spatial immersion through this fact might presuppose that they know the names of the two bridges and which one is which in addition to the geography around it. However it should be noted that only 2 out of 20 participants seemed to experience this problem and the mean ratings for Q3 that checks for spatial immersion at the location score a 4.8 average in both groups. This suggests that participants were spatially immersed, however when basing the story around a real world location this can be an impairing factor on the experience and needs to be part of the evaluation when developing this type of narrative.

Robert's walk home was intended to be perceived clearly so a listener would be able to logically determine which way he was walking. It was mentioned in the interrogation room that he had been to a party at Nyhavn and was walking home along the canal next to the black diamond towards Langebro. If he had been walking towards Knippelsbro then he would have walked backwards or actually never reached the Black Diamond in the first place as seen in figure 7.1 where "A" marks Nyhavn, "B" the Black Diamond, and the red rectangle Knippelsbro. "B" also marks where the active walking part of the story begins.

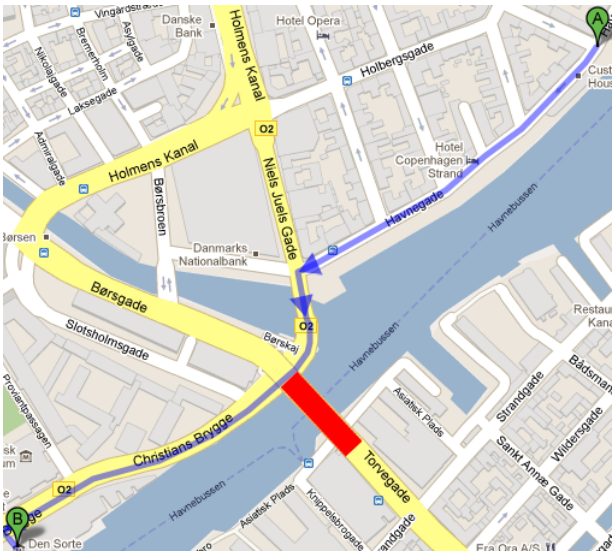


Figure 7.1: *Robert's route between Nyhavn and the Black Diamond.*

One way to make the route clearer is to have the story present more known landmarks and their relation to those specifically related to the plot, in a sense making the mesh of the mental map denser. However another factor to the confusion might also have something to do with presenting important information in the beginning of a story which the answers to Q5 e.g. indicated.

Q5 related to spatio-temporal immersion and it was meant to show whether participants had understood the plot and were able to move back and forth along the timeline, indicating spatio-temporal immersion.
Most participants did not pick up that the time overall time span was five days, however they were still able to get the story. The reason for this lapse properly lies in the way in which the story divulges this information. The detective dictates this by stating the interrogation date as the 15th and goes on to describe that the main character had been to a party the 10th, which is the night before he is found unconscious under the bridge. This is stated somewhat quickly and in addition in the very beginning of the story, which in hindsight is not that good an idea because at that point the listener is still adjusting i.e. getting to grips with the story world and therefore more likely to miss bits of spoken information.
Another interesting factor related to the dates is highlighted in p6w's additional comment to the answer:

> P6w: *"He got lost some time, don't remember how long as I have visual memory."*

This answer could indicate that if e.g. people are used to juggle math operations visually like on paper i.e. nontransient, then it can prove significant in regards to how to present certain information in sonic stories because information like numbers and math operations can easily get missed or quickly loose salience if people, like in this case, rely heavily on visually stored memories. Looking back in the report this issue was in a sense also highlighted in the *I am not here* story in the radio drama shorts section 2.2.1 in pre-analysis.

Here the story asked the listener to solve a sentence word puzzle, which is something that one would intuitively have an easier time to solve on paper if it had to be done quickly. The dates operation could therefor be regarded as not intuitively suitable in a sonic story context if required to be interpreted quickly and in the case of the *The Statement* not something that was alleviated through elaborations or back references. One possible solution to this lapse would be to append day names after the dates, since that would provide an additional mnemonic structure i.e. days of the week structure for the listener to rely on.

The answer ratings for the temporal immersion questions Q6 and Q8 were high across both groups indicating that participants had experienced a high degree of suspense and were curious to find out what would happen next through out the story. Considering Q7's written elaborations on what happened to Robert after he passes out together with the time estimations in Q5 showed that participants across groups had not picked up on the correct overall story timespan, however they had all understood the story logic and were able to elaborate on the untold parts that linked the told story's ending with its beginning.

Q9's answers as seen in figure 6.6 show that the walking group rated that they were able to relate to Robert's situation much more than the static and this tendency is significant in all the questions related to emotional immersion. Q10's figure 6.7 shows roughly the same mean difference relation between groups again with the walking group scoring higher. Q11's answers in figure 6.8 shows the same relation, however the difference is slightly larger. These answers highly suggests that walking participants were more involved with Robert's character and together with the results in Q1 could indicate a tendency, which shows that physically walking in the footsteps of the character heightens the bond between it and the participant. Meaning that participants experience the story events through the character as if it happened in the real world perceiving the textual world as nonmediated.

Q12 was meant to give an indication of whether the way of presenting the story through headphones had an effect on their story experience i.e. checking whether it impaired or

enhanced the presence process. This time the static group scored slightly higher than the walking and generally participants rated this high across groups. Only 4 out of 20 rated the questions less than 4, so it would seem that wearing the headphones greatly facilitated the presence process in both scenarios immersing participants in the story as p3s's writes:

> P3s: *"Differing from listening to the story through speakers you are almost enclosed in your own little crime story-world and get completely close to the story and the main character."*

It however seems that the question was interpreted differently between participants and the 4 low raters actually meant the same as the rest. In hindsight the question was badly formulated since the rating scale would not really be clearly indicative of what participants experienced since if the question was interpreted as: "did wearing headphones have an impairing effect" then participants would e.g. rate it low, whereas the written elaborations indicate that it in fact had a positive effect. For example p6w rated the question: 1, however in the written elaboration she answers:

> P6w: *"I found the audio coming from all directions so it was sort of surround."*

Meaning that she rated it low since she did not believe it had an impairing or negative of the story experience on the contrary she experienced the sound as surrounding her, which can be interpreted as a positive effect. The answer was not incorrect the question was just not properly suited to be answered with a rating scale.

Q13 showed that static participants had significantly more trouble with the spoken directions as seen in figure 6.9. As already discussed earlier in relation to Q4 some of the static participant's experienced mental map conflicts with their own memories and that charted through Robert's directions. Generally the trouble walking participants experienced was in relation to the initial adjustments to Robert's footsteps. Roberts directions were scripted so that they would work in both scenarios, however it would seem that they might have relied too much on the fact that the static participant's memories were rich or flexible enough

to blend with the textual information when they knew it was based on a real world location.

Regarding the running and walking incongruence 10 out of 20 participants mentioned it either through questionnaire elaborations or post test comments. Generally it was only initially that participants noticed it and what was gathered from the post test comments it did not detriment the story experience, but given the fact that it caused this confusion it became a momentary presence breaker as p1w's answer highlight:

> P1w: *"To the Q about "being chased" didn't feel as immersed because I was supposed to be running, but was just walking fast."*

The reason that the majority of comments came from the static group is likely that the walking participants quickly adapted and stopped noticing it just as they had done with Robert's initial pace. However if a new set of tests would be conducted the brisk walking track would be replaced with a running since it clearly detriments the continues presence experience.

With the knowledge gathered from the results discussion we move on to the next chapter which will outline a project summary and provide the project conclusion.

Chapter 8

Conclusion

This project set out to investigate how plot-related walking enhances narrative presence in a sonic story. This was in Pre-analysis carried out by getting an understanding of how sonic stories work through the tools used to make them and by analysing examples of how they can be expressed through different forms of narrative. In Analysis presence was investigated and defined through a conjunction with immersion. After that presence relation to narrative was outlined in order to form a framework denoted as narrative presence, which would be used to establish the experiment design. In Design the sonic story *The Statement* was developed around a location that would allow half of the test participants to physically walk through the story line. In Implementation different parts of the sound production was described showing how the story was sonified. Testing described how the experiment design was executed and presented the results. In Discussion various aspects of the results were highlighted and discussed and with the knowledge extracted from that chapter it is possible to conclude on the problem statement.

The results showed that participants across groups generally provided high ratings indicating that narrative presence occurred to a high degree in both scenarios. Generally the results also showed that the walking group scored slightly higher in 8 out of the 10 rating questions, and the three that related to emotional immersion were significantly higher.

Meaning that in relation to the problem statement it can be said that the results suggest that narrative presence induced by a sonic story can in fact be enhanced by plot-related walking and in relation to the story utilised in the test showed strong indications of enhancing the sub parameter emotional immersion, which relates to the emotional involvement between participant and story characters.

It should however be noted that in many cases the score ratings between groups were quite similar to each other so further testing must be conducted on a larger sample size in order to properly confirm the tendencies in the results.

Chapter 9

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Chapter 10

Appendix

This chapter contains the production and test documentation for the The Statement alongside the data retrieved from the test.

10.1 The Statement Manuscript

10.2 The Statement Sound Asset List

10.3 Test Participant Instructions

The Statement Walking Participant Instructions

You will be listening to a story told through sound while you are walking. You will wear headphones and an ipod. During the story the main character will indirectly provide you with directions on how and where to walk. You should adjust your walking pace to the main character's footsteps. His directions will be a bit ahead of time for you to follow.

In case you feel that you are lagging behind the directions, pause the story and walk to the latest described location object then push play and continue. In case you get problems with moving traffic on the route push pause and then play again once you have free passage. After the story ends return to here where you will be asked to answer a questionnaire.

Your beginning spot is over between the bus sign and green trash bin. You should only begin walking according to the main character's spoken directions after the "get ready to walk" point marked by two electronic beeps.

The Statement Listening Participant Instructions

You will be listening to a story told through sound. You will use headphones and an ipod. After the story you will be asked to answer a questionnaire.

10.4 Question Elaborations

This section lists the remaining question elaborations referred to in section 6.1.1.

Presence question

"Did listening to the story through headphones affect how you experienced the story?"

The question is meant to show if the way they were presented the story had an effect on experiencing presence. If they e.g. were continuously aware that they were wearing the headphones it could impair the process of obtaining narrative presence.

Spatial immersion questions

"Did you feel a sense of the atmosphere in the interrogation room?"

If they rate this high it could indicate that they were able to get a rich experience of the atmosphere and mood while getting an idea of the situation Robert is currently in.

"In which location does most of the story take place?"

It checks whether their textual mental map was created by their own memories or the spatial information provided through the soundscape. It is likely a blend as described in the spatial immersion section 3.2.1, however it could be interesting to see whether participants spatial immersion ratings would be affected by their previous knowledge of the location they are walking through either physically or textually.

Spatio-temporal immersion questions

"Over what time span did the events in the story take place?"

The question is meant to show whether participants have understood the plot and are able to move back and forth along the timeline. It does so by checking whether participants picked up on the dates divulged in the beginning of the interrogation scene which is supposed to explain that the story's timeline extends beyond what is presented in the nine

and a half minutes.

