# Use eye-tracking to test user understandability of DCR models

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# 1. Abstract

In this project we have created a template, to be used by an algorithm to translate DCR graphs into natural language. This text will be added to otherwise normal DCR models, to create what we call a hybrid representation. We then construct an experiment, were participants will se models presented with and without this hybrid representation. We also use eye tracking software and a GSR to help study, if this hybrid representation helps increase the understandability of the models.

After looking at the participants answers to each of the models, we will analyse which aspects of DCR are hard to understand and were the text helps. The eyetracking will be used to see where people are looking and for how long. Each participant will be asked to grade their mental effort on each model, and together with the GSR, this creates an image of when the textual annotations help.

The tests will show, that the hybrid representation does not help with understanding DCR. It is not farster to answer the questions for the hybrid, as there's more to read. The data gathered from the difficulty questionnaire contradicts the data from the GSR. This leads to no conclusion as to weather or not the participants use more or less mental effort when reading the hybrid representations.

# 2. Introduction

In the introduction we will introduce DCR, and briefly explain what is it. We then describe what our main concern with DCR is and give our example of a solution to this problem. We will explain what we wish to accomplish with our solution, and break this goal into our hypotheses. The hypotheses describe what we wish to study in this experiment. We also provide a vocab list, with the most essential words, that are necessary to read and understand the remaining report.

## 2.1. Introduction

Process models are models which describe a set of rules, limitations or conditions, by which a process can be performed. There are a lot of different types of these process modeling languages, some are imperative and describe how actions change the state of a process, and others are declarative and describe the limitations of the actions.

DCR is a declarative process modeling language, that has different ways to explain relations between activities (actions). This makes it an advanced and complex language that can model otherwise complicated models pretty easily. Our concern with DCR is that It can become to difficult to follow what's going on in the models if the user is not well versed in how to read DCR. We want to expand on DCR to make it more easy to understand.

We want to extend DCR by adding textual annotations, which will translate the models into natural language. By then combining the regular version with the text, we can create a hybrid representation of DCR. While the regular version of DCR is a visual map of activities, the hybrid representation also includes a descriptive text for each relation, which in theory should help users to better understand the models. The question then becomes, does the hybrid representation help?

To find this out, we will design an experiment where we test participants understanding of DCR. Our hypothesis is that the hybrid representation not only increases the understandability of the models, but also makes our participants faster at reading DCR and use less mental effort to do so. In other words, the hybrid representation should make it easier to understand DCR.

This text should in future be created by a computer using an algorithm and a template. For this experiment, we have not created this program, but we will create the template, and use it as if we were the computer algorithm.

## 2.2. Hypotheses

Our goal is to see if a hybrid representation of DCR, helps users to more easily understand DCR models. Understandability can be broken down into different parameters. Correctness, time and cognitive load. A better understanding of a models is correlated to understanding

more integrated and complex parts of a model. Therefore it's to be expected to see people have a deeper understanding of the models when exposed to the hybrid representation. If it's easier to understand DCR with hybrid representation then is should also be faster to read and decipher the relations of the model. By providing a textual description of the models, it should also be more easy to understand, as it gives a more immediate description of the different relations. Better understanding is therefore associated with an easier way to read the models. This gives us our main 3 hypothesis.

**Hypothesis 1**
The hybrid representation of DCR is associated with a better understanding of the process models compared to the standard version of DCR.

**Hypothesis 2**
Users who use the hybrid representation of DCR are generally faster to understand models than those who do not.

**Hypothesis 3**
Users who use the hybrid representation of DCR invest less mental effort understanding models compared to those who do not.

## 2.3. Vocab list

**Model:** A process model made with DCR, presented with or without hybrid representation.
**Activity:** An activity describes an action that can be performed and must always contain a verb.
**Relation:** An arrow indicating a relation between two activities in DCR.
**Template:** The template is the schematic that translates the relations into a more natural language.
**Textual annotations:** The text that is created from the template.
**Hybrid representation:** A representation of DCR that uses both the visual model, and the textual annotations.
**Participant:** The volunteers that took the test and answered the questions.
**Correctness:** The accuracy at which the participants answer correctly on a set of questions for a model.
**Domain:** The domain is a setting, scene or scenario in which the activities take place. For example, the domain "Evening at the cinema" can be broken into different activities such as "buy ticket", "buy popcorn" and so on.

# 3. Research domain description

In this section., we will start by describing what DCR is, go over what the relations are and look at properties they provide. We then go into more details about what understandability issues that are for DCR, and how we wish to remedy them. Finally we will describe our template, what it is, what it does, and how we designed it.

## 3.1. DCR briefly

DCR, or Dynamic Condition Response, is a process modeling language. Other kinds of models, such as flowcharts or state machines, are imperative and describe what the current state is, and from there which set of actions are considered legal. DCR is declarative and instead models when activities can be performed in relation to one another activities.[1]

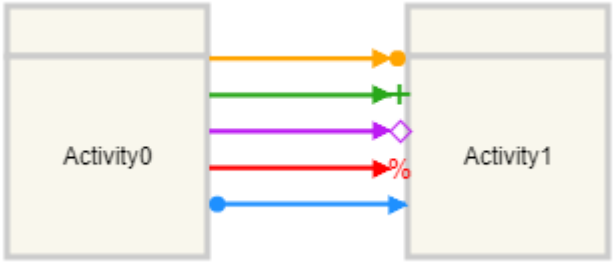
To make models more dynamic, there's different kinds of relations. In total there's 5 different relations in DCR. *Condition*, *Exclude*, *Include*, *Response* and *Milestone*.

First of is a *condition*. The description of a condition is: "The first activity is a condition for the second activity" or "you cannot perform the second activity without having done the first one".

The *exclude* relation removes the activity and its relations from the model. The *include* adds an activity to the modes that was otherwise excluded.

The *response* relation makes the activity 'pending'. As in when the first activity is performed, the second one should be performed afterward at some point. If an activity is excluded whilst it is pending, it will cease to be pending unless included again. An activity can't be pending twice at the same time, or "pendingness" does not stack.

The last relation is the *milestone*. By itself it doesn't do anything, but if the first activity is pending (either from initial state of the model, or via a response), then the second one cannot be performed until after the first one is.



[2]

[1] Mukkamala, Raghava Rao. "A Formal Model For Declarative Workflows." PhD thesis, IT University of Copenhagen, 2012.
[2] Figure of the 5 different relations. Orange is condition, green is include, purple is milestone, red is exclude and blue is response.

Relations can be combined in any way imaginable with more that one relation connecting the same two activities, called *multiple relations*. This allows for a high level of complexity in the DCR graphs.

Activities can be nested under each other. Relations can connect nestings as if they were just single activities. This can be used to lessen the amount of relations on one model, but is functionally the same as connecting an activity to all activities in the nest directly.

[3]

As long as the right conditions are met, an activity can be performed infinitely and in any order. This is different from models like finite state machines, were you are “standing” in a specific state and “move” along the arrows.

This is all the aspects of DCR that was considered in this study.

## 3.2. Understandability

Due to DCR being very different in functionality from other modeling languages, understanding the models might be to difficult for users without a lot of training, because of the ‘hidden’ or indirect constraints that often appear when relations interact with each other. It is because of this, we want to add helping text to the relations. This text would help understanding the different relations, and combinations of relations, using natural language.

Unfortunately understandability is very subjective, and differs a lot from person to person. That’s why we want to get more participants to take the test, so that we can try and formulate a more objective conclusion.

If the textual annotations help, then the participants should answer both faster and more correctly on our test. However, reading the text takes time in itself. By using eye-tracking we can see what participants are looking at and spending more time on. This can help us see if participants use the text to understand the relations and how long they spend reading the text vs reading the model.

[3] Example of a nesting.

## 3.3. Template

The textual annotations should not be made anew each time we want to apply them to a model. That is why we will be constructing a template. The template is a list of schematics that a computer algorithm should be able to apply to any model. The template should contain a written description of each relation, so that every relation can be described using just this template.

### 3.3.1. Goals for the template

We created a small list of goals that we wanted this template to fulfill and how we wanted to create it. Firstly, the template should be flexible enough that any roll or activity could fit and the resulting sentence should still make sense. However we discarded some basic rules for how the english language works. Mainly the -ing forms of words (“having”, “doing”, ect.) and similar changes in words, such as “has” and “have”, was ignored. Presumably changing a few words like this in a sentence is a trivial task for an algorithm, which is why we chose to ignore these minor details.

It was more important to prioritise the actual meaning of the sentence template, and refine these so remove and ambiguity and confusion, but still keep the template so that any activity and roll fits.

Another consideration for the template was how many different combinations of relations we needed templates for. While DCR enables us to have any combination of relations, not all of them are easy to put into context and understand. And since our current goal is to create a test for very new users, having complex and hard to conway concepts would be to much work.

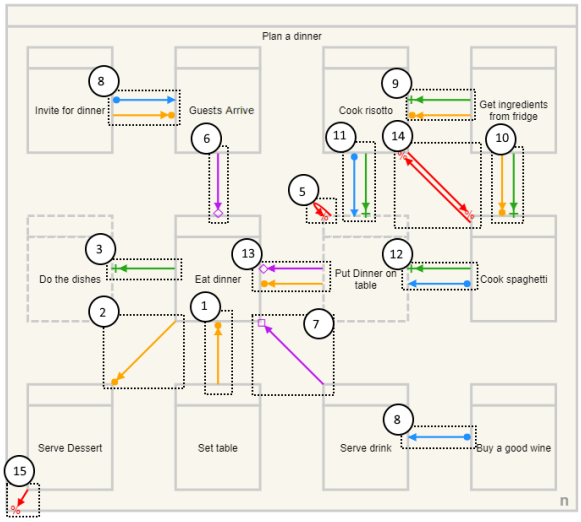
We limited ourselves to the 5 basic relations, a terminating relation, a mutual exclusion and the following combinations; condition response, condition milestone, condition include and include response. The list includes what we believe to be the most common relations that is more easily understood in day to day life.

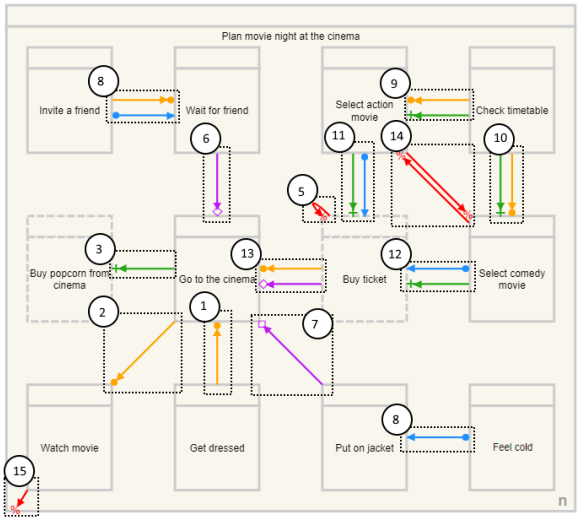
### 3.3.2. Creating the template

While we could have created a template ourselves, we wanted to include some experts to help create it. These experts would be more proficient at DCR than us, and having a dialogue with them would ensure that the quality and correctness of template didn’t suffer.

One approach could have been to simply give the list of relevant relations to the experts and ask how they would conway these in natural language. A problem with this however is that in an isolated case, the phrasing would become very unnatural, and almost robotic. Another problem is that in practical use of DCR you would never encounter a model with only one relation. This could also alter the phrasing of these sentences.