"What do you think happened to Robert after he passes out?"

The question is meant to show whether participants have understood the plot and are able to move back and forth along the timeline. It does so by checking whether they are able to use their imagination to fill in the gaps between the beating and what is presented in the interrogation scene. It they are able to do this it could indicate spatio-temporal immersion.

Temporal immersion questions

"Are you curious about what happens to Robert after the interrogation?"

If they rate this high it could indicate that they were interested in the story and eager to know more about what happens to Robert after the story ends.

"Did it feel like you were being chased by the men?"

If they rate this high it could indicate that they felt suspense when the men were chasing Robert, which would mean they had connected with the character and established dramatic tension.

Emotional immersion question

"Did it feel like you were walking in Robert's shoes?"

If they rate this high it could indicate that they had established a relationship to Robert to a degree where they in a sense felt that they were experiencing the story events through him.

10.5 Test Questionnaire

10.6 Test Results

10.6.1 Questionnaire Transcripts

The Statement Manuscript - Thomas Miksa, MED10 2010

OPENING CUE "The Statement"

INTERROGATION SCENE
Silence is broken by a door opening and through it a man enters. Busy office floods into the room and is cut off when the door closes. The person walks into the room, slides a chair to the side, sits down, pulls himself towards the table and puts his elbows on the table. He fiddles with the plastic recorder and pushes the REC button.

Neil
(Dictates)
Date November 15th, 2010, resuming interrogation of suspect Robert Clark, present, detective Neil Smith.

Robert we know you attended a private party November 10 at Nyhavn from around 9 o'clock. However no one has been able to confirm when you left.

You were later around 6.30 in the morning found lying unconscious underneath the Langebro bridge. You were smeared in the blood of deceased Mia summer, which was found floating in the basin outside of Fisketorve later that day.

Do you still claim that you had no relation with deceased and unaware of how you got her blood on you?

Robert
(Speaking nervously)
Yes.

Neil
(Sighs heavily)
Will you then please give us your statement one more time.

Robert
It’a difficult, everything is still hazy. I had been to the party, which I left after having had a bit too much and I was walking home along the canal, next to the Black Diamond. I don’t really know what the time was, but it was late. I was next to metal sculpture...

BLACK DIAMOND TO LANGEBRO SCENE (WALKING PART)
Cheerful music is heard through headphones. It is abruptly cut off as the battery of his phone/ipod dies. Robert take off his headphones off and grumbles annoyingly.

Robert
(Narrates)
My phone battery died.

Without music I'm forced to hear the quietness of this place.

I start walking towards the boardwalk in order to cross the bridge on my left so I can get to Langebro.

For some reason most of the street lights are out, this place is usually well lit, but there must have been a power shortage somewhere. Why tonight, I hate the dark.

I walk onto the bridge.

I only hear distant traffic and it reminds that there's no people here I'm all alone. What if something happened to me, there would be no one to help.

I feel silly how easy, even as a grown up, I can get spooked by the dark.

After the bridge I turn left and down the slippery stone stair case.

After that I turn right and walk towards Langebro.

The water squelching on the side of the canal calms me and I review moments from the party in my mind. I'm trying to remember what happened to that girl I was talking to. I should have gotten her number.

I look up at the bridge, the lights are on there. Just a bit further.

On the right there's a large wooden construction, a train stopper or something. It's weird imagining trains once travelled back and forth here delivering and receiving cargo from the ships. Now its just a tarmac stretch used as a parking lot.

Looking forward to getting home to a nice soft bed. I think the hangovers slowly but surely are creeping in on me.

On my left I see a life ring hanging tall on a pole all alone. I chuckle at the irony imagining how taunting it must look from the water side and I wonder if it has ever been used.

I stop next to the europark trailer sign on my right.

Further down at the end of a long row of cars I see two men. They are parked adjacent to the wooden shed floating in the canal. They are hauling something out of the back of a car. Paranoid over the fact they are up to something at this hour I review what to do. Should I just continue straight ahead ignoring them or should I turn around and find a longer detour.

I freeze… they are wrapping a naked lifeless body in some sort of plastic sheet. The pale and slashed arms show no sign of resistance as the men close the plastic over them.

Fearing that they will notice me, I slowly tread backwards without any sudden movement.

With their backs to me the men carry the wrapped body onto the wooden shed.

I turn around when I pass the parking dispenser on my left and slowly walk towards the Black Diamond.

Man
(Yells)
Hey! You there!

Robert
(Narrates)
They've seen me, I start running.

I look over my shoulder and the men are running after me, fast.

I look to my left.

Across the street, there's a hole in the hedge right by the fire hydrant, that's my escape.

I run between the wooden train stopper and large parking sign to cross the street.

I run towards the hole in the hedge.

I run through the hole and continue onwards.

I'm in a parking lot with no lights.

Across the parking lot, there's a another hole in the hedge.

I run towards it.

I can hear the mens footsteps gaining on me.

I move through the hedge and stop.

Im on a small dim litted street with cars parked all the down.

I look to the left and run to the parking dispenser next to the road construction.

There's a huge van parked.

I hide between the van and the house wall.

I hear the men coming and I try to get my breathing under control.

I stick my head out from the corner of the van and see one of the men running past, but suddenly he stops, turns around and looks straight at me.

Man
(In a cold voice)
This is not your lucky day.

Robert
(Narrates)
Someone grabs my neck from behind and forces me to the ground. The men beat me up and I loose conscientiousness.

ENDING CUE "The Statement"

Please return to the black diamond.

The Statement Sound Asset List

List of required assets		Dialogue groups
Robert running panting		Men dialogue lines
distant traffic atmos		Neil Smith dialogue lines
Canal water squelshing		Robert dialogue lines
office atmos		
telephone ringing		
office door open		**Legend**
office door closing		Acquired
Chair moved to the side		Yet to be acquired
Sit on chair		
Move chair to table		
Plastic recorder handling		
Recorder REC button click		
footsteps on rubble rocks		
footsteps slow and sneaky		
Robert running footsteps		
Robert walking footsteps		
Robert shoe scuffing		
Men dragging the body away		
Men walking		
Men shoe scuffing		
Men running		
plastic rustling		
Phone charge depleted		
iPod track		
Opening music cue		
Ending music cue		
hedge rustling		
depleted battery		
footsteps on stone stair case		
palm smacks		
clothing rustling		
fluorescent light hum		
Robert beaten up		
wind atmos		
party music memory		
party walla		
Men footsteps on wooden planks		
Electronic beeps		

Thomas Miksa, MED10 2010

Questionnaire:____ Participant:____ Date:_____

Choose one box in each question and indicate your answer with an "X".
You only need to put one "X" for each question. Some of the questions require written answers, if you run out of line space then use the back side of the page.

Age:___

Male ☐ Female ☐

Did you feel that you became part of the scenes as they played out through the story?

	1	2	3	4	5	
Not at all	☐	☐	☐	☐	☐	Very much

Did you feel a sense of the atmosphere in the interrogation room?

	1	2	3	4	5	
Not at all	☐	☐	☐	☐	☐	Very much

Did you feel a sense of the atmosphere when Robert is walking home from the party?

	1	2	3	4	5	
Not at all	☐	☐	☐	☐	☐	Very much

In which location does most of the story take place?

Betweeen the Black Diamond and Langebro ☐ Betweeen the Black Diamond and Knippelsbro ☐

Before listening to the story, in what context were you familiar with the location?

Never been there ☐ Seen it on a map ☐ Physically visited ☐ Other ☐

Over what time span did the events in the story take place?

Less than a day ☐ 2 days ☐ 5 days ☐

When Robert was hiding behind the van, were you curious to know whether the men would find him?

1 2 3 4 5

Not at all ☐ ☐ ☐ ☐ ☐ Very much

What do you think happened to Robert after he passes out? (Reply can be in Danish/English)

Are you curious about what happens to Robert after the interrogation?

1 2 3 4 5

Not at all ☐ ☐ ☐ ☐ ☐ Very much

Was it possible to relate to Robert's situation throughout the story?

1 2 3 4 5

Not at all ☐ ☐ ☐ ☐ ☐ Very much

Did it feel like you were walking in Robert's shoes?

1 2 3 4 5

Not at all ☐ ☐ ☐ ☐ ☐ Very much

Did it feel like you were being chased by the men?

1 2 3 4 5

Not at all ☐ ☐ ☐ ☐ ☐ Very much

Did listening to the story through headphones affect how you experienced the story?

	1	2	3	4	5	
Not at all	☐	☐	☐	☐	☐	Very much

Briefly describe how it affected the experience: (Reply can be in Danish/English)

Did you experience problems with following the spoken directions?

	1	2	3	4	5	
Not at all	☐	☐	☐	☐	☐	Very much

If you had problems, could you briefly elaborate what they were and what caused them:

Thank you.

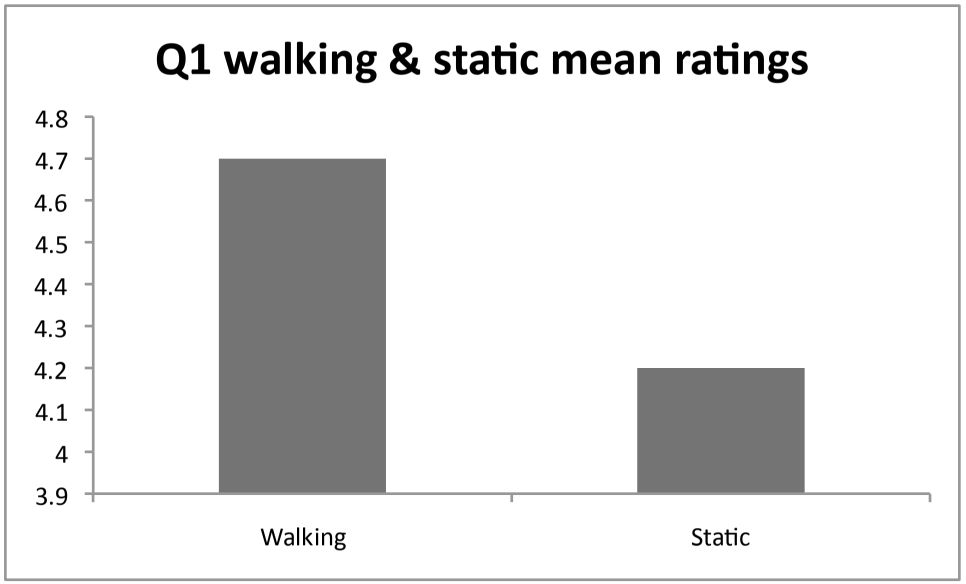
Any additional comments:

The Statement Test Results - Thomas Miksa, MED10

Q1 Did you feel that you became part of the scenes as they played out through the story?