Because of these concerns, we chose a different approach to start creating the template. We created one model which included all 11 different relations from our list, and was set in a real life scenario where these activities and relations made sense. However this approach isn't without its own flaws. Giving concrete context to the relations also changes the natural language to accommodate the domain. To minimize this, we created an exact copy of the model and changed the domain. The two models where both functionally and visually arranged identically, but the activity names were changed. This gave us the ability to see if the same relation would be described differently depending on the domain.




[4]

We contacted 3 experts in DCR and asked them to describe each relation in each model, totalling in 5 different descriptions for each model. Using this, we started a discussion which would help us design the final template.

### 3.3.3. The template

In the template, [Ra] and [Rb] represent different actors/rolls. A roll is the person/actor who performs the activity.

In the template [A] and [B] represent the activities, and can be replaced with any activity.

**Condition:** [Ra] has to [A] at least once before [Rb] can [B].

**Include:** After [Ra] [A], [B] becomes relevant for [Rb].

**Exclude:** Once [Ra] [A], [B] is no longer relevant for [Rb].

**Response:** After [Ra] [A], [Rb] have to eventually [B].

**Milestone:** [Rb] cannot [B] whilst waiting for [Ra] to [A].

[4] The two models that was given to the experts. Each relation is numbered.

**Condition + response:** [Ra] has to [A] at least once before [Rb] can [B], and once [Ra] [A], [Rb] has to eventually [B].

**Condition + include:** [Rb] cannot [B] unless [Ra] at least once [A], and when [Ra] [A], [B] becomes relevant for [Rb].

**Include + response:** When [Ra] [A] [Rb] have to eventually [B], and [B] becomes relevant for [Rb].

**Condition + milestone:** [Ra] have to [A] at least once before [Rb] can [B], and always if needed.

**Mutually exclude:** Either [Ra] can [A] or [Rb] can [B].

**Terminate:** Once [Ra] [A], everything in [B] becomes irrelevant.

### 3.3.4. Discussion

The most important discovery from the discussion was the notion of “relevance”. This concept is crucial when describing DCR, due to the *include* and *exclude* relations. When talking about the exclude relation, using strong words like ‘never again’ or ‘impossible’ could lead to misunderstandings when the activity is re-included or if the activity is also a condition. ‘Irrelevant’ implies that you don’t care about the activity, but potentially it could become relevant. “If relevant” could be added to any of the sentences, but would serve little purpose, as it would apply to all statements, and therefor be trivial.

A goal for the template was to be as short, precise and understandable as possible. With the single relations this was easily done, but not for the more complex relations. As an example, finding a single word that describes a condition and an include at the same time, whilst being distinctly those two together and not as individual relations, is very difficult. While the three relations (condition, include and the combination of the two) are very similar, there are small differences between them. So keeping both the correctness and the short length of the sentence, where not achievable. Also for some of the other combinations, it became even more difficult to describe them shortly. With this in mind, we sacrificed length to have more precise sentences.

Some combination relations, were better (or could only be) described by simply combining the individual relation sentences into one longer sentence. So to keep the semantics in the different relations similar, we had to do this for all of the combination relations, even if there was a way to shorten the sentence. This was done purely to keep a consistent tone throughout the entire template.

Lastly, the experts stated that there was a flaw in our approach to creating these templates. We had been to strict on describing each relation individuality, even though we had tried to

not do so by creating the two different scenarios. They requested there had been some more free reign to describe segments of the model. Some combination of activities and sequences of relations can be described differently, when put into perspective of the whole or parts of the models. So while the resulting descriptions served their purpose, it would have been better to ask for specific constellations of relations also.

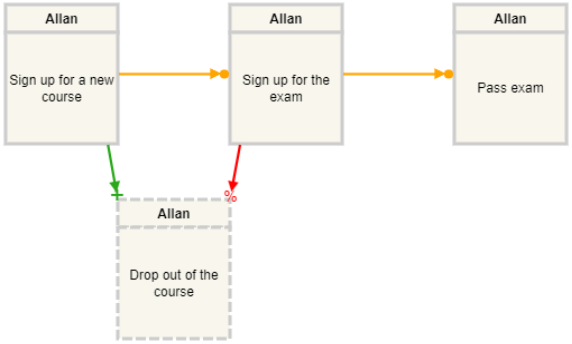
Using the sentences that came from the discussion as a base, the sentences were expanded “empty fields” that can be replaced with rolls and activities (‘insert here’ fields). This became the final template.

# 4. Experimental contributions

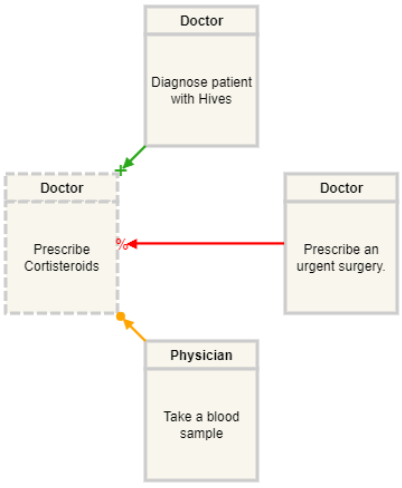
In this section we will go through all the models and the consideration we had when designing them for the main research. We also go over what the experiment is, how its structured and how we perform it. At the end we will show a small list of notable results, which are important for understanding the analysis.

## 4.1. The models

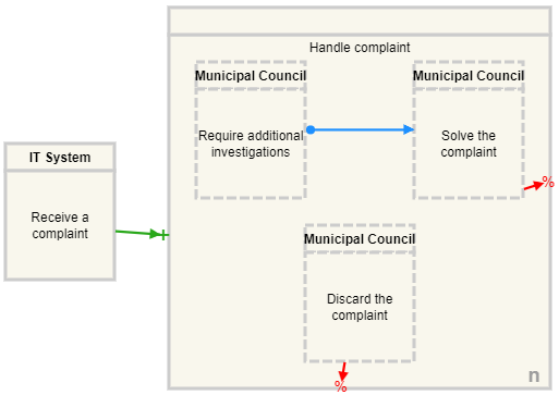
Before we go into details of how the models were designed, we will show them. All the models are numbered from 1 to 12.



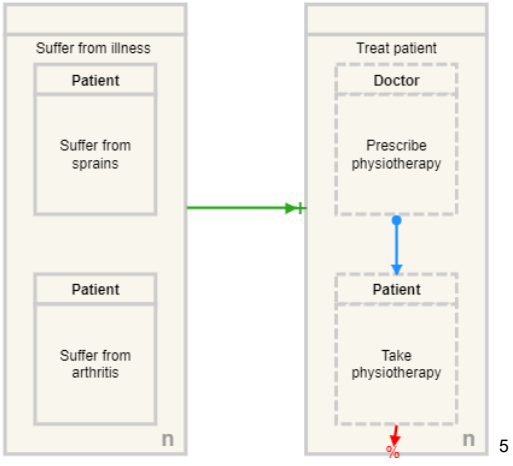

Model 1




Model 4

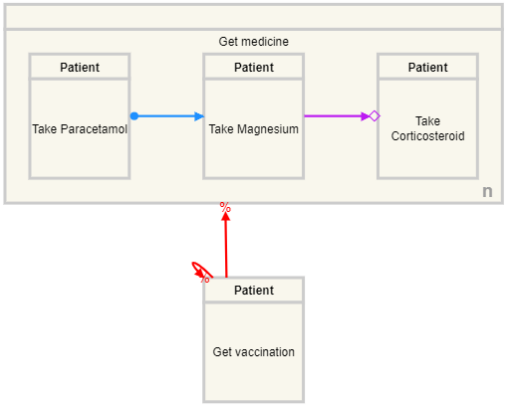



Model 2

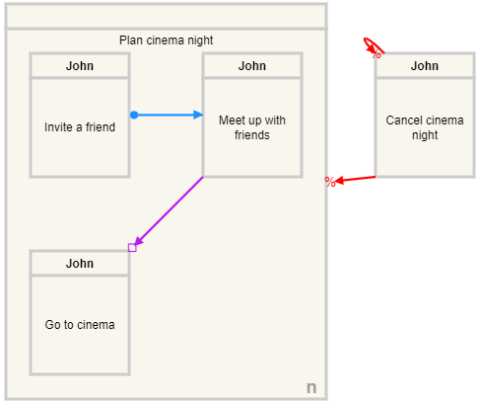



Model 5 [5]

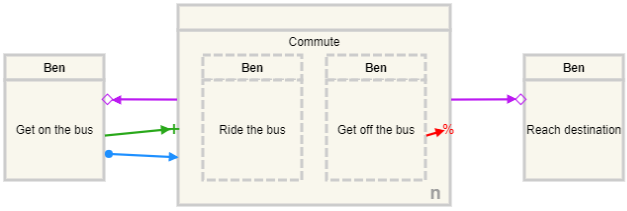
[5] Models 1,2,4 and 5



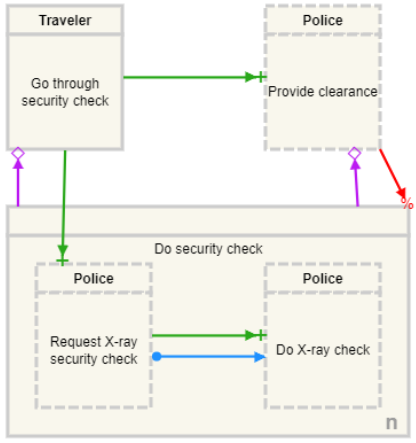

Model 3



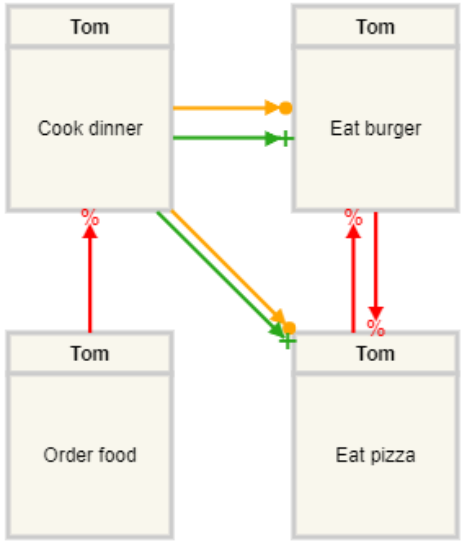

Model 6



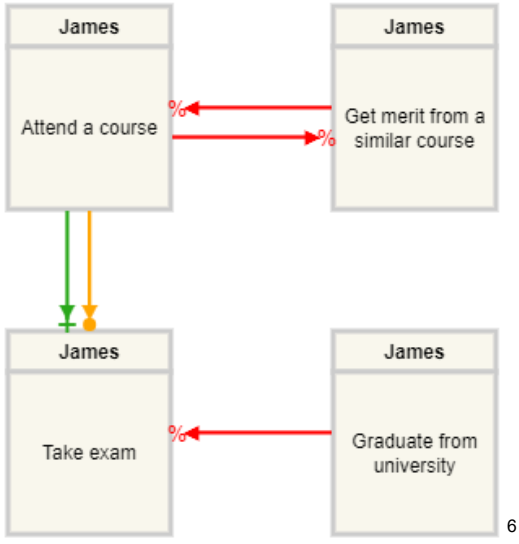

Model 7




Model 10



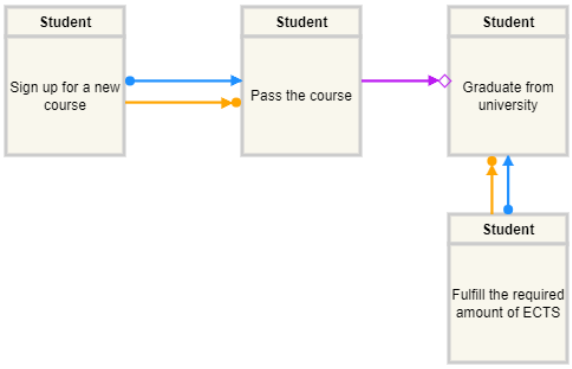

Model 8



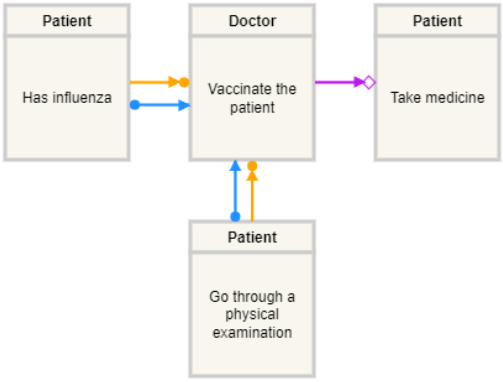

Model 11

[6]