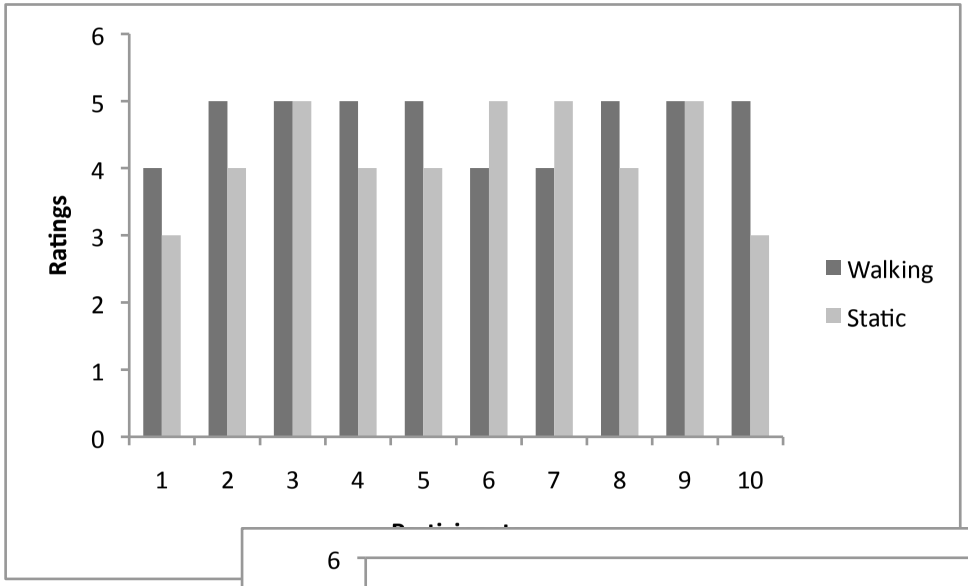
WALKING RESULTS		**STATIC RESULTS**	
Participant	Rating	Participant	Rating
1	4	1	3
2	5	2	4
3	5	3	5
4	5	4	4
5	5	5	4
6	4	6	5
7	4	7	5
8	5	8	4
9	5	9	5
10	5	10	3
Mean	4,7	Mean	4,2
Standard deviation	0,48304589	Standard deviation	0,78881064

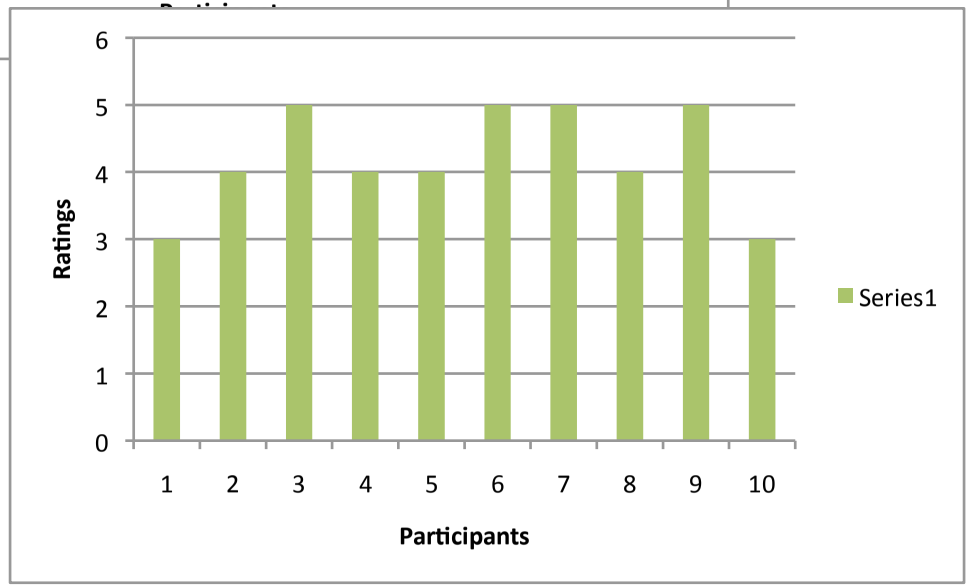
Walking	4,7
Static	4,2



The Statement Test Results - Thomas Miksa, MED10

Q1 Did you feel that you became part of the scenes as they played out through the story?





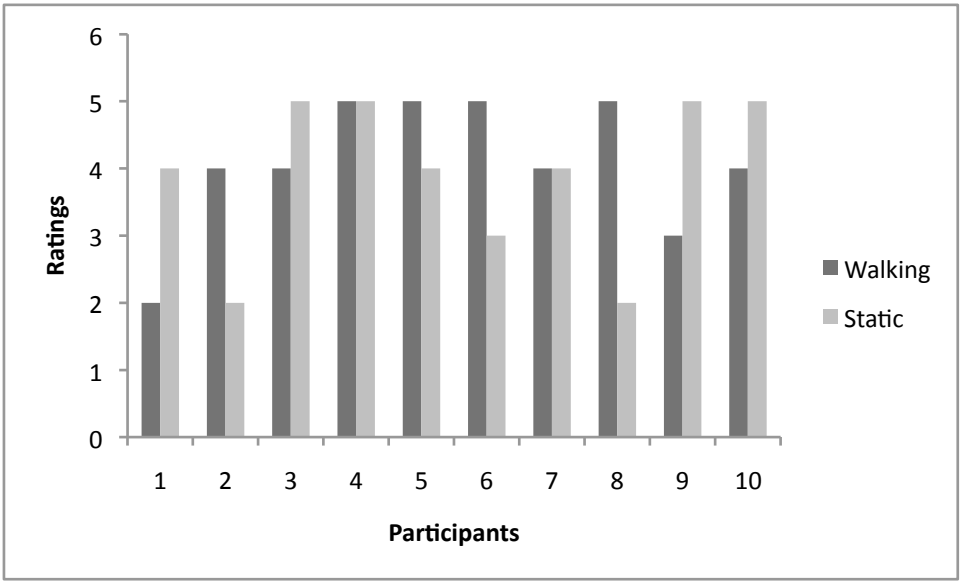
The Statement Test Results - Thomas Miksa, MED10

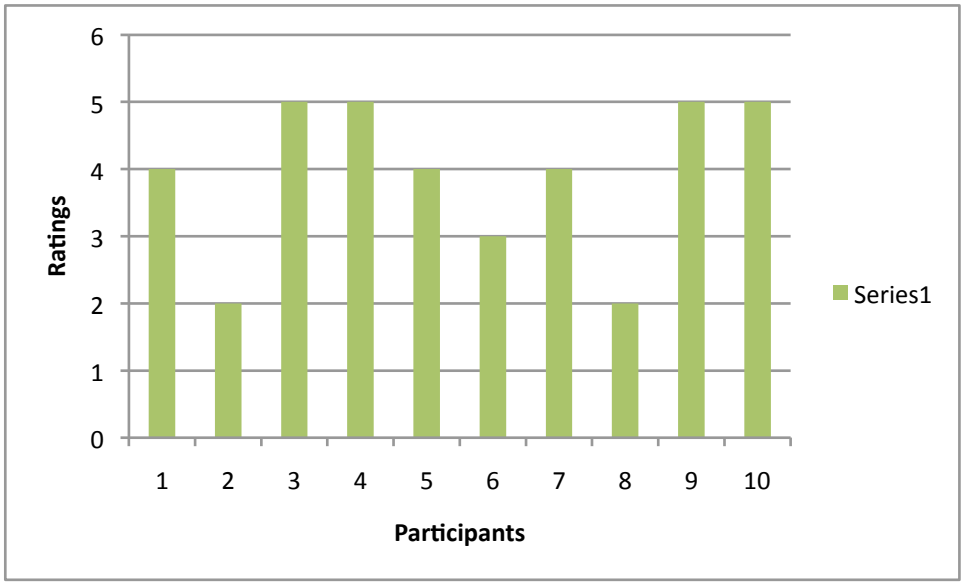
Q2 Did you feel a sense of the atmosphere in the interrogation room?

WALKING RESULTS		**STATIC RESULTS**	
Participant	Rating	Participant	Rating
1	2	1	4
2	4	2	2
3	4	3	5
4	5	4	5
5	5	5	4
6	5	6	3
7	4	7	4
8	5	8	2
9	3	9	5
10	4	10	5
Mean	4,1	Mean	3,9
Standard deviation	0,99442893	Standard deviation	1,197219

The Statement Test Results - Thomas Miksa, MED10

Q2 Did you feel a sense of the atmosphere in the interrogation room?

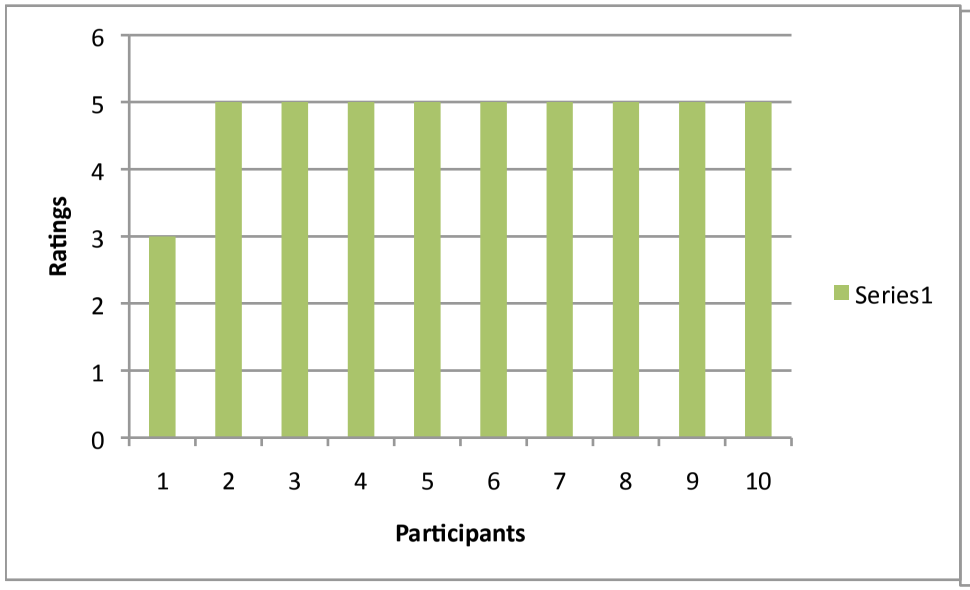


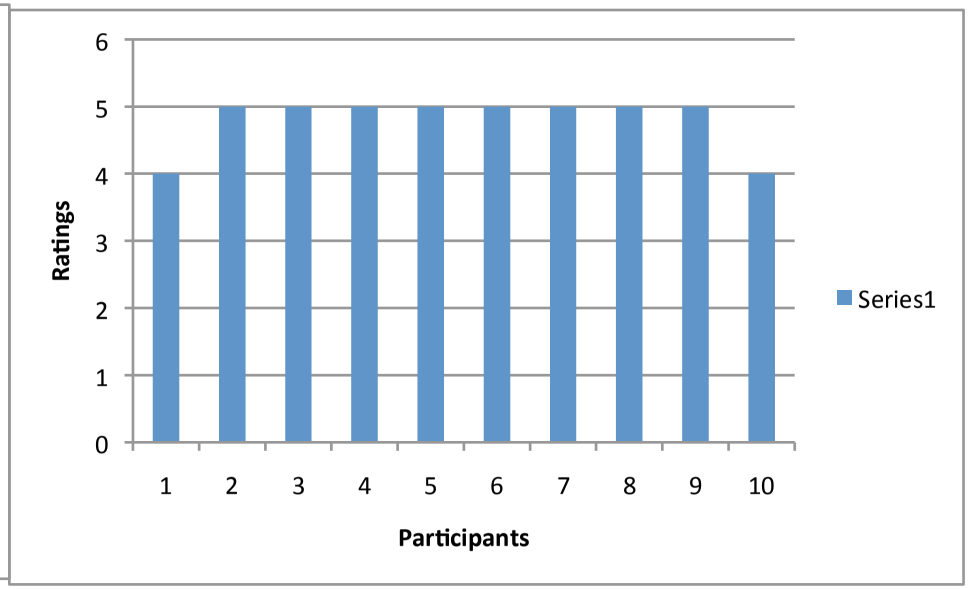


The Statement Test Results - Thomas Miksa, MED10

Q3 Did you feel a sense of the atmosphere when Robert is walking home from the party?