[6] Models 3,6,7,8,10 and 11




Model 9




[7]

Model 12

## 4.2. Design of the main research

The main issue with testing understandability, is the subjectivity of the different individuals understanding of the models. We cannot have one participant be tested only for models without text and one participant with text, and see the difference. The two participants should be on equal ground when taking the test, and therefore needs to be presented with both models that are with text and models without text. This makes the participants answers be relative to their own answers.

### 4.2.1. Model size and complexity

From the discussion with the experts, we already have two models with all of the relations that we are interested in. Since we want the models to stay readable, we cannot scramble them too much. Scrambling the big models would therefore not disguise the more integrated and complex constellations in the model well enough. If we used these two models, we would run the risk of having the already learned model be recognised through it's disguise.

Another reason not to use the already produced models is that they are simply too big for newcomers to DCR to easily understand. Our solution is to have many smaller modes. A smaller size reduces complexity and enables us to scramble the layout without it being to obvious.

If the models can only be understood with annotations, then our test would result in a false positive. Because of this, we want the models we use to be simple enough that people have a chance of understanding the models fairly quickly even without the annotations, but complicated enough that it's also possible to misunderstand the models.

### 4.2.2. Mirror

We cannot limit ourselves to having only one question and/or model for each relation. That would lead to a situation where a participant sees a specific relation with text, and never one

[7] Models 9 and 12

without. We have to present every relation at least twice to every participant. Once without text and once with text.

We called this a mirroring pair of models. Such that models 1 and 4 are mirrors of each other, 2 and 5 are mirrors, and so on. In the above illustrations of the models, each model is positioned next to it’s mirrored pair.

### 4.2.3. Learning effect

Presenting two identical models, is also problematic. After seeing the first model, the participant would already have learned how to understand the model and use this to answer the second model.

To mitigate the learning effect, we wanted to reuse the same models, but scramble the layout and change the domain, so that it would appear to be a completely different model. This should disguise the models, and make participants have to relearn and understand the models a second time. However this was not feasible, as the models stayed very recognisable even after being scrambled. Instead we created similar models in different domains and paired them up with each other. This way we could have ‘mirroring pairs’ even if the models weren’t identical.

Two mirroring models have exactly the same relations as the other, but not the same layout. Having them interconnect differently, also allows us to showcase different uses of DCR, and makes each model more unique, which forces participants to think about each model.

As an example; models 8 and 11 are mirrors of each other. They have the same relations (exclude, condition + include and mutual exclusion), but have very different layouts. We could not just scramble one, as their features are very distinct and would be to easily recognised. Instead we created two different models, with the same relation types.

Scrambling was only used for the pair 3 and 6, as they do not have as many strikingly unique visual features.

### 4.2.4. Consistency

Having some models be more complex than others, would create abrupt difficulty spikes, for the participants. The visual load alone, would be enough to have participants spend a very different amount of time on the different models, and on top of that a more complex model. This unevenness should be avoided. Every participant should ideally have to spend the same time on every model, so that the results won’t look like one relation is harder, when in fact it's the model that's harder.

We’ve tried to make all of our models at the same level of complexity, and keep them as simple as possible. 3 activities allow too few relations, so we kept all the models at 4 activities (not counting nestings) with 3-4 relations (counting multi relations as one).

This is a table which shows the complexity of the different models. First column is the model name. Second column is the number of relations in that model. The last column shows the number of activities in the model. If the models has any nestings, they will shown next to the activities in parentesies.

| Model nr. | Relations | Activities (nestings) |
|---|---|---|
| Model 1 | 4 | 4 |
| Model 2 | 4 | 4(1) |
| Model 3 | 4 | 4(1) |
| Model 4 | 3 | 4 |
| Model 5 | 3 | 4(2) |
| Model 6 | 4 | 4(1) |
| Model 7 | 4 | 4(1) |
| Model 8 | 4 | 4 |
| Model 9 | 3 | 4 |
| Model 10 | 6 | 4(1) |
| Model 11 | 3 | 4 |
| Model 12 | 3 | 4 |

[8]

Model 10 is the only model that has significantly more relations than the rest with 6. The domain of the model became too illogical with only four relations, so we added two more to have the domain make more sense. It was too challenging and time consuming to try and find a domain in which model 10 could have made sense with fewer relations, which is why we choose not to.

### 4.2.5. Domain

All models are set in a scenario, setting  or domain relating to the real world. For example, “taking the bus” or “passing an exam”. The domain could have easily been “A is a condition for B” by have a very transparent naming for the activities. While having letters as the activity names can be easy to read, it also makes it more abstract for the participants. To avoid this abstractness from distracting the participants, we’ve provided a domain for each model. Some models use the same domain, while others have a unique domain.

[8] Table showing the complexity of the models

The downside to having a domain is that when participants try to understand the models, they will instinctively refer to their common sense. However, due to how DRC works (namely reatable activities), referring to common sense would hinder people in understanding DCR. Relying on common sense makes it so that participants don't try and understand DCR properly. To counter this, before we start the test, we ask that participants read what the model says, and not what their intuition or common sense tells them.

### 4.2.6. Single and double relations

From the discussion with the experts, we discovered that explaining combination relations can be tricky. We want to see if there is a difference in usefulness of the text, depending on the complexity of the relation. Because of this, we have two sets of models; some with only single relations, and some with combination relations.

This is also the reason for the amount of models we have. There are 6 single relations (including *terminate*), and 5 double relations. The three single relation models, have to represent every relation at least in one of the models, and all double relations are represented in the three double relation models.

We decided to not use the condition + milestone relation, even though we created a template for it. The milestone part makes most sense when in relation to an include. But when we tried to create a model that had all of these elements, it became clear that the models became very complex with to many different relations at the same time. Coming up with a domain in which condition + milestone was useful, also proved very challenging.

After creating the 6 different models, we made sure that their mirrors had exactly the same relations.

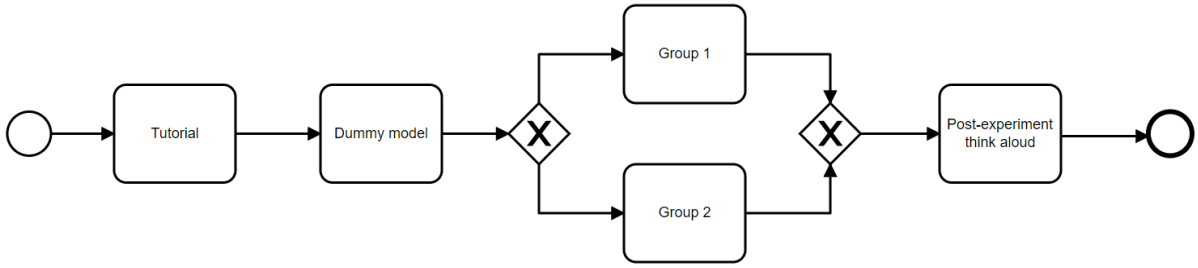
### 4.2.7. Presenting order

We assumed that none of our participant had any previous knowledge of DCR. Because of this, the first model we present will likely be harder to understand, as the participants have yet to familiarize themselves with DCR. But after the first few models, when they are familiar with how DCR works, it would presumably become increasingly easier to understand the models. Because of this learning effect we've had to randomized the order in which the models are presented to the participants.

Randomizing the order also makes the models with text and those without appear randomly in relation to each other.

We made a 13th model, a dummy model. This model would always be presented first and serve to ease the participants into understanding what the experiment was all about. This dummy would also help mitigate some of the learning effect that would otherwise be applied the following models.

Bellow we have a BPMN model to show the how we perform the experiment. Starting with the tutorial, then the dummy model, followed by either group 1 or group 2, and ending with a post experiment think aloud.

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## 4.2.8. Questions

For each model, the participants will be asked some understandability questions. We chose to have 3 true false questions for each model. All the model have around 4 relations, and asking only one question is not enough to test if the participant has understood every relation. By asking more questions, we can target more relations in the model. Every relation is relevant to understanding at least one of the three question in a model, so that there exist at least one question pr relation. Some questions require the participants to understand how two or more relations affect each other.

Asking participants to describe a model in their own words would become very time consuming. But on the other hand, simply answering ‘true’ ‘false’ isn't very engaging for the participant either. Because of this, we chose to use 1 question “which of the following statements are true?” followed by three statements. This is effectively the same as asking 3 seperate true false questions, but can help us keep a similar semantic throughout the experiment. The three statements can be referred to as three different questions.

Another reason to have 3 questions instead of 1, is to give us a broader spectrum of understanding. 1 question would make it look like participants either fully understood or did not understand anything of the model. Having 3 questions gives us more nuanced that can tell us if parts of the model are easier to understand than others.

Some of the statements are designed to be false on purpose, so that there is an equal spread of true and false. We also made sure that at least one model had only ‘true’ and one only ‘false’ as answers. This was to make sure that a participant wouldn’t figure that there had to be at least one true answer and one false answer for each model, and then change their answer accordingly.

When initially designing the experiment, there where an equal ammond of true and false questions (18 true and 18 false), but due to a slight oversight 20 out of the 36 total question were true, and the remaining 16 were false. This oversight also negates our consideration for

[9] BPMN model of the experiment.

at least one model with only false, as the model with only false answers in fact had 2 true answers that where noted incorrectly. This oversight isn't a huge problem, as there is still a very even spread of truths and false.

### 4.2.9. Tutorial

Before the experiment starts, the participants are given an oral tutorial and explanation to what the basics of DCR are. The participants would be inexperienced in DCR, so they would have no chance of understanding DCR without an explanation. The Explanation goes through the basic points that are also provided under the section "DCR briefly" in this paper.

After the initial explanation, we show a simple model to the participants as a dummy model, where we make sure they understand what they are supposed to do. After this dummy model the real experiment starts, and the participants will no longer have supporvition. The answers for the dummy image are not tracked, as we directly interfere with the participants when answering.

### 4.2.10. Structure of the test groups

There are 12 different models, 6 with Multi relations and 6 with only single relations. On top of that, each of these models have a version with and without textual annotations. We divided the models into 2 groups, where one would be with text and one without. If a model has textual annotations, then its mirrored pair would be without.

| | Group 1 | Group 2 |
|---|---|---|
| Multi relations | Model 7<br>Model 8<br>Model 9 | Model 10<br>Model 11<br>Model 12 |
| Single relations | Model 1<br>Model 2<br>Model 3 | Model 4<br>Model 5<br>Model 6 |

[10]

Group 1 is a mirror of group 2. Each participant is put into either group 1 or group 2. Participants in group 1 will see the models from group 1 without text and models from group 2 with text. Participants in Group 2 sees the opposite.

### 4.2.11. Legend

Each model is also provided with a legend of the 5 basic relations. This legend is taken directly from DRC graphs own website. If this was 'real life' use of DCR, then the user could just go and find help on the webpage. We don't wanna test if its possible to understand DCR without help, we seek to study if our textual annotations help further understand DCR, so it makes little sense to withhold this legend.

[10] Table showing the groupings of the models

### 4.2.12. Cognitive load

We use GSR (Galvanic skin response) to track the participants cognitive load throughout the test. The GSR measures the the skin conductivity, which has been shown to be correlated cognitive load[11]. This helps us create an image of how difficult some relations are to understand, and how much the textual annotations are used.

After each model, we provide a query for the participants: “on a scale from 1 to 9, how much mental effort did the last 3 questions take?”, where 1 is no effort and 9 is high effort. This further helps us see if there is a specific model or question that is harder.

This Query also forces the participants to reflect on their own performance. This helps us in keeping them engaged in the experiment, so that they don’t answer wrongly to get it over with faster.

### 4.2.13. Think aloud session

After each participant has completed the test, we have a small interview with them, to hear what was easier and harder to understand.

## 4.3 Notable results

In total 16 people participated in this experiment. We can now look at some of the more important discoveries of our experiment. Most important is their answer accuracy, but we will also look at the participant scored difficulty. Lastly we have the data from the eyetracking which displays the time that it took participants to complete the test.

### 4.3.1. Question correctness

This first table shows the average correctness of each question. For every question we noted a right answer as 1 and a wrong one as 0. We then took the average of each question across every participant (both group 1 and group 2) and displayed them here. The column to the right shows the average of the three questions in that row. Each row corresponds to one model. At the bottom there is the average of the entire text. In this table we can see that there are 5 questions that were never answered wrong, 8 are less that 50%, and that the overall accuracy of correctness was 70,31%.

| | Question 1 | Question 2 | Question 3 | | Average |
|---|---|---|---|---|---|
| Model 1 | 0,875 | 0,3125 | 1 | | 0,7292 |
| Model 2 | 0,5625 | 0,9375 | 0,875 | | 0,7917 |
| Model 3 | 1 | 0,4375 | 0,5625 | | 0,6667 |
| Model 4 | 0,625 | 0,375 | 0,6875 | | 0,5625 |

[11] Shi, Yu, et al. "Galvanic skin response (GSR) as an index of cognitive load." *CHI'07 extended abstracts on Human factors in computing systems*. ACM, 2007.

| | | | | | |
|---|---|---|---|---|---|
| Model 5 | 0,625 | 0,875 | 1 | | 0,8333 |
| Model 6 | 1 | 0,5 | 0,9375 | | 0,8125 |
| Model 7 | 0,6875 | 0,75 | 0,6875 | | 0,7083 |
| Model 8 | 0,3125 | 0,75 | 0,375 | | 0,4792 |
| Model 9 | 1 | 0,75 | 0,9375 | | 0,8958 |
| Model 10 | 0,5 | 0,9375 | 0,25 | | 0,5625 |
| Model 11 | 0,3125 | 1 | 0,375 | | 0,5625 |
| Model 12 | 0,8125 | 0,8125 | 0,875 | | 0,8333 |
| | | | | | 0,7031 |

[12]

The next table only shows the accuracy for when the participants was not shown the hybrid representation. That means that each of these questions were answered 8 times. The table is calculated in the same way as the previous one. Here we see that 7 questions were never answered wrong, 7 are less than 50% and the overall accuracy was 70,14%.

| | Question 1 | Question 2 | Question 3 | | Average |
|---|---|---|---|---|---|
| Model 1 | 0,875 | 0,25 | 1 | | 0,7083 |
| Model 2 | 0,75 | 0,875 | 1 | | 0,875 |
| Model 3 | 1 | 0,5 | 0,75 | | 0,75 |
| Model 4 | 0,625 | 0,5 | 0,625 | | 0,5833 |
| Model 5 | 0,5 | 0,75 | 1 | | 0,75 |
| Model 6 | 1 | 0,375 | 0,875 | | 0,75 |
| Model 7 | 0,75 | 0,625 | 0,625 | | 0,6667 |
| Model 8 | 0,375 | 0,875 | 0,375 | | 0,5417 |
| Model 9 | 1 | 0,625 | 0,875 | | 0,8333 |
| Model 10 | 0,625 | 0,875 | 0,25 | | 0,5833 |
| Model 11 | 0,375 | 1 | 0,375 | | 0,5833 |
| Model 12 | 0,625 | 0,875 | 0,875 | | 0,7917 |
| | | | | | 0,7014 |

[13]

This table shows the average accuracy for when the participants had textual annotations. It is calculated in the same way as the previous one, and shows an overall accuracy of 70,49%. Here 12 questions were never answered wrong, but there's more questions with accuracy of less than 50% with 11.

| | Question 1 | Question 2 | Question 3 | | Average |
|---|---|---|---|---|---|

[12] Table of the total correctness accuracy
[13] Table showing the correctness accuracy of only the models without hybrid representation.

| | | | | | |
|---|---|---|---|---|---|
| Model 1 | 0,875 | 0,375 | 1 | | 0,75 |
| Model 2 | 0,375 | 1 | 0,75 | | 0,7083 |
| Model 3 | 1 | 0,375 | 0,375 | | 0,5833 |
| Model 4 | 0,625 | 0,25 | 0,75 | | 0,5417 |
| Model 5 | 0,75 | 1 | 1 | | 0,9167 |
| Model 6 | 1 | 0,625 | 1 | | 0,875 |
| Model 7 | 0,625 | 0,875 | 0,75 | | 0,75 |
| Model 8 | 0,25 | 0,625 | 0,375 | | 0,4167 |
| Model 9 | 1 | 0,875 | 1 | | 0,9583 |
| Model 10 | 0,375 | 1 | 0,25 | | 0,5417 |
| Model 11 | 0,25 | 1 | 0,375 | | 0,5417 |
| Model 12 | 1 | 0,75 | 0,875 | | 0,875 |
| | | | | | 0,7049 |

[14]

### 4.3.2. Participant scored difficulty

The participants were asked to grade their mental effort for each model on a scale from 1 to 9 (1 being low and 9 being high). This tables shows the average mental load that the participants felt for each model. The top rows are the model id, and the bottom is the participant score average.

| Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|---|---|---|---|---|---|
| 4,188 | 4,563 | 4,125 | 4,438 | 4 | 4,188 |

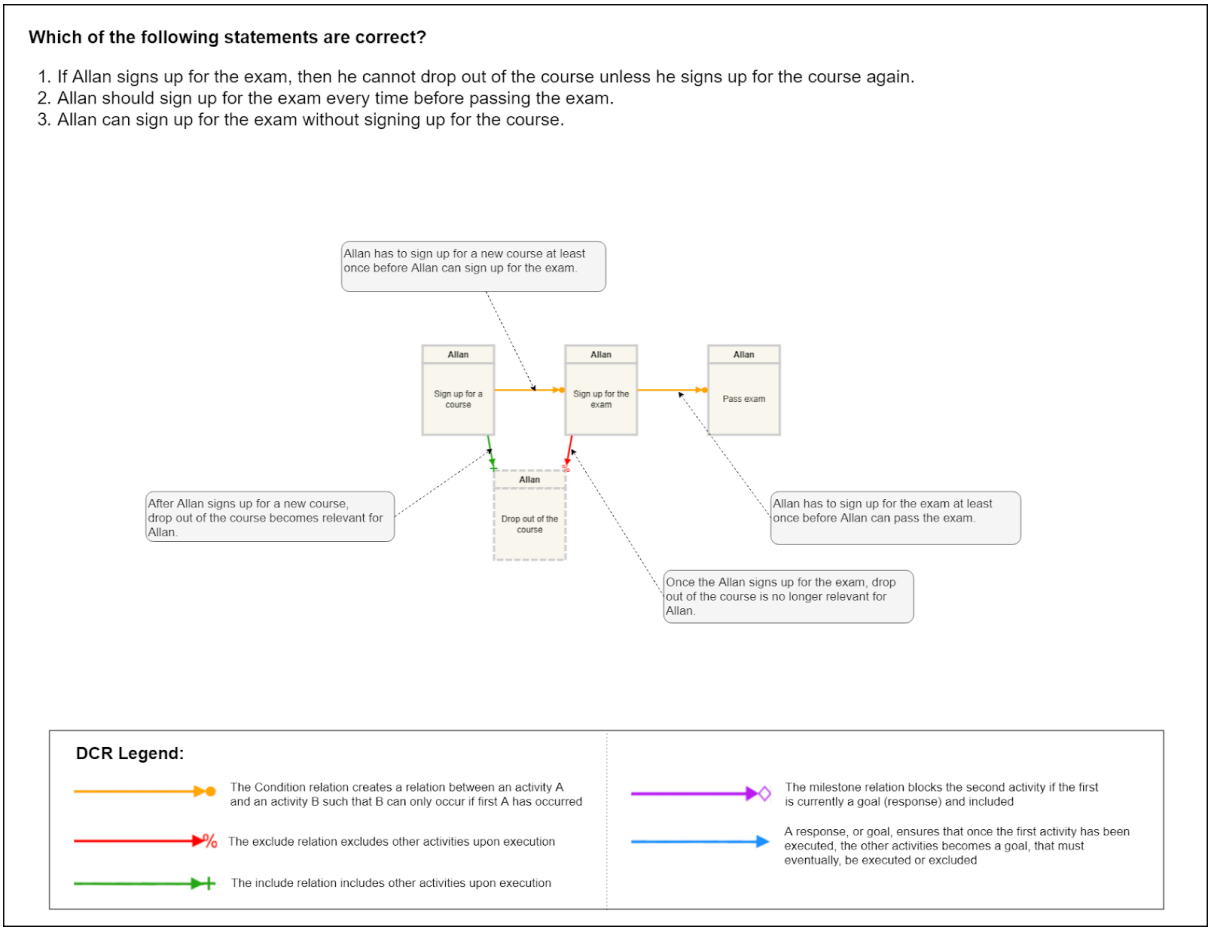
| Model 7 | Model 8 | Model 9 | Model 10 | Model 11 | Model 12 |
|---|---|---|---|---|---|
| 5,75 | 5,375 | 4,5 | 4,625 | 5,125 | 5,188 |

[15]

### 4.3.3. Time spend on each model

The participants did not just look at the models. They looked at a picture with a model, a legend, three questions and annotations (if it was with hybrid representation. Each of these pictures are called slides and look look this:

[14] Table showing the correctness accuracy of only the models with hybrid representation.
[15] Two tables showing the average mental effort rating of the participants for each model.