WALKING RESULTS		**STATIC RESULTS**	
Participant	Rating	Participant	Rating
1	4	1	3
2	5	2	5
3	5	3	5
4	5	4	5
5	5	5	5
6	5	6	5
7	5	7	5
8	5	8	5
9	5	9	5
10	4	10	5
Mean	4,8	Mean	4,8
Standard deviation	0,42163702	Standard deviation	0,63245553





The Statement Test Results - Thomas Miksa, MED10

Q4 In which location does most of the story take place?
WALKING RESULTS

Betweeen the Black Diamond and Langebro		Betweeen the Black Diamond and Knippelsbro	
Participant		Participant	
1	1	6	1
3	1	9	1
4	1		
5	1		
7	1		
8	1		
10	1		
COUNT	7	COUNT	2

Participant 2 did not specify which of the locations he thought it was, he however stated he had physically visited.

Before listening to the story, in what context were you familiar with the location?							
Never been there		Seen it on a map		Physically visited		Other	
Participant		Participant		Participant		Participant	
				1	1		
				2	1		
				3	1		
				4	1		
				5	1		
				6	1		
				7	1		
				8	1		
				9	1		
				10	1		
COUNT		COUNT		COUNT	10	COUNT	

The Statement Test Results - Thomas Miksa, MED10

Q4 In which location does most of the story take place?
STATIC RESULTS

Betweeen the Black Diamond and Langebro		Betweeen the Black Diamond and Knippelsbro	
Participant		Participant	
1	1	5	1
2	1	9	1
3	1	10	1
4	1		
6	1		
7	1		
8	1		
COUNT	7	COUNT	3

Before listening to the story, in what context were you familiar with the location?							
Never been there		Seen it on a map		Physically visited		Other	
Participant		Participant		Participant		Participant	
1	1			2	1	3	1
8	1			4	1	7	1
				5	1		
				6	1		
				9	1		
				10	1		
COUNT	2	COUNT		COUNT	6	COUNT	2

The Statement Test Results - Thomas Miksa, MED10

Q5 Over what time span did the events in the story take place?

WALKING RESULTS

Less than a day		2 days		5 days	
Participant		Participant		Participant	
1	1	3	1	9	1
2	1	6	1		
4	1				
5	1				
7	1				
8	1				
10	1				
COUNT =	7	COUNT =	2	COUNT =	1

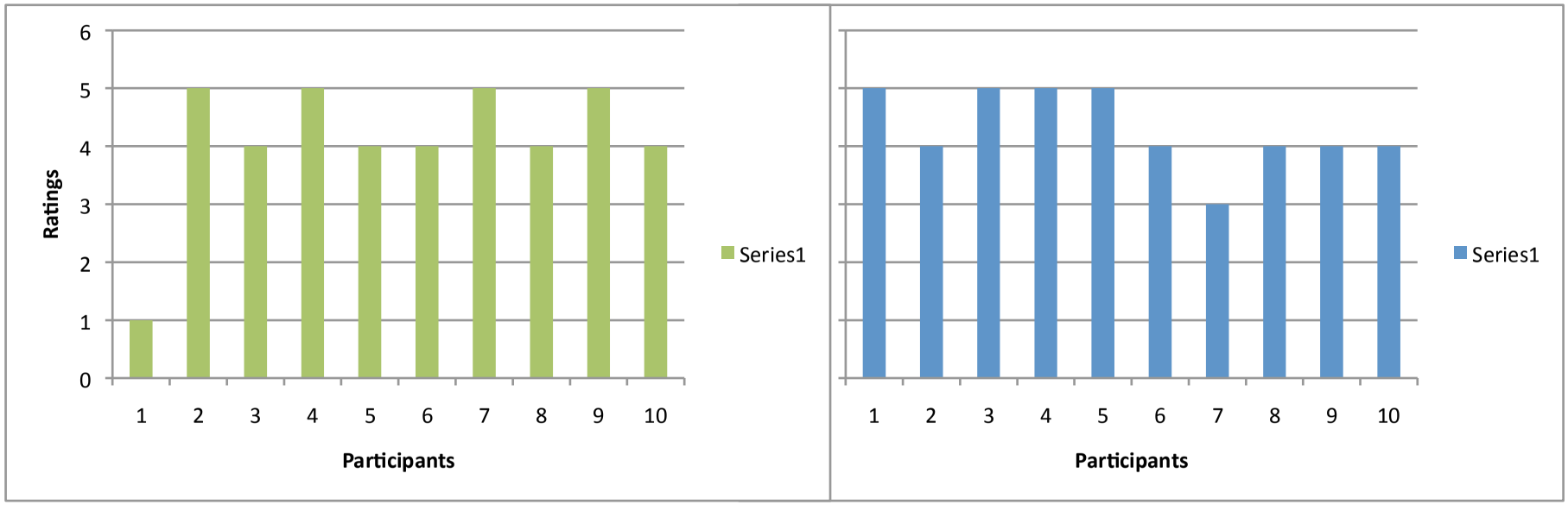
STATIC RESULTS

Less than a day		2 days		5 days	
Participant		Participant		Participant	
3	1	1	1	9	1
5	1	2	1		
7	1	4	1		
8	1	6	1		
10	1				
COUNT =	5	COUNT =	4	COUNT =	1

The Statement Test Results - Thomas Miksa, MED10

Q6 When Robert was hiding behind the van, were you curious to know whether the men would find him?

WALKING RESULTS		**STATIC RESULTS**	
Participant	Rating	Participant	Rating
1	5	1	1
2	4	2	5
3	5	3	4
4	5	4	5
5	5	5	4
6	4	6	4
7	3	7	5
8	4	8	4
9	4	9	5
10	4	10	4
Mean	4,3	Mean	4,1
Standard deviation	0,67494856	Standard deviation	1,197219



The Statement Test Results - Thomas Miksa, MED10

Q7 What do you think happened to Robert after he passes out? What do you think happened to Robert after he passes out?

Participant	Got it	Missed previously stated story information	
WALKING			
1	1		
2	1		
3	1		
4			
5	1		She was too excited to hide behind the van
6	1		
7	1		
8	1		Is problematic to place since he thinks there are more bodies than one, which is wrong
9	1		
10	1		
STATIC			
1	1		
2	1		
3	1		
4	1		
5	1		
6	1		
7	1		
8	1		
9	1		
10	1		
COUNT			

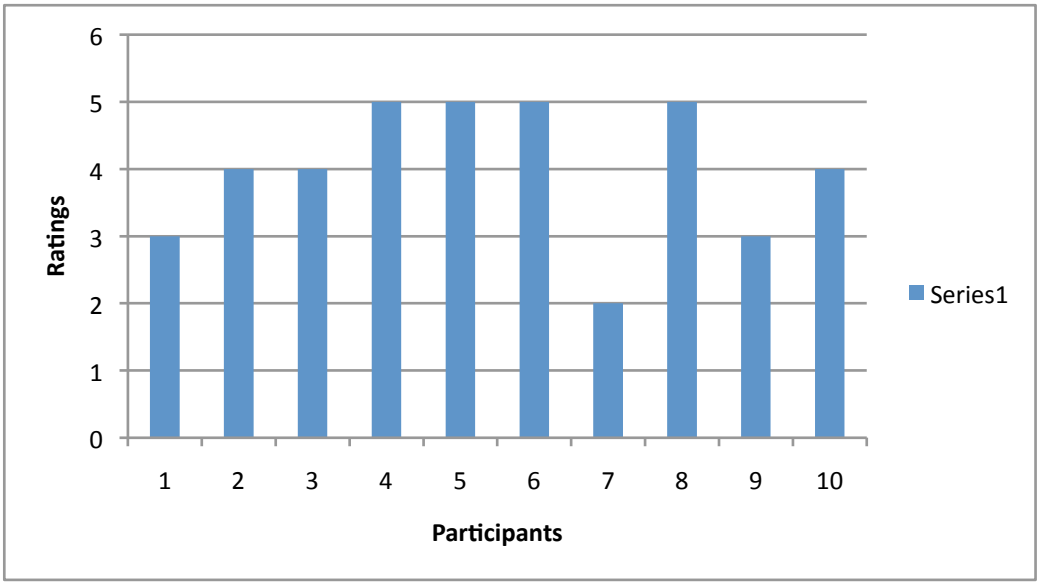
The Statement Test Results - Thomas Miksa, MED10

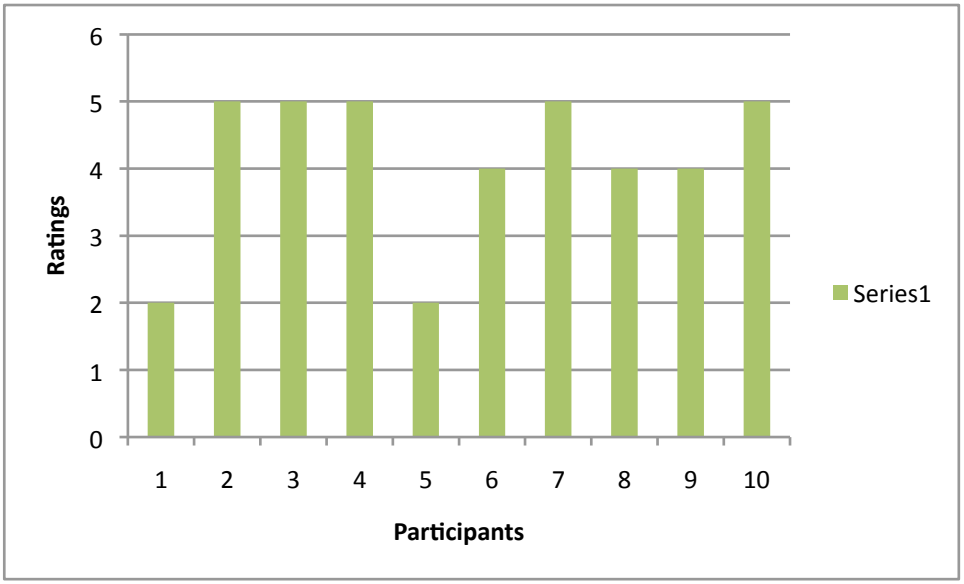
Q8 Are you curious about what happens to Robert after the interrogation?