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On the slides, the questions are at the top, the legend at the bottom, the model is in the middle and the annotations (if any) surrounds the model and points to their respective relation.

The table below shows the average time (in seconds) that participants spend looking at each slide. The left column shows the model that presented in the slide. The column “Without hybrid” shows the average time that participants spend on the slides when they did not have a hybrid representation of the models. The column “With hybrid” shows the average time spend for when the participants had a hybrid representation. The rightmost column shows if there was any improvement. “Yes” means that participants spend less time with the hybrid representation, and “no” means they spend more time with the hybrid representation. No slide has an equal time spend on ‘with’ and ‘without’.

| | Without hybrid | With hybrid | Improvement |
|---|---|---|---|
| Model 1 | 57,39 | 62,11 | no |
| Model 2 | 68,26 | 52,81 | yes |
| Model 3 | 53,60 | 57,60 | no |
| Model 4 | 51,25 | 73,04 | no |
| Model 5 | 58,91 | 67,35 | no |

[16] Example of a slide.

| | | | |
|---|---|---|---|
| Model 6 | 61,27 | 52,82 | yes |
| Model 7 | 107,56 | 90,79 | yes |
| Model 8 | 64,19 | 90,63 | no |
| Model 9 | 69,72 | 48,72 | yes |
| Model 10 | 47,15 | 73,15 | no |
| Model 11 | 46,06 | 79,68 | no |
| Model 12 | 73,83 | 77,38 | no |

[17]

This table takes the times of the table above, and shows the average time spend in each grouping of models. The row “Single” refers to models that had only single relations. The row “Multi refers the models that had multi relations. The row “Both single and multi” shows the average of single and multi. The columns indicate the average times of models without hybrid, with hybrid and the average of both with and without hybrid representation.

| Average | Without hybrid | With hybrid | Both with and without |
|---|---|---|---|
| Single | 58,45 | 60,96 | 59,71 |
| Multi | 68,09 | 76,72 | 72,41 |
| Both single and multi | 63,27 | 68,84 | |

[18]

This table shows the average times of models without hybrid, with hybrid and if there is an improvement. It is calculated in the same way as the one before, but only shows times for when participants looked at the models specifically, and not the entire slide. No model has an equal time spend with and without hybrid representation.

| | Without hybrid | With hybrid | Improvement |
|---|---|---|---|
| Model 1 | 19,63 | 19,56 | yes |
| Model 2 | 24,01 | 18,43 | yes |
| Model 3 | 21,03 | 23,05 | no |
| Model 4 | 22,46 | 24,68 | no |
| Model 5 | 29,70 | 21,42 | yes |
| Model 6 | 24,61 | 18,73 | yes |
| Model 7 | 52,66 | 38,98 | yes |
| Model 8 | 31,23 | 41,01 | no |
| Model 9 | 22,54 | 18,19 | yes |
| Model 10 | 27,67 | 29,20 | no |
| Model 11 | 23,94 | 25,29 | no |
| Model 12 | 28,63 | 20,06 | yes |

[19]

This table shows the average of each grouping of the above data, in the same way that the previous one did.

[17] Table showing the average time spent looking at the slides.
[18] Table showing the average time spent looking at the slides for each grouping.
[19] Table showing the average time spent looking at the models.

| Average | Without hybrid | With hybrid | Both with and without |
|---|---|---|---|
| Single | 23,57 | 20,98 | 22,28 |
| Multi | 31,11 | 28,79 | 29,95 |
| Both single and multi | 27,34 | 24,885 | |

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[20] Table showing the average time spent looking at the models for each grouping.

# 5. Results discussion

In this section we will start with an analysis of our data. We first analyse the overall answer correctness accuracy of the models. We then go into a more in depth analysis of each models correctness, and look at the numbers that stand out the most. We then look at and analyse the average time spend on the models. Finally we analyse the data provided by the GSR and compare it to the participant scored mental effort.

We then go into details of the errors that have happened doing this experiment. We end with a discussion of what we have seen in the analysis.

## 5.1. Analysis

### 5.1.1. Correctness

The average correctness is 70,14% for models without textual annotations, and the correctness only rose to 70,49% with the hybrid representation. Out of the total 36 questions, 6 questions were always answered correctly. For models without hybrid representation, 7 questions where always answered right, and for the hybrid models it was 12 questions.

No model had all 3 of its questions always answered correct. Model 9 with hybrid representation had the highest correctness with 95,83%, and without annotations it was 83,33%, which is also the highest correctness of all models without the hybrid representation.

The lowest scored model without annotations, is model 8 with 54,17% correctness. For models with annotations, models 4, 10 and 11 have the same low correctness of 54,17%, and model 8 is even lower with only 41,67% correct.

Looking at the correctness for each model, we can also see that for 50% of the models were answered more correctly with hybrid, and the other 50% was answered more correctly without. The mirroring pair 9 and 12 is the only pair where both have an improvement from no text to hybrid. The pair 8 and 11 are the opposite case, both were answered more correctly without hybrid representation. Models 9 and 12 are scored among the best, with 9 being the best, while 8 and 11 are scored among the worst, with 8 being the worst.

This suggests, that if a model is already understandable, then it’s understandability will improve with annotations. However if the model has poor understandability, then the hybrid representation worsens the understandability.

| | Without hybrid | With hybrid |
|---|---|---|
| Single | 0,7361 | 0,7292 |
| Multi | 0,6667 | 0,6806 |

[21]

This table shows the accuracy of the different groupings of the models. For the multiple relations models, there is an improvement of around 1,4%. While for the single relations models, the models without hybrid performs better by around 0,7%. This table technically shows the same trend as before, but the differences are so small that we cannot consider them relevant. The difference between single and multi are larger and more noticable. With a difference of 4,9% and 6,9%, we can see that single relations are easier to understand than multi relations.

#### 5.1.1.1. Models 8 and 11

Model nr 8 was scored 2nd highest on difficulty, and had the worst correctness with only 47,9% correct across all participants with and without hybrid representation. This is the only model to have below 50% understandability.

The relations that are described in model 8 are an exclude, a mutual exclude and condition include. The participants score exceptionally poor on questions 1 and 3, these questions targets the model as a whole. What the questions share, is that they rely on the participant understanding that when an activity is excluded, then it's outgoing relations also become irrelevant.

Model 8's mirror is model 11. This model also performed really poorly. Model 11 has the same relations as model 8, being exclude, mutual exclude and condition + include. Interestingly, question 2 for model 11 was always answered correctly. The question focuses solely on the mutual exclusion relation. Question 1 has the second lowest correctness out of all questions (across both the hybrid and non-hybrid models), with only 31,25%. this question relies on the users understanding what it means to be excluded, in the same way as model 8's questions 1 and 3. Model 11's question 3, is slightly different, in that it targets the participants understanding of what happens when an activity is included.

What's common about these 4 questions is that they rely on the user understanding of what it means for an activity to be excluded. This clearly shows that the concept of being relevant, is not clear enough, and that it's easy to misunderstand this. Doing the discussion with the experts, it was decided that 'if relevant' could apply to all relations, which makes this added sub-sentence redundant. Maybe adding this sub-sentence could help clarify some of the confusing elements of exclusion, despite it being trivial.

It looks as if the participants did not fully understand how being excluded works. While they were explicitly told this information doing the tutorial, is seems as if they did not remember it afterwards.

[21] Table showing the correctness accuracy of the different groupings of models.

#### 5.1.1.2. Models 9 and 12

Models 9 and 12 are mirrors of each other and scored very well on answer correctness. Both have the condition + response and milestone relations. Question 3 for model 9 was never answered wrongly with textual annotations. This is likely because that the question uses the exact same words as the template uses to describe the relation in question, thereby directly giving the correct answer away. This shows that participants read the text and use it to answer. However if we look at the same question without hybrid representation, which have a correctness of 87,5% (only one participant answered wrong), we can see that it is also entirely possible that the question is not that difficult. It is also possible that the condition + response (the targeted relation for this question) is an easy relation to understand.

Looking at model 12, the two different activities with outgoing condition + response relations are presented together in every question. This makes them completely equivalent, and one of them could be cut from the model and the questions, without changing anything. This would also mean that the complexity of the model would drastically drop. Since participants aren't asked to distinguish the two activities from each other, it's very possible that participants simply combined the two subconsciously. A simpler model also makes for easier understandability, which can explain the high performance this model has. The fact that the two activities only add artificial complexity, should have been something that was considered doing the design phase of this experiment, so it could have been prevented.

Seeing as the questions for models 9 and 12 might be to easy, it becomes difficult to see and justify if the very small improvement in correctness is due to a well designed template, or if the questions themselves are too easy even without textual annotations.

#### 5.1.1.3. Models 7 and 10

Models 7 where rated the most difficult by the participants. Its mirroring pair is model 10, which is the model with a significantly higher complexity that the rest of the models. For model 7 70,83% of questions were answered correctly, and for model 10 is was 56,25%. Question 1 for model 10 has a correctness of 62,5% without text and 37,5% with hybrid representation. This question contradicts common sense, so it is very possible that participants referred to their common sense despite having been told not to. It is also possible that the added visual complexity that the annotations give, confuses the participant to much and makes them answer incorrectly.

Question 3 for model 10 was answered correctly 25% of the time with and without textual annotations. The question targets the exclude relation, and uses the word "never again". The intent was to have the participant realise that the activity in question can be included, and therefore "never again" is incorrectly. It is possible that participants understood this as "never again, unless included", but it is more likely that participants didn't read and consider the entire model once they found what they thought was the answer. This would mean that people aren't precise enough when trying to understand DCR, or that the participants misunderstood some core concept of DCR along the way.

There Are two core concepts of DCR that when misunderstood, are more likely to be the course of this bad performance. Firstly, unlike other process modeling methods, in DCR you don't 'stand' in a specific place of state. In other words, if participants are used to read arrows as "follow the arrow in one direction, and no backtracking" then that would be very problematic. The other concept that was likely to be misunderstood, is the idea of being relevant. If it's true that people didn't understand a core principle of DCR, then this entire test becomes meaningless.

Doing the post experiment interview, some people commented on the nesting as being a bit confusing, while others felt that the textual annotations where in the way once they got used to DCR. This also points towards model 10 being to complex, as it has both a lot of annotations and a nesting with multiple relations.

Looking model 7, questions 1 and 2 asks the participant, if they've understood what it means for an activity to be pending, and what happens if a nesting becomes pending, as well as what happens when a pending activity is excluded. Question 1 was answered more correctly without textual annotations, while question 2 performed better with. In this model there's also an activity which is not technically necessary, as it's only purpose is to strengthen the setting of the graph. All these factors together, are likely the most complicated things in the entire experiment, so it makes sense that participants felt this was the hardest model. This model shows that it is possible to understand these more complicated scenarios, but that the textual annotations doesn't necessarily help with this.

#### 5.1.1.4. Models 1 and 4

Model 4 has the lowest scored correctness out of the single relation models. Model 4 and its mirrored pair model 1, both have a question (question 2 for both models) that has been answered incorrectly a lot. Both of these question uses the phrasing "every time" and targets a condition relation. There is nothing that enforces that these activities should be performed multiple times. The questions where put so that we could see if participants understood that once a condition is fulfilled, it will stay fulfilled. These scores suggest that the participants think that a condition needs to be met every time you want to perform an action.

If we try to compare the scores between hybrid and non hybrid version of the models, we can see that model 4 performs better without textual annotations, and model 1 does better with. Sinse the best performance out of these two questions are model 4 without text with only 50% accuracy, it's hard to tell if the hybrid representation worsens the understandability, or if the condition is fundamentally misunderstood by the participants.

#### 5.1.1.5. Models 2 and 5

Both models 2 and 5 have really high correctness accuracy, however there is a question for model 2 that is interesting to look at. Question 1 for model 2 has an score of 75% without textual annotation and only 37,5 with. The question targets what happens when a pending activity is excluded. The same question does not appear for model 5. The most closely

related question in model 5, asks if the participant understands that a response is not the same as a condition.

This could mean that participants, understand what a response does, but not what it means to be excluded while pending. Model 2 performing worse with text could also suggest that, these some element to the text that is more disrupting rather than helping. If “If relevant” was added to the text, it might have remedied this issue.

#### 5.1.1.6. Model 3

Model 3 performs a lot worse with hybrid representation. Question 2 describes a sequence of actions that makes an activity be pending after it’s already been done. It’s possible that participants doesn't understand that that an activity can become pending more that once. This should also show for when the model has no hybrid representation, but here the question accuracy is 50%, which is considerably more than 37,5% with hybrid. Looking at only the 4 best performing participants, 1 had this question right without text, 1 got it wrong without, 1 got right with text and the last one got it wrong with text. This and the overall low score makes it look like the question was answered randomly, which would insinuate that the participants did not understand the query.

Question 3 for model 3 scored 75% without text, and 37,5% with. This question asks if the participants understand what happens when you exclude an activity which is pending. The score suggests that the textual annotations enforces an idea of needing to execute a pending activity, despite it being excluded.

#### 5.1.1.7. Model 6

Model 6’s question 2 showed a significant improvement with the hybrid representation, from 37,5% to 62,5%. This question targets the milestone relation. The bad performance without textual annotations, suggests that the participants does not distinguish between the milestone and the condition. This can be further augmented for when we look at  the better performance with hybrid representation, in which the explanation of the milestone should improve the accuracy. This suggests that the hybrid representation helps with understandability.

### 5.1.2. Time

Looking at the average time spent looking at the slides, there's only an improved time for 4 models. Since these models aren’t mirrors nor in the same groupings, this doesn’t show us any relation.

Looking at the average times for the different groupings, we can see a noticeable difference. The average time spent on the slides with single relation models is about 60 sec, and for the slides with multi relation models it’s 72 sec. It makes sense that it takes longer to understand multi relations, as they are essentially nothing more than 2 single relations.

What is interesting is the difference in time between hybrid and regular DCR. For single relations there's almost no difference with only 2 sec on average. For multi relations, the difference between hybrid and non hybrid is 8 sec on average, which is a lot compared to single relations.

This could mean that people spend some time looking at the hybrid representation. This should also mean that participants spend less time on the models. Looking at time spend on just the models, we can see that participants spend on average 3 sec less on the hybrid models.

It looks like the participants spend no time on the legend, with a lot of data points being missing. We can't rule out that there is error in the data, but it's also very plausible that people eventually learned the legend and didn't have to refer to it anymore. If it's the case that the participants learned the legend, then there would be little need for them to also have to read the textual annotations. This questions whether or not the text was used to understand the models, or if it was just read because it was there.

Time spend on the text appear very random throughout the data. Sometimes it is at 0 sec while other times it's at 30 sec. The average across all participants and all models is 5,72 sec. This shows that, like with the legend, the participants generally didn't use the text once they learned it. The large numbers that appear from time to time are the cases where the participants actually looked at the text. This means that the text was used, but only for a few cases.

### 5.1.3. Cognitive load

| Single | Single hybrid | Multi | Multi hybrid |
|---|---|---|---|
| 5,89 | 5,89 | 5,84 | 5,61 |

[22]

This table shows the average cognitive load measured with GSR (Galvanic Skin Response). The top row Shows the different groupings of models. The bottom row shows the average of the measured cognitive load data provided by the GSR. There's no difference between the single relations. The multi relations are lower, but not by a lot. The hybrid multi relations are the lowest. This means that the participants thought the least about the models that had both multi relations and hybrid.

| Single | Single hybrid | Multi | Multi hybrid |
|---|---|---|---|
| 4,146 | 4,354 | 5,062 | 5,125 |

[23]

[22] Table of the average cognitive load for each grouping as measured by the GSR.
[23] Table of the average mental load for each grouping as perceived by the participants.

This table shows the average cognitive load as provided by each participant. Here the single models without hybrid representation, shows the least mental effort used by the participants. Models with a hybrid representation of multiple relations shows the highest cognitive load. This mean that the participant scored cognitive effort shows the opposite of the data provided by the GSR, and thereby contradicts it.

## 5.2. Errors

There’s considerable amount of data from the eyetracking that are missing or extremely low. Some data shows that the times spend on different AOI (areas of interest) to be less than 1 sec. This happens especially with the legend. While it is possible that the participants completely ignores the legend, there's still some cases where it looks like the participant did not look at anything. This is likely caused by the eyetracking losing sight of the participants eyes.

Doing the test, some people read aloud as they were answering. There's no reason why this should or shouldn't be allowed, but it allowed us to hear what they were thinking. On more than one occasion, a participant misread a word which would change their answer. Thereby answering right, but to a question that was misread. It’s impossible to tell if this also happened to the participants that did not read aloud. This means that people could have understood DCR either better or worse, depending on how thorough they read the questions and also the model and annotations.

When recording participant 6, one model was skipped by accident. To remedy this, participant 6 went through a unique recording of just the skipped model (recording 6b). This has had an impact on the presentation of the data. In the analysis this is accounted for.

The design of the test has a flaw. While each model has a mirroring counterpart, the questions in these two models don’t necessarily overlap. This means that some models test for understandability of a different set of criteria than it’s mirror. With this, some understandability issues might not have come to light.

## 5.3. Discussion

The correctness accuracy looks as if it’s unaffected by the hybrid representation. There was a very little difference between hybrid and non hybrid overall. An improvement from 70,14% to 70,49% can hardly be considered an improvement. On top of that, 70% correctness leave a very large part wrong, and by extension not understood.

The biggest problem doesn't lie with the hybrid representation, but with DCR itself. Half of the models had a question which showed a lot of misunderstandings around the exclude relation. A lot of these were misunderstandings in conjunction with a response relation, but some were in relation to a include relation.

Doing the tutorial session before each experiment, we explicitly stated what happens with outgoing conditions and pending-ness when an activity is excluded, but this was forgotten by most participants by the time we got to the questions relating to these.

In some cases, participants have answered wrongly because they don’t look at the entire model, or because they ‘followed the arrows’. Both of which are not stated in the textual annotations, as it is explained as a basic part of their training. In one interview, it became clear that there was some confusing elements surrounding nesting, but it’s difficult to say if the other participants felt the same.

Some participants stated that the exclude was easy and the milestone was hard to understand, but that does not appear to be the case when looking at the accuracy of the answers.

These are all problems with understanding DCR, which the template either does not tackle properly or not at all. These problems should have been addressed by the template, but seeing as there is no difference between hybrid and regular, then the template is not helping.

In some models high correctness, participants answered right because of simple questions, and not with the help of the hybrid representation. This is also reflected in the interviews. Here participants stated that they only used the text, if they wanted to verify their answers before answering or if the questions where tricky. Participants said that the text in some cases made the image too cluttered, and that they prefered not using it.

One participant said he disliked the text and ignored it on purpose. Another participant said that the text helped him understand the more complex models, but he scored better without text than with. There was also participants who thought that the multi relation text was too complicated.

The participants who scored really well thought that text stopped being useful after a while, and participants who score low liked to have the text but thought the legend did the same. No participant felt that the legend wasn't enough. This all points to the hybrid representation in general not helping, but not worsening the understanding either. While there was a few questions were seems to have helped, likewise there's also cases were it worsens the understanding.

Reading the hybrid representation sometimes takes a bit of time. The text is mostly read the first time a participant sees it, and if they re read it afterwards. As participants eventually learn the legend, they also stop reading the text. Eventually they become so good that they neither need the legend nor the text. With prolonged exposure to the test, the participants will eventually read the hybrid represented models as just regular models, by ignoring the text. In some cases the participants said that the text was in the way or confusing. Therefore it is not the hybrid text that speeds up the answering process, but that the participants get used to it.

The cognitive load is lowest for the hybrid representation of models with multi relations, which means that the participant thought the least about answering these models. These models are also scored highest in terms of what the participants felt was difficult. Some participants felt that the hybrid representation helped the most with multi relation models, while others said that the annotations were to complex, and that they rather just read the relations separately.

This leaves no clear indication as to if the cognitive load was lower or higher with annotations. Maybe with more participants we could see a stronger tendency towards one or the other, but not currently.

# 6. Final thoughts

In this section we will show the conclusion to each of our hypothesis based on what we have seen in the analysis and discussion.

Afterwards we will briefly talk about some improvements that could be applied to this experiment in future, as well as come with an alternative approach for the experiment.

## 6.1. Conclusion

Hybrid representation of DCR does not improve the understandability of DCR, Because the hybrid representation does not help with the most pressing issues of DCR understandability.

Hybrid representation does not improve the speed at which DCR are understood, because after users become familiar with DCR, they stop reading and using the hybrid representation, and eventually treat the models as if they are not hybrid.

We cannot tell if users invest more or less mental effort in understanding DCR, because of insufficient and conflicting data.

## 6.2. Future improvements

For future research, it could be a good idea to narrow the scope. To make a template which hypothetically should help, we need to know where help is needed. We should instead of going to the experts to make a template, have an experiment to show were a template would help, and then make a template. This could be done by having a similar test to this one, by showing models to participants.

Make the mirroring models exactly the same, even the questions. We did not do this to stop people from learning from the previous model, but the downside is that we can't tell what's difficult to understand as clearly. Cutting down on models would also help. The multi relations template showed in some cases to be to long and confusing. By breaking these into single relations, we wouldn't need as many models.

An alternate version of the experiment, would be to put every single aspect of the template into just one model. For the first model, we would present this model without hybrid and a series of questions relating to the more complex things in said model. Afterwards, for the second model, we show an identical model but with hybrid representation. Here we ask if the participants want to change some of their answers with this new information. From this we would get a baseline of understandability, and a revised answer where the participants have evaluated if they had understood it correctly the first time. However this would sacrifice the time and cognitive load aspects of the experiment.