WALKING RESULTS		**STATIC RESULTS**	
Participant	Rating	Participant	Rating
1	3	1	2
2	4	2	5
3	4	3	5
4	5	4	5
5	5	5	2
6	5	6	4
7	2	7	5
8	5	8	4
9	3	9	4
10	4	10	5
Mean	4	Mean	4,1
Standard deviation	1,05409255	Standard deviation	1,197219

The Statement Test Results - Thomas Miksa, MED10

Q8 Are you curious about what happens to Robert after the interrogation?



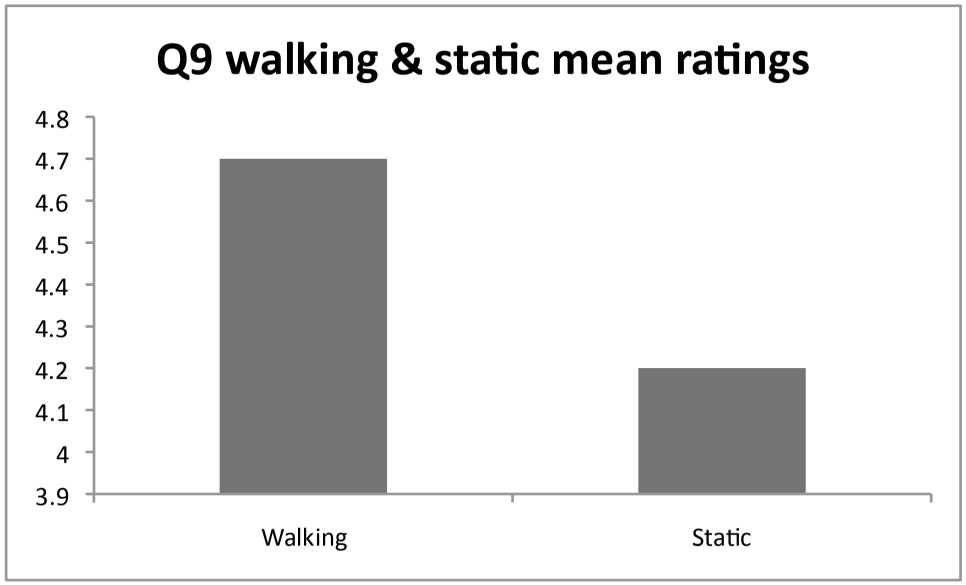


The Statement Test Results - Thomas Miksa, MED10

Q9 Was it possible to relate to Robert's situation throughout the story?

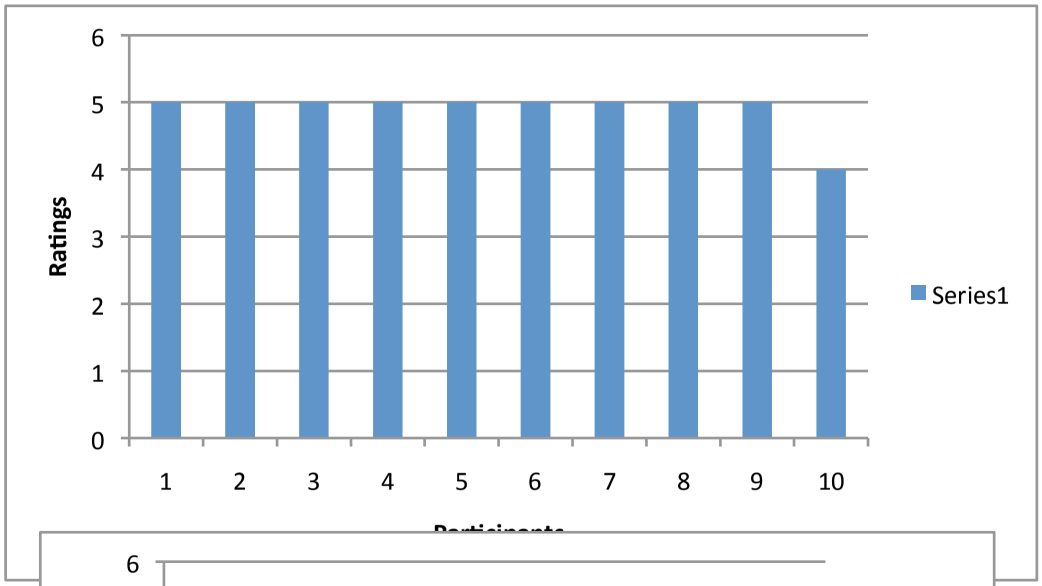
WALKING RESULTS		**STATIC RESULTS**	
Participant	Rating	Participant	Rating
1	5	1	4
2	5	2	4
3	5	3	4
4	5	4	5
5	5	5	4
6	5	6	5
7	5	7	3
8	5	8	4
9	5	9	4
10	4	10	5
Mean	4,9	Mean	4,2
Standard deviation	0,31622777	Standard deviation	0,63245553

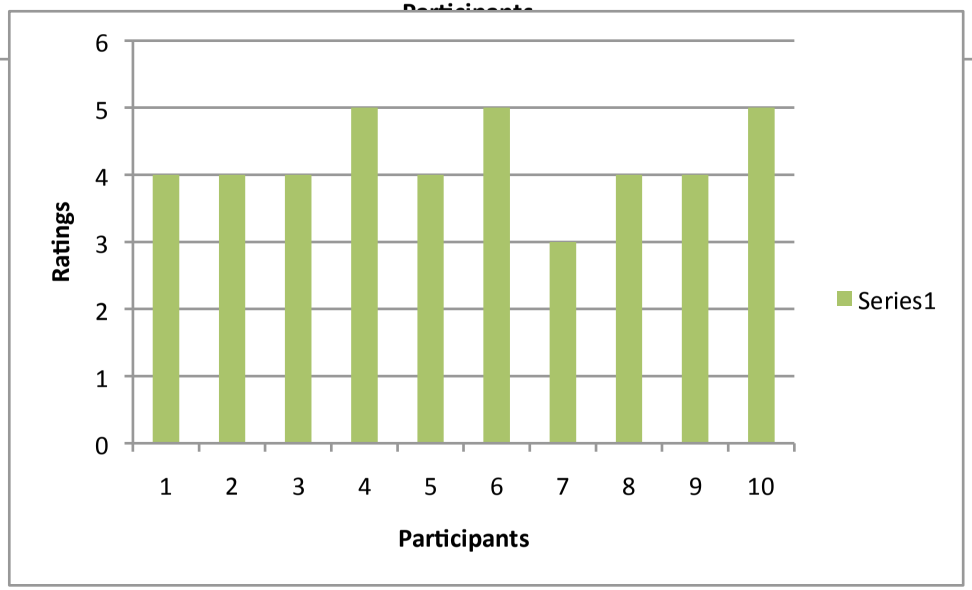
Walking	4,7
Static	4,2



The Statement Test Results - Thomas Miksa, MED10

Q9 Was it possible to relate to Robert's situation throughout the story?



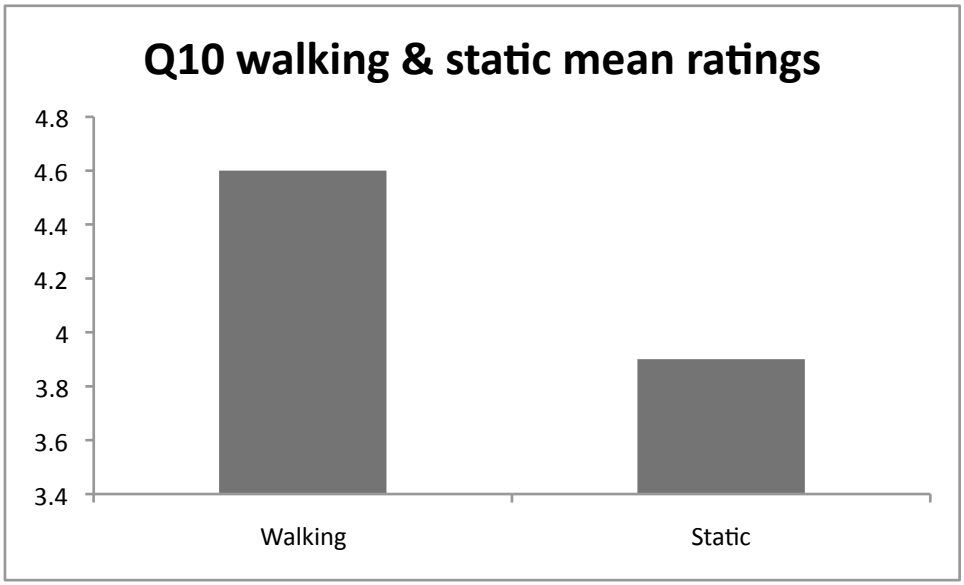


The Statement Test Results - Thomas Miksa, MED10

Q10 Did it feel like you were walking in Robert's shoes?

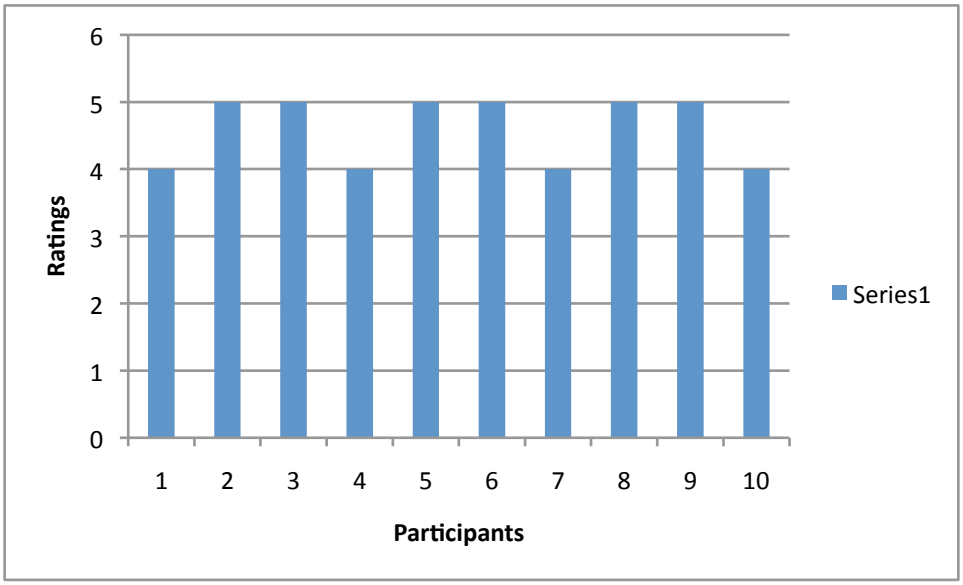
WALKING RESULTS		**STATIC RESULTS**	
Participant	Rating	Participant	Rating
1	4	1	2
2	5	2	4
3	5	3	4
4	4	4	4
5	5	5	4
6	5	6	4
7	4	7	5
8	5	8	4
9	5	9	4
10	4	10	4
Mean	4,6	Mean	3,9
Standard deviation	0,51639778	Standard deviation	0,73786479

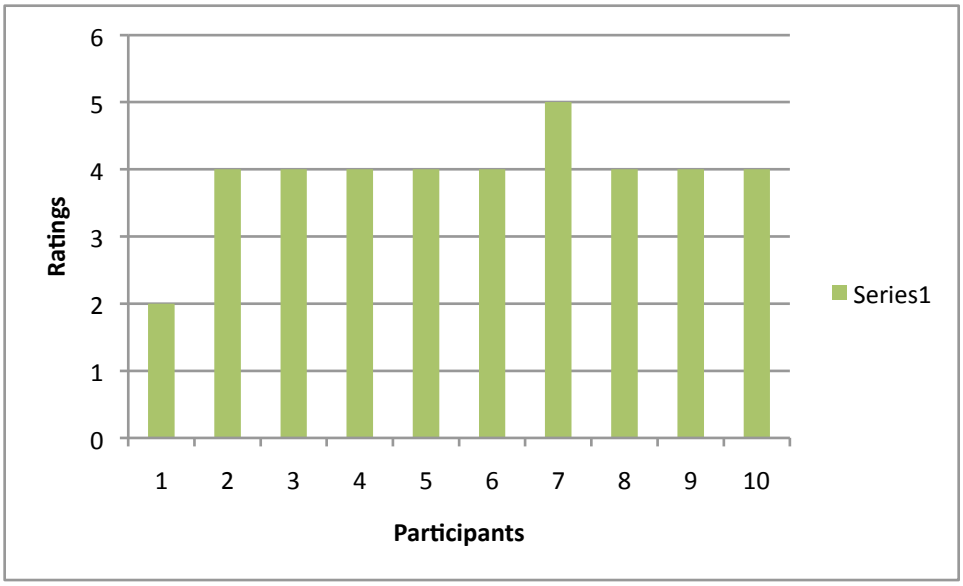
Walking	4,6
Static	3,9



The Statement Test Results - Thomas Miksa, MED10

Q10 Did it feel like you were walking in Robert's shoes?



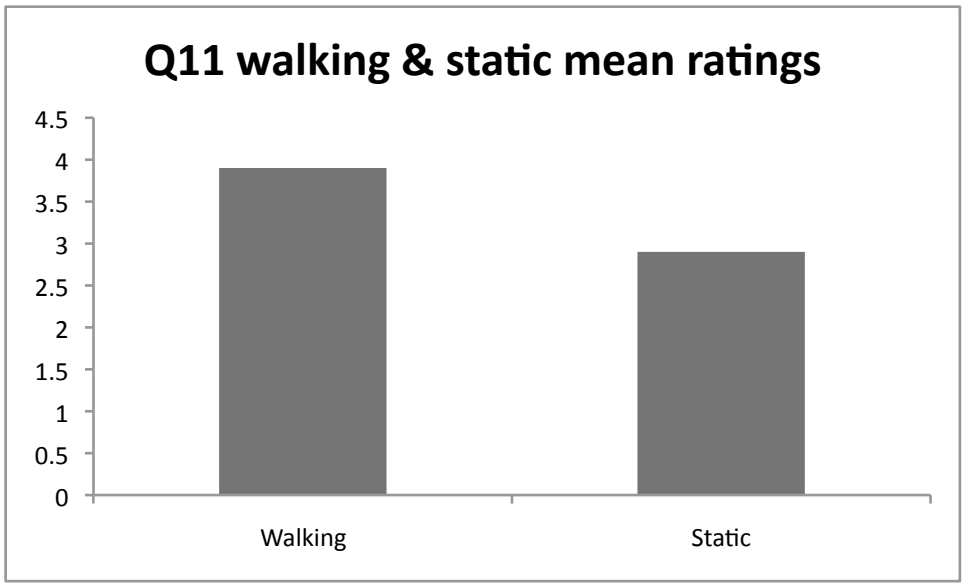


The Statement Test Results - Thomas Miksa, MED10

Q11 Did it feel like you were being chased by the men?

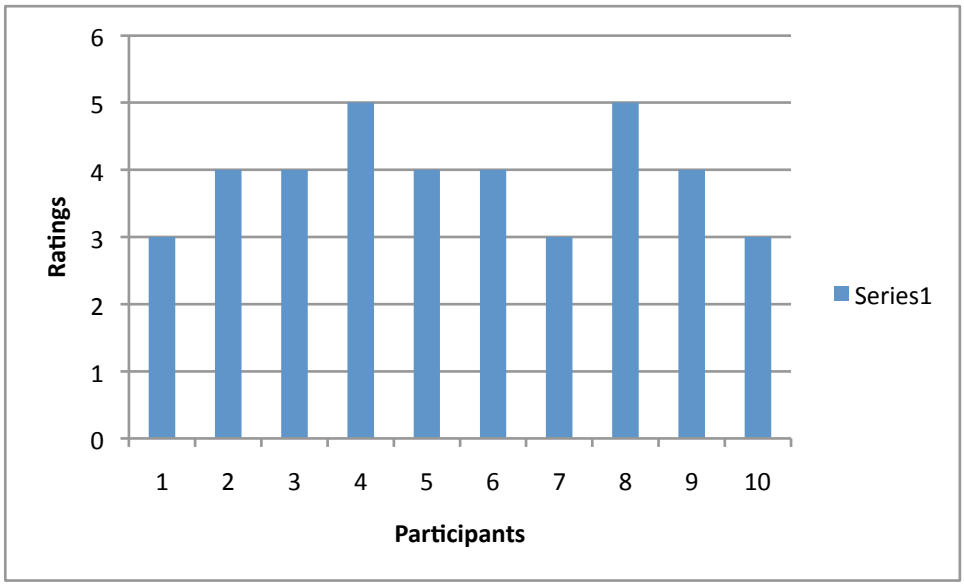
WALKING RESULTS		**STATIC RESULTS**	
Participant	Rating	Participant	Rating
1	3	1	1
2	4	2	3
3	4	3	4
4	5	4	4
5	4	5	3
6	4	6	2
7	3	7	3
8	5	8	3
9	4	9	2
10	3	10	4
Mean	3,9	Mean	2,9
Standard deviation	0,73786479	Standard deviation	0,99442893

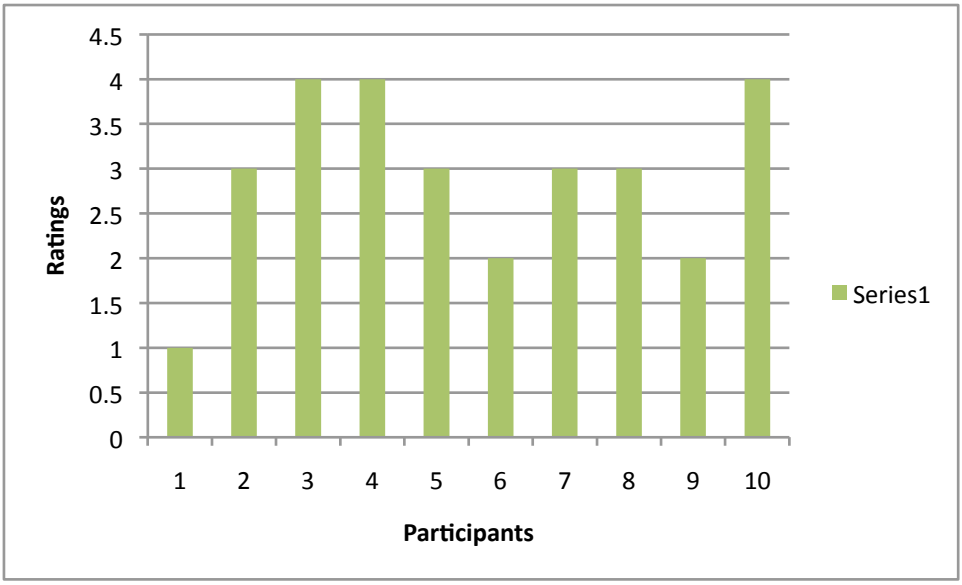
Walking	3,9
Static	2,9



The Statement Test Results - Thomas Miksa, MED10

Q11 Did it feel like you were being chased by the men?

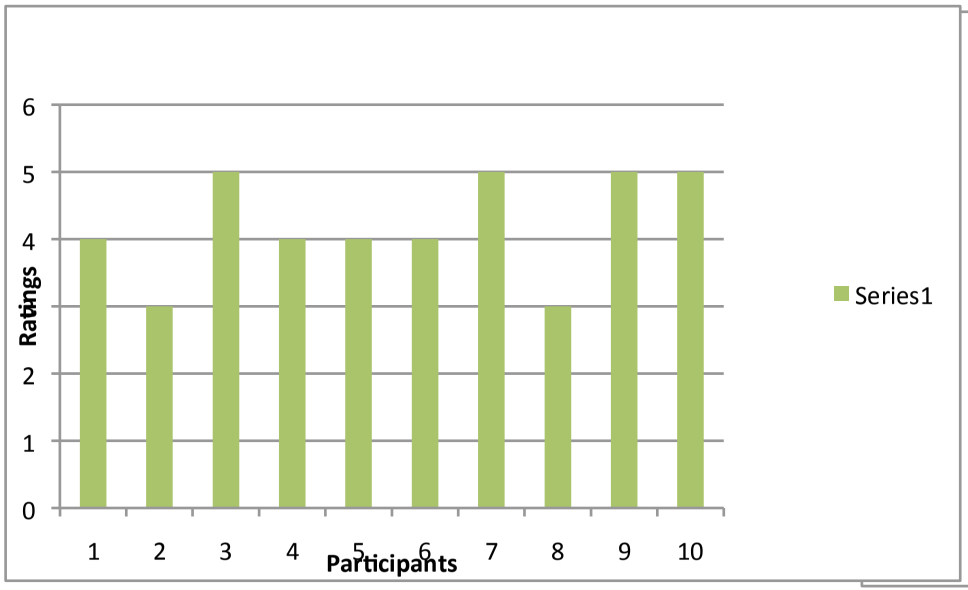


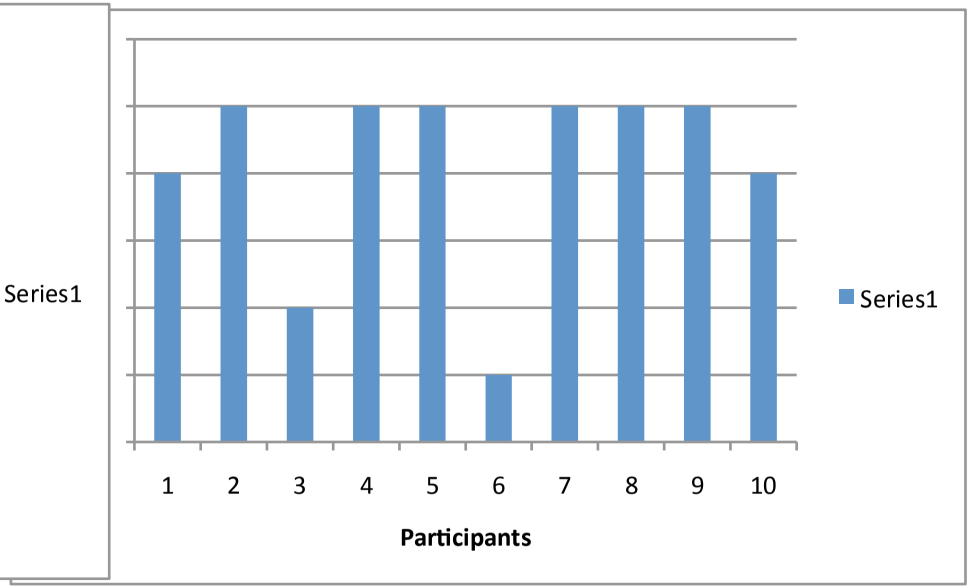


The Statement Test Results - Thomas Miksa, MED10

Q12 Did listening to the story through headphones affect how you experienced the story?

WALKING RESULTS		**STATIC RESULTS**	
Participant	Rating	Participant	Rating
1	4	1	4
2	5	2	3
3	2	3	5
4	5	4	4
5	5	5	4
6	1	6	4
7	5	7	5
8	5	8	3
9	5	9	5
10	4	10	5
Mean	4,1	Mean	4,2
Standard deviation	1,44913767	Standard deviation	0,78881064



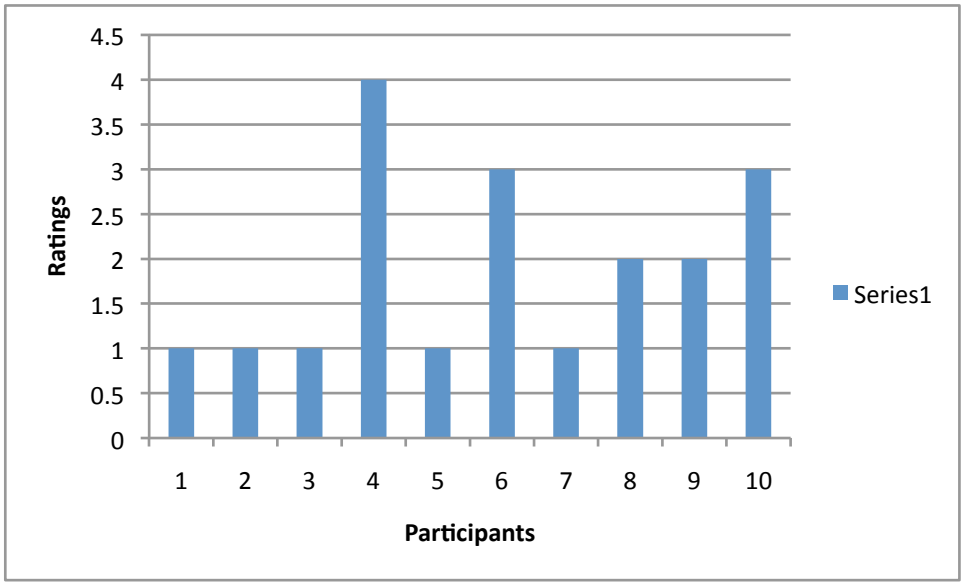


The Statement Test Results - Thomas Miksa, MED10

Q13 Did you experience problems with following the spoken directions?
WALKING RESULTS

Participant	Rating
1	1
2	1
3	1
4	4
5	1
6	3
7	1
8	2
9	2
10	3
Mean	1,9
Standard deviation	1,10050493

The scales should be looked upon in an inverted way in the sense that a low rating here it positive since it means they did not have problems with the spoken directions.



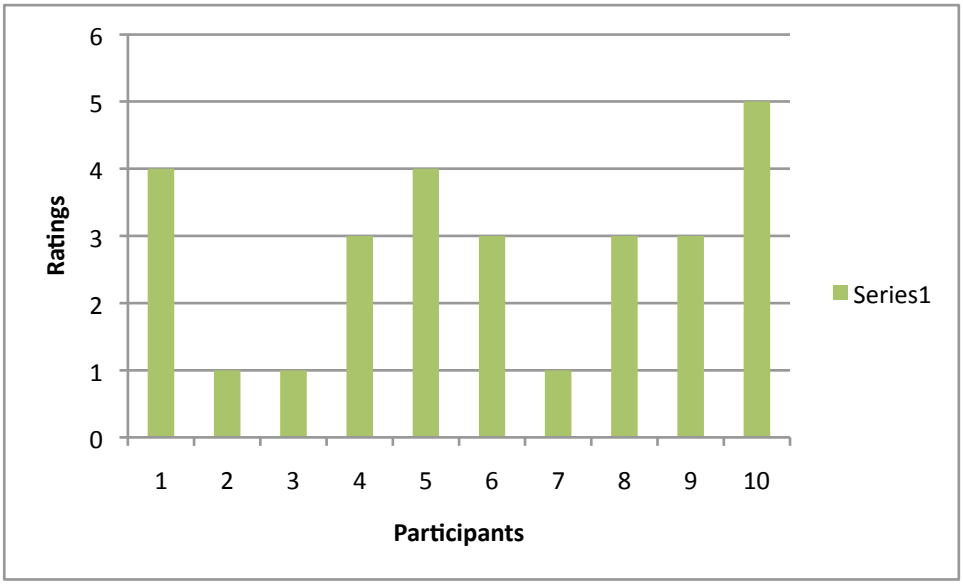
The Statement Test Results - Thomas Miksa, MED10

Q13 Did you experience problems with following the spoken directions?

STATIC RESULTS

Participant	Rating
1	4
2	1
3	1
4	3
5	4
6	3
7	1
8	3
9	3
10	5
Mean	2,8
Standard devi	1,398411798

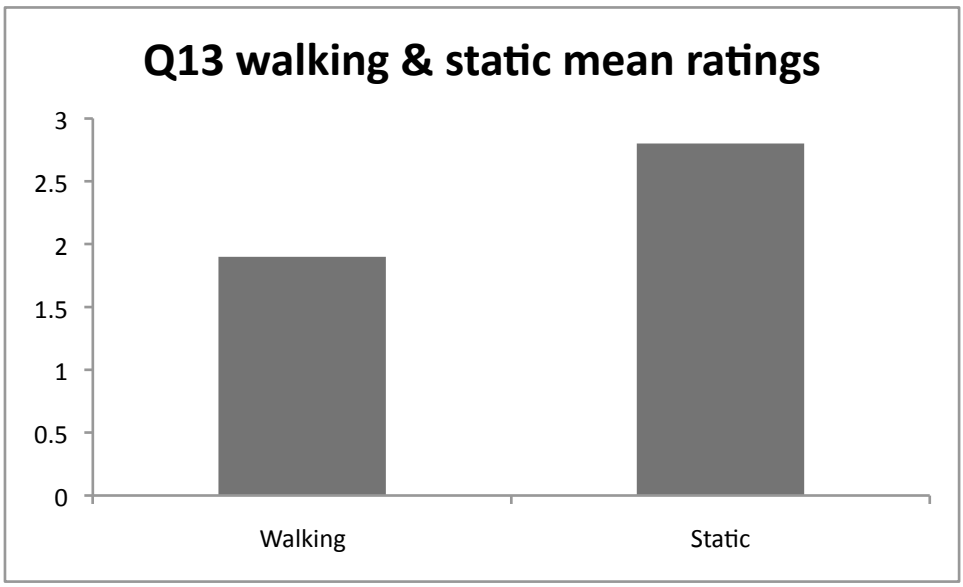
The scales should be looked upon in an inverted way in the sense that a low rating here it positive since it means they did not have problems with the spoken directions.



The Statement Test Results - Thomas Miksa, MED10

Q13 Did you experience problems with following the spoken directions?

Walking	1,9
Static	2,8



The Statement Test Results - Thomas Miksa, MED10

Running/walking incongruence

WALKING	Commented on it	
Participant		
1	1	
2		
3	1	
4		
5		
6		
7		
8		
9	1	Also mentioned in post test comment "I wanted to run!"
10		
COUNT	3	

STATIC		
1	1	
2	1	
3	1	Post test comment
4	1	Post test comment
5	1	
6		
7	1	
8		
9		
10	1	
COUNT	7	

The Statement Test Results - Thomas Miksa, MED10

Sample information

Participant age	Male	Female
25		1
23		1
23		1
52		1
27		1
26		1
27		1
27		1
28		1
50		1
Mean age	30,8	
Standard dev	10,7888832	
	gender count	6 4

Participant age	Male	Female
25		1
26		1
28		1
39		1
26		1
26		1
23		1
22		1
22		1
42		1
Mean age	27,9	
Standard dev	6,95141872	
	gender count	7 3
	gender total	13 7

Test Participant Questionnaire Transcripts - Thomas Miksa, MED10

###WALKING TEST###

#Participant 1:
Male, 25
Q7 What do you think happened to Robert after he passes out? What do you think happened to Robert after he passes out?
Some people found him and he was brought to the hospital and I guess the guys somehow found a way to frame him for killing the girl.

Q12 Did listening to the story through headphones affect how you experienced the story? Did listening to the story through headphones affect how you experienced the story?
It isolated me more from the surrounding environment which helped being drawn into the story.

Q13 Did you experience problems with following the spoken directions?
Left blank.

Additional comments:
To the Q about "being chased" didn't feel as immersed because I was supposed to be running, but was just walking fast.

#Participant 2:
Male, 23
Q7 What do you think happened to Robert after he passes out? What do you think happened to Robert after he passes out?
Bliver fundet og vågner senere op på et hospital.
English translation:
Is found and later wakes up at a hospital.

Q12 Did listening to the story through headphones affect how you experienced the story? Did listening to the story through headphones affect how you experienced the story?
En unik og stærk for indlevelse.
English translation:
A unique and strong form of engagement.

Q13 Did you experience problems with following the spoken directions?
Left blank.

Additional comments:
Awesome.

#Participant 3:
Male, 23
Q7 What do you think happened to Robert after he passes out?

Han bliver vækket af en politibetjent eller en ambulanceører der er blevet tilkaldt af nogen forbipasserende eller nogen beboer. Der har fundet ham liggende i vejkanten.
English translation:
He is woken up by police officer or a paramedic who has been called by some by-passers or people who live nearby that has found him lying on the side of the road.

Q12 Did listening to the story through headphones affect how you experienced the story?
Left blank.

Q13 Did you experience problems with following the spoken directions? Did you experience problems with following the spoken directions?
Left blank.

Additional comments:
Jeg lagde mærke til fodtrinene da Robert blev jaget ikke rigtig havde skiftet tempo.
English translation:
I noticed that the footsteps when Robert was hunted did not really change tempo.

#Participant 4:
Female, 52
Q7 What do you think happened to Robert after he passes out?
Left blank.

Q12 Did listening to the story through headphones affect how you experienced the story?
Left blank.

Q13 Did you experience problems with following the spoken directions?
Left blank.

Additional comments:
Left blank.

#Participant 5:
Female, 27

Q4 In which location does most of the story take place? (notes)
Don't remember the name, but rather the first one.

Q7 What do you think happened to Robert after he passes out?
I guess he "woke up", after being beaten up, since he is in interrogation.
I think I was focusing to much on actually finding a car to hide behind and then it became creepy standing there alone hearing the beating sounds.

Q12 Did listening to the story through headphones affect how you experienced the story?

I felt like at some points that I was thinking his story. It was so wired (creepy) to actually stand next to the lifering (or what it is called) and then I was "lucky" to have the two men standing holding a bag, So i got crapped out. During the listening.

Q13 Did you experience problems with following the spoken directions? Did you experience problems with following the spoken directions?
Left blank.

Additional comments:
Really nice.

#Participant 6:
Female, 26

Q5 Over what time span did the events in the story take place? (notes)
He got lost some time, don't remember how long as I have visual memory.

Q7 What do you think happened to Robert after he passes out?
I think since he was smeared in blood of Mia Summer that he got tossed into the car the two evil men were on. And then probably escaped and got found by the police (awake) or just got found lying outside (passed out still).

Q12 Did listening to the story through headphones affect how you experienced the story?
I found the audio coming from all directions so it was sort of a surround.

Q13 Did you experience problems with following the spoken directions?
I have left and right impairment, the first bit. After the beeb was the most confusing.

Additional comments:
Really Really nice, good luck.

#Participant 7:
Female, 27

Q7 What do you think happened to Robert after he passes out?
As he is alive for the interrogation they did not kill him. But I would assume they would have done it since they had been capable of murder before. My guess is that they got interrupted and hoped that he would be blamed for the other victim.

Q12 Did listening to the story through headphones affect how you experienced the story?
It filtered out a lot of the "real" noise and allowed me to step in to the story. The footsteps were really effective.
I enjoyed being told a story through headphones and relive a scenario like this. As the location was quite deserted it still allowed a lot for the imagination.

Q13 Did you experience problems with following the spoken directions?

I at first hesitated if I was walking the right direction but quickly realized that all the small details matched. I never had problems with the pace.

Additional comments:
I very much enjoyed trying this out. It was fun but cold! It would of course have been even better if I wouldn't know the voices of the people "featured" in it.

#Participant 8:
Male, 27

Q7 What do you think happened to Robert after he passes out?
Tror de slæbte ham med over til deres bil, og efterlod ham der sammen med de lig de havde i plastikposer. Her fandt politiet ham så…
English translation:
Think they dragged over to their car, and left him there together with the bod(ies)y they had in plastic bags. This is where the police found him.

Q12 Did listening to the story through headphones affect how you experienced the story?
Det havde den fordel at jeg kunne bevæge mig mellem de forskellige locations beskrevet i historien. Lyden var i øvrigt af høj kvalitet i høre telefonerne.
English translation:
It had the advantage that I could move between the different locations described in the story. The sound was by the way of a high quality in the headphones.

Q13 Did you experience problems with following the spoken directions?
Havde problemer med at følge fodsporene i starten, men det blev hurtigt bedre efter man havde vænnet sig til tempoet.
English translation:
Had problems with following the footsteps in the beginning, but it quickly became easier once you had gotten used to the tempo.

Additional comments:
Very good!

#Participant 9:
Male, 28

Q7 What do you think happened to Robert after he passes out?
The men beat him up until he passes out and they instead of killing him, decide to frame him for the murder they had committed. Cover him in the victim's blood and leave him under the bridge.

Q12 Did listening to the story through headphones affect how you experienced the story?
It was a very "closed " space, or very close to me and very real. I felt I could be spooked easily because the headphones blocked other sounds.

Q13 Did you experience problems with following the spoken directions?
A little bit. I made a wrong turn in the beginning. Also wanted to run when he was running.

Additional comments:
Left blank.

#Participant 10:
Male, 50

Q7 What do you think happened to Robert after he passes out?
Carried to another place. Put evidence on him [from?] the victim.

Q12 Did listening to the story through headphones affect how you experienced the story?
Scene sounds became more lively/direct.

Q13 Did you experience problems with following the spoken directions?
Finding the pace of walking. Some little language problem understanding some single words.

Additional comments:
Left blank.

###STATIC LISTENING TEST###

#Participant 1:
Male, 25

Q7 What do you think happened to Robert after he passes out?
He was dragged over to the girls body so the police would suspect him of the crime.

Q12 Did listening to the story through headphones affect how you experienced the story?
%I got more into the story since outside noises were cancelled

Q13 Did you experience problems with following the spoken directions?
I kept getting distracted by the Danish accent. The footsteps when running sounded like he was walking calmly instead of running.

Additional comments:
Left blank.

#Participant 2:
Female, 26

Q7 What do you think happened to Robert after he passes out?
%He was thrown in the wooden hut w/ the body, which is how he got the blood on him. He awakens, but has a concussion. He leaves, goes home, where he falls asleep. He wakes up w/o remembering what happened, due to the concussion, but he thinks he merely blacked out from drinking too much at the party.

Q12 Did listening to the story through headphones affect how you experienced the story?
%The sound moving from left to right, or vice versa, was a nice effect. It made it more realistic.

Q13 Did you experience problems with following the spoken directions?
Left blank.

Additional comments:
When Robert is running, the footsteps are too slow.

#Participant 3:
Female, 28

Q4 In which location does most of the story take place? (notes)
%Jeg har set Den Sorte Diamant udefra, men kan ikke placere Langebro.
English translation:
I have seen the Black Diamond from the outside, but I can not place Langebro.

Q7 What do you think happened to Robert after he passes out?
Jeg tror at mændene, som myrdede pigen, sørgede for at efterlade pigens DNA og blod på Robert og få ham til at fremstå som morderen, når politiet ville finde ham.
English translation:
%I think the men, who murdered the girl, planted the girls DNA and blood on Robert and have him appear as the killer, when the police would find him.

Q12 Did listening to the story through headphones affect how you experienced the story?
Til forskel fra at høre historien igennem højtalere bliver du her nærmest lukket ind i din egen lille krimihistorie-verden og kommer helt tæt på historien og hovedpersonen.
English translation:
%Differing from listening to the story through speakers you are almost enclosed in your own little crimestory-world and get completely close to the story and the main character.

Q13 Did you experience problems with following the spoken directions?
Left blank.

Additional comments:
%Facilitators notes: post testing she explained that she was slightly confused over the running, but hearing walking footsteps.

#Participant 4:

Male, 39

Q7 What do you think happened to Robert after he passes out?
%I think he survived. I expected that the men would have killed Robert, since he is interrogated, it means he is a alive. I guess the two men put the blood of the young girl on Robert's clothes, so Robert gets arrested and being accused of killing the young girl.

Q12 Did listening to the story through headphones affect how you experienced the story?
%It somehow transferred me spatially to the location where the story took place.

Q13 Did you experience problems with following the spoken directions?
%Only the interrogator in the beginning of the story was very fast, "he spoke really fast."

Additional comments:
%Facilitators notes: he noticed the running/walking incongruence, he notes as a mild mapping problem.

#Participant 5:
Male, 26

Q7 What do you think happened to Robert after he passes out?
He was framed for the murder.

Q12 Did listening to the story through headphones affect how you experienced the story?
%Seemed close somehow, the feeling that the footsteps were mine.

Q13 Did you experience problems with following the spoken directions?
%Maybe they seemed a bit superficial, a bit too thorough.

Additional comments:
Maybe the sound of the running could be faster.

#Participant 6:
Male, 26

Q4 In which location does most of the story take place? (notes)
%But don't have a good memory of what the place looks like.

Q7 What do you think happened to Robert after he passes out?
Someone saw them beat him up, and scared the muggers so they ran. Then he probably got to the hospital somehow, and is now being questioned.

Q12 Did listening to the story through headphones affect how you experienced the story?
It felt like I was in Robert's shoes, at the scene.

Q13 Did you experience problems with following the spoken directions?
%I made the places up, visually in my head, that I could not remember or didn't know from real life.

Additional comments:
Left blank.

#Participant 7:
Male, 23

Q4 [Other]
Rode past both places on bicycle, nothing else.

Q7 What do you think happened to Robert after he passes out?
I think they drag him back to the shed so he can take they [the] fall for the murder.

Q12 Did listening to the story through headphones affect how you experienced the story?
%It made it more intense than it would with speakers.

Q13 Did you experience problems with following the spoken directions?
I found no problem at all.

Additional comments:
The treading could be sped up when Robert says he is running.

#Participant 8:
Male, 22

Q7 What do you think happened to Robert after he passes out?
The two men found some to frame the murder, of the woman spoken of.

Q12 Did listening to the story through headphones affect how you experienced the story?
I do not know how to compare it, but the ``soundscape'' is much more clear when using headphones I believe. Because it is the only thing you hear. Also it gives you the feeling of it's inside your head!

Q13 Did you experience problems with following the spoken directions?
%It was difficult to me because I do not know the real layout of the area. And knowing it is an actual place, makes more difficult to imagine.

Additional comments:
Left blank.

#Participant 9:
Female, 22

Q7 What do you think happened to Robert after he passes out?
%They carry him back and cover him in the girls blood and then leave him where

the police then find him

Q12 Did listening to the story through headphones affect how you experienced the story?
%Since I have only heard it through headphones I can't compare but it gave a feeling of ``intimate'' experience, like I was hearing the sounds that Robert was hearing and I think it only added to the immersion in the story.

Q13 Did you experience problems with following the spoken directions?
%Some of the things described weren't clear, I at times became confused because I've been there and through I knew the where Robert was, only to discover I was wrong when another landmark was mentioned.

Additional comments:
Left blank.

#Participant 10:
Male, 42

Q7 What do you think happened to Robert after he passes out?
He got framed - smeared in the girls blood, and left to be found.

Q12 Did listening to the story through headphones affect how you experienced the story?
%Sounds were more ``surrounding'' - more ``immersive''

Q13 Did you experience problems with following the spoken directions?
%Right, left, …. ???? of ``parking dispenser'' comparing my own experience at the place with directions from the speaker, which did not match up. I think it would have been easier with a non-existing place - leaves more space for imagination - quite annoying to be ``faced'' to imagine a place in reality.

Additional comments:
According to the frequency of the footsteps, he was not running.