# Bibliography

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www.dcrgraphs.net

https://wiki.dcrgraphs.net/

# Appendix

Table that shows the participants answers. To the left is it participant ID and what group they belong to. The column “model” shows the ID of the models. The column “hybrid” shows if that model was presented with or without hybrid representation. “y” indicates it was with hybrid, and “n” indicated without. Following 3 columns shows what participants answered for the given question in the models, with 1 being true and 0 being false. The “Difficulty” column shows what the user answered to be their mental effort for that model. The next three rows shows the correctness of the questions, with 1 being a correct answer and 0 being incorrect. Final column shows the average accuracy of that model. At the bottom, the total average accuracy, the accuracy for models without textual annotations and the accuracy with hybrid representation is displayed next to the labels “total”, “no text” and “with text” respectively. The four numbers to the left of the labels, are the average difficulty of each group of questions. Top left number is for single relation models without hybrid, top right is for multi relation models without hybrid, bottom left is single relation with hybrid and bottom right is multi relations with hybrid. There are 16 participants, each with their own table.

| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | n | 1 | 1 | 0 | 4 | 1 | 0 | 1 | 0,667 |
| | 2 | n | 0 | 1 | 1 | 5 | 1 | 1 | 1 | 1 |
| Group | 3 | n | 1 | 0 | 1 | 5 | 1 | 1 | 1 | 1 |
| 1 | 4 | y | 0 | 1 | 0 | 6 | 1 | 0 | 1 | 0,667 |
| | 5 | y | 0 | 0 | 1 | 7 | 1 | 1 | 1 | 1 |
| | 6 | y | 1 | 1 | 0 | 5 | 1 | 1 | 1 | 1 |
| | 7 | n | 1 | 1 | 0 | 6 | 1 | 0 | 1 | 0,667 |
| | 8 | n | 0 | 1 | 0 | 6 | 0 | 1 | 0 | 0,333 |
| | 9 | n | 1 | 0 | 1 | 6 | 1 | 1 | 1 | 1 |
| | 10 | y | 0 | 1 | 0 | 6 | 0 | 1 | 1 | 0,667 |
| | 11 | y | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 0,333 |
| | 12 | y | 0 | 1 | 1 | 5 | 1 | 1 | 1 | 1 |
| | | | | | | | | | total: | 0,778 |
| | | | | | | | 4,667 | 6 | no text | 0,778 |
| | | | | | | | 6 | 5,333 | with text | 0,778 |
| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
| 2 | 1 | y | 0 | 0 | 0 | 5 | 0 | 1 | 1 | 0,667 |
| | 2 | y | 1 | 1 | 1 | 5 | 0 | 1 | 1 | 0,667 |
| Group | 3 | y | 1 | 1 | 0 | 6 | 1 | 0 | 0 | 0,333 |
| 2 | 4 | n | 1 | 0 | 1 | 5 | 0 | 1 | 0 | 0,333 |
| | 5 | n | 1 | 0 | 1 | 6 | 0 | 1 | 1 | 0,667 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 6 | n | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 0,667 |
| | 7 | y | 1 | 0 | 0 | 7 | 1 | 1 | 1 | 1 |
| | 8 | y | 0 | 0 | 1 | 4 | 0 | 0 | 1 | 0,333 |
| | 9 | y | 1 | 1 | 1 | 6 | 1 | 0 | 1 | 0,667 |
| | 10 | n | 0 | 1 | 1 | 5 | 0 | 1 | 0 | 0,333 |
| | 11 | n | 0 | 0 | 0 | 6 | 0 | 1 | 0 | 0,333 |
| | 12 | n | 0 | 1 | 1 | 5 | 1 | 1 | 1 | 1 |
| | | | | | | | | | total: | 0,583 |
| | | | | | | | 5 | 5,333 | no text | 0,556 |
| | | | | | | | 5,333 | 5,667 | with text | 0,611 |
| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
| 3 | 1 | n | 1 | 1 | 0 | 4 | 1 | 0 | 1 | 0,667 |
| | 2 | n | 0 | 1 | 1 | 4 | 1 | 1 | 1 | 1 |
| Group | 3 | n | 1 | 1 | 1 | 4 | 1 | 0 | 1 | 0,667 |
| 1 | 4 | y | 0 | 1 | 0 | 5 | 1 | 0 | 1 | 0,667 |
| | 5 | y | 0 | 0 | 1 | 4 | 1 | 1 | 1 | 1 |
| | 6 | y | 1 | 1 | 0 | 6 | 1 | 1 | 1 | 1 |
| | 7 | n | 1 | 0 | 0 | 7 | 1 | 1 | 1 | 1 |
| | 8 | n | 0 | 1 | 0 | 7 | 0 | 1 | 0 | 0,333 |
| | 9 | n | 1 | 0 | 1 | 5 | 1 | 1 | 1 | 1 |
| | 10 | y | 0 | 1 | 1 | 5 | 0 | 1 | 0 | 0,333 |
| | 11 | y | 0 | 0 | 1 | 6 | 0 | 1 | 1 | 0,667 |
| | 12 | y | 0 | 1 | 1 | 6 | 1 | 1 | 1 | 1 |
| | | | | | | | | | total: | 0,778 |
| | | | | | | | 4 | 6,333 | no text | 0,778 |
| | | | | | | | 5 | 5,667 | with text | 0,778 |
| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
| 4 | 1 | y | 1 | 0 | 0 | 3 | 1 | 1 | 1 | 1 |
| | 2 | y | 1 | 1 | 1 | 4 | 0 | 1 | 1 | 0,667 |
| Group | 3 | y | 1 | 1 | 0 | 4 | 1 | 0 | 0 | 0,333 |
| 2 | 4 | n | 1 | 0 | 1 | 4 | 0 | 1 | 0 | 0,333 |
| | 5 | n | 1 | 0 | 1 | 4 | 0 | 1 | 1 | 0,667 |
| | 6 | n | 1 | 0 | 1 | 3 | 1 | 0 | 0 | 0,333 |
| | 7 | y | 0 | 0 | 0 | 4 | 0 | 1 | 1 | 0,667 |
| | 8 | y | 0 | 1 | 0 | 4 | 0 | 1 | 0 | 0,333 |
| | 9 | y | 1 | 0 | 1 | 3 | 1 | 1 | 1 | 1 |
| | 10 | n | 1 | 1 | 1 | 3 | 1 | 1 | 0 | 0,667 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 11 | n | 0 | 0 | 1 | 3 | 0 | 1 | 1 | 0,667 |
| | 12 | n | 0 | 0 | 1 | 4 | 1 | 0 | 1 | 0,667 |
| | | | | | | | | | total: | 0,611 |
| | | | | | | | 3,667 | 3,333 | no text | 0,556 |
| | | | | | | | 3,667 | 3,667 | with text | 0,667 |
| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
| 5 | 1 | n | 1 | 0 | 0 | 5 | 1 | 1 | 1 | 1 |
| | 2 | n | 0 | 1 | 1 | 4 | 1 | 1 | 1 | 1 |
| Group | 3 | n | 1 | 1 | 1 | 4 | 1 | 0 | 1 | 0,667 |
| 1 | 4 | y | 0 | 0 | 0 | 6 | 1 | 1 | 1 | 1 |
| | 5 | y | 0 | 0 | 1 | 4 | 1 | 1 | 1 | 1 |
| | 6 | y | 1 | 1 | 0 | 4 | 1 | 1 | 1 | 1 |
| | 7 | n | 1 | 0 | 0 | 5 | 1 | 1 | 1 | 1 |
| | 8 | n | 1 | 1 | 1 | 5 | 1 | 1 | 1 | 1 |
| | 9 | n | 1 | 0 | 1 | 6 | 1 | 1 | 1 | 1 |
| | 10 | y | 1 | 1 | 0 | 6 | 1 | 1 | 1 | 1 |
| | 11 | y | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0,333 |
| | 12 | y | 0 | 0 | 1 | 5 | 1 | 0 | 1 | 0,667 |
| | | | | | | | | | total: | 0,889 |
| | | | | | | | 4,333 | 5,333 | no text | 0,945 |
| | | | | | | | 4,667 | 5 | with text | 0,833 |
| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
| 6 | 1 | y | 1 | 1 | 0 | 4 | 1 | 0 | 1 | 0,667 |
| | 2 | y | 1 | 1 | 0 | 2 | 0 | 1 | 0 | 0,333 |
| Group | 3 | y | 1 | 0 | 0 | 2 | 1 | 1 | 0 | 0,667 |
| 2 | 4 | n | 0 | 1 | 0 | 3 | 1 | 0 | 1 | 0,667 |
| | 5 | n | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 1 |
| | 6 | n | 1 | 1 | 0 | 3 | 1 | 1 | 1 | 1 |
| | 7 | y | 1 | 0 | 0 | 6 | 1 | 1 | 1 | 1 |
| | 8 | y | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| | 9 | y | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 10 | n | 1 | 1 | 0 | 4 | 1 | 1 | 1 | 1 |
| | 11 | n | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 0,333 |
| | 12 | n | 0 | 1 | 1 | 5 | 1 | 1 | 1 | 1 |
| | | | | | | | | | total: | 0,722 |
| | | | | | | | 2,667 | 4 | no text | 0,833 |
| | | | | | | | 2,667 | 4,667 | with text | 0,611 |

| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 1 | n | 1 | 1 | 0 | 2 | 1 | 0 | 1 | 0,667 |
| | 2 | n | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Group | 3 | n | 1 | 1 | 1 | 2 | 1 | 0 | 1 | 0,667 |
| 1 | 4 | y | 0 | 0 | 1 | 4 | 1 | 1 | 0 | 0,667 |
| | 5 | y | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 1 |
| | 6 | y | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| | 7 | n | 0 | 0 | 1 | 7 | 0 | 1 | 0 | 0,333 |
| | 8 | n | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |
| | 9 | n | 1 | 1 | 0 | 2 | 1 | 0 | 0 | 0,333 |
| | 10 | y | 0 | 1 | 1 | 3 | 0 | 1 | 0 | 0,333 |
| | 11 | y | 1 | 0 | 0 | 2 | 1 | 1 | 0 | 0,667 |
| | 12 | y | 0 | 1 | 0 | 3 | 1 | 1 | 0 | 0,667 |
| | | | | | | | | | total: | 0,695 |
| | | | | | | | 1,667 | 3,667 | no text | 0,667 |
| | | | | | | | 2,333 | 2,667 | with text | 0,722 |
| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
| 8 | 1 | y | 1 | 1 | 0 | 5 | 1 | 0 | 1 | 0,667 |
| | 2 | y | 1 | 1 | 0 | 3 | 0 | 1 | 0 | 0,333 |
| Group | 3 | y | 1 | 1 | 0 | 2 | 1 | 0 | 0 | 0,333 |
| 2 | 4 | n | 0 | 1 | 0 | 3 | 1 | 0 | 1 | 0,667 |
| | 5 | n | 0 | 0 | 1 | 3 | 1 | 1 | 1 | 1 |
| | 6 | n | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 0,667 |
| | 7 | y | 1 | 1 | 0 | 8 | 1 | 0 | 1 | 0,667 |
| | 8 | y | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 |
| | 9 | y | 1 | 0 | 1 | 7 | 1 | 1 | 1 | 1 |
| | 10 | n | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 |
| | 11 | n | 1 | 0 | 0 | 7 | 1 | 1 | 0 | 0,667 |
| | 12 | n | 1 | 1 | 1 | 6 | 0 | 1 | 1 | 0,667 |
| | | | | | | | | | total: | 0,556 |
| | | | | | | | 3,333 | 5,667 | no text | 0,611 |
| | | | | | | | 3,333 | 6,667 | with text | 0,5 |
| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
| 9 | 1 | n | 1 | 0 | 0 | 3 | 1 | 1 | 1 | 1 |
| | 2 | n | 0 | 1 | 1 | 5 | 1 | 1 | 1 | 1 |
| Group | 3 | n | 1 | 0 | 1 | 2 | 1 | 1 | 1 | 1 |
| 1 | 4 | y | 0 | 1 | 0 | 3 | 1 | 0 | 1 | 0,667 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | y | 0 | 0 | 1 | 3 | 1 | 1 | 1 | 1 |
| | 6 | y | 1 | 1 | 0 | 4 | 1 | 1 | 1 | 1 |
| | 7 | n | 1 | 0 | 0 | 5 | 1 | 1 | 1 | 1 |
| | 8 | n | 0 | 1 | 0 | 4 | 0 | 1 | 0 | 0,333 |
| | 9 | n | 1 | 0 | 1 | 3 | 1 | 1 | 1 | 1 |
| | 10 | y | 0 | 1 | 1 | 4 | 0 | 1 | 0 | 0,333 |
| | 11 | y | 0 | 0 | 1 | 5 | 0 | 1 | 1 | 0,667 |
| | 12 | y | 0 | 1 | 1 | 3 | 1 | 1 | 1 | 1 |
| | | | | | | | | | total: | 0,833 |
| | | | | | | | 3,333 | 4 | no text | 0,889 |
| | | | | | | | 3,333 | 4 | with text | 0,778 |
| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
| 10 | 1 | y | 1 | 1 | 0 | 6 | 1 | 0 | 1 | 0,667 |
| | 2 | y | 0 | 1 | 1 | 7 | 1 | 1 | 1 | 1 |
| Group | 3 | y | 1 | 0 | 1 | 8 | 1 | 1 | 1 | 1 |
| 2 | 4 | n | 1 | 1 | 1 | 6 | 0 | 0 | 0 | 0 |
| | 5 | n | 1 | 1 | 1 | 6 | 0 | 0 | 1 | 0,333 |
| | 6 | n | 1 | 0 | 0 | 6 | 1 | 0 | 1 | 0,667 |
| | 7 | y | 0 | 0 | 1 | 6 | 0 | 1 | 0 | 0,333 |
| | 8 | y | 1 | 1 | 1 | 8 | 1 | 1 | 1 | 1 |
| | 9 | y | 1 | 0 | 1 | 6 | 1 | 1 | 1 | 1 |
| | 10 | n | 1 | 1 | 1 | 7 | 1 | 1 | 0 | 0,667 |
| | 11 | n | 1 | 0 | 0 | 5 | 1 | 1 | 0 | 0,667 |
| | 12 | n | 1 | 1 | 1 | 7 | 0 | 1 | 1 | 0,667 |
| | | | | | | | | | total: | 0,667 |
| | | | | | | | 6 | 6,333 | no text | 0,5 |
| | | | | | | | 7 | 6,667 | with text | 0,833 |
| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
| 11 | 1 | n | 1 | 1 | 0 | 4 | 1 | 0 | 1 | 0,667 |
| | 2 | n | 1 | 1 | 1 | 7 | 0 | 1 | 1 | 0,667 |
| Group | 3 | n | 1 | 0 | 1 | 6 | 1 | 1 | 1 | 1 |
| 1 | 4 | y | 1 | 1 | 0 | 6 | 0 | 0 | 1 | 0,333 |
| | 5 | y | 1 | 0 | 1 | 5 | 0 | 1 | 1 | 0,667 |
| | 6 | y | 1 | 0 | 0 | 5 | 1 | 0 | 1 | 0,667 |
| | 7 | n | 1 | 1 | 0 | 5 | 1 | 0 | 1 | 0,667 |
| | 8 | n | 0 | 0 | 1 | 6 | 0 | 0 | 1 | 0,333 |
| | 9 | n | 1 | 1 | 1 | 7 | 1 | 0 | 1 | 0,667 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | y | 1 | 1 | 1 | 6 | 1 | 1 | 0 | 0,667 |
| | 11 | y | 0 | 0 | 1 | 6 | 0 | 1 | 1 | 0,667 |
| | 12 | y | 0 | 1 | 1 | 6 | 1 | 1 | 1 | 1 |
| | | | | | | | | | total: | 0,667 |
| | | | | | | | 5,667 | 6 | no text | 0,667 |
| | | | | | | | 5,333 | 6 | with text | 0,667 |
| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
| 12 | 1 | y | 1 | 1 | 0 | 4 | 1 | 0 | 1 | 0,667 |
| | 2 | y | 0 | 1 | 1 | 4 | 1 | 1 | 1 | 1 |
| Group | 3 | y | 1 | 0 | 0 | 4 | 1 | 1 | 0 | 0,667 |
| 2 | 4 | n | 0 | 1 | 0 | 3 | 1 | 0 | 1 | 0,667 |
| | 5 | n | 0 | 0 | 1 | 3 | 1 | 1 | 1 | 1 |
| | 6 | n | 1 | 1 | 0 | 6 | 1 | 1 | 1 | 1 |
| | 7 | y | 1 | 0 | 0 | 6 | 1 | 1 | 1 | 1 |
| | 8 | y | 1 | 1 | 1 | 5 | 1 | 1 | 1 | 1 |
| | 9 | y | 1 | 0 | 1 | 4 | 1 | 1 | 1 | 1 |
| | 10 | n | 0 | 1 | 1 | 4 | 0 | 1 | 0 | 0,333 |
| | 11 | n | 1 | 0 | 1 | 8 | 1 | 1 | 1 | 1 |
| | 12 | n | 0 | 1 | 1 | 7 | 1 | 1 | 1 | 1 |
| | | | | | | | | | total: | 0,861 |
| | | | | | | | 4 | 6,333 | no text | 0,833 |
| | | | | | | | 4 | 5 | with text | 0,889 |
| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
| 13 | 1 | n | 0 | 1 | 0 | 6 | 0 | 0 | 1 | 0,333 |
| | 2 | n | 1 | 0 | 1 | 6 | 0 | 0 | 1 | 0,333 |
| Group | 3 | n | 1 | 1 | 0 | 4 | 1 | 0 | 0 | 0,333 |
| 1 | 4 | y | 1 | 1 | 1 | 6 | 0 | 0 | 0 | 0 |
| | 5 | y | 1 | 0 | 1 | 4 | 0 | 1 | 1 | 0,667 |
| | 6 | y | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 0,667 |
| | 7 | n | 1 | 1 | 1 | 4 | 1 | 0 | 0 | 0,333 |
| | 8 | n | 1 | 1 | 0 | 5 | 1 | 1 | 0 | 0,667 |
| | 9 | n | 1 | 1 | 1 | 4 | 1 | 0 | 1 | 0,667 |
| | 10 | y | 0 | 1 | 1 | 5 | 0 | 1 | 0 | 0,333 |
| | 11 | y | 1 | 0 | 0 | 7 | 1 | 1 | 0 | 0,667 |
| | 12 | y | 0 | 0 | 1 | 5 | 1 | 0 | 1 | 0,667 |
| | | | | | | | | | total: | 0,472 |
| | | | | | | | 5,333 | 4,333 | no text | 0,444 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 4,667 | 5,667 | with text | 0,5 |
| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
| 14 | 1 | y | 1 | 1 | 0 | 7 | 1 | 0 | 1 | 0,667 |
| | 2 | y | 1 | 1 | 1 | 5 | 0 | 1 | 1 | 0,667 |
| Group | 3 | y | 1 | 1 | 1 | 4 | 1 | 0 | 1 | 0,667 |
| 2 | 4 | n | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 1 |
| | 5 | n | 1 | 0 | 1 | 2 | 0 | 1 | 1 | 0,667 |
| | 6 | n | 1 | 0 | 0 | 3 | 1 | 0 | 1 | 0,667 |
| | 7 | y | 0 | 0 | 0 | 6 | 0 | 1 | 1 | 0,667 |
| | 8 | y | 0 | 1 | 0 | 8 | 0 | 1 | 0 | 0,333 |
| | 9 | y | 1 | 0 | 1 | 4 | 1 | 1 | 1 | 1 |
| | 10 | n | 1 | 1 | 1 | 3 | 1 | 1 | 0 | 0,667 |
| | 11 | n | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 0,333 |
| | 12 | n | 1 | 1 | 0 | 6 | 0 | 1 | 0 | 0,333 |
| | | | | | | | | | total: | 0,639 |
| | | | | | | | 2,667 | 4 | no text | 0,611 |
| | | | | | | | 5,333 | 6 | with text | 0,667 |
| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
| 15 | 1 | n | 1 | 1 | 0 | 2 | 1 | 0 | 1 | 0,667 |
| | 2 | n | 0 | 1 | 1 | 6 | 1 | 1 | 1 | 1 |
| Group | 3 | n | 1 | 0 | 0 | 6 | 1 | 1 | 0 | 0,667 |
| 1 | 4 | y | 1 | 1 | 0 | 3 | 0 | 0 | 1 | 0,333 |
| | 5 | y | 0 | 0 | 1 | 4 | 1 | 1 | 1 | 1 |
| | 6 | y | 1 | 0 | 0 | 3 | 1 | 0 | 1 | 0,667 |
| | 7 | n | 0 | 0 | 1 | 6 | 0 | 1 | 0 | 0,333 |
| | 8 | n | 0 | 1 | 0 | 4 | 0 | 1 | 0 | 0,333 |
| | 9 | n | 1 | 0 | 1 | 4 | 1 | 1 | 1 | 1 |
| | 10 | y | 1 | 1 | 1 | 3 | 1 | 1 | 0 | 0,667 |
| | 11 | y | 0 | 0 | 0 | 7 | 0 | 1 | 0 | 0,333 |
| | 12 | y | 0 | 1 | 1 | 4 | 1 | 1 | 1 | 1 |
| | | | | | | | | | total: | 0,667 |
| | | | | | | | 4,667 | 4,667 | no text | 0,667 |
| | | | | | | | 3,333 | 4,667 | with text | 0,667 |
| Participant ID | Model | Hybrid | Question 1 | Question 2 | Question 3 | Difficulty | | | | |
| 16 | 1 | y | 1 | 0 | 0 | 3 | 1 | 1 | 1 | 1 |
| | 2 | y | 0 | 1 | 1 | 5 | 1 | 1 | 1 | 1 |
| Group | 3 | y | 1 | 1 | 1 | 3 | 1 | 0 | 1 | 0,667 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 4 | n | 0 | 0 | 0 | 5 | 1 | 1 | 1 | 1 |
| | 5 | n | 0 | 1 | 1 | 5 | 1 | 0 | 1 | 0,667 |
| | 6 | n | 1 | 1 | 0 | 6 | 1 | 1 | 1 | 1 |
| | 7 | y | 1 | 0 | 1 | 4 | 1 | 1 | 0 | 0,667 |
| | 8 | y | 0 | 1 | 0 | 6 | 0 | 1 | 0 | 0,333 |
| | 9 | y | 1 | 0 | 1 | 4 | 1 | 1 | 1 | 1 |
| | 10 | n | 1 | 1 | 0 | 6 | 1 | 1 | 1 | 1 |
| | 11 | n | 0 | 0 | 1 | 5 | 0 | 1 | 1 | 0,667 |
| | 12 | n | 0 | 1 | 1 | 6 | 1 | 1 | 1 | 1 |
| | | | | | | | | | total: | 0,833 |
| | | | | | | | 5,333 | 5,667 | no text | 0,889 |
| | | | | | | | 3,667 | 4,667 | with text | 0,778 |

Raw data from the eyetracking. Each table indicate the time spend by participants for each slide. Each slide has two tables, one without textual annotations (m1, m2,...), and one with (m1_t, m2_t,...). The columns indicate time spend on each part of the slides, and is divided into “Legend”, “Model”, “Questions” and “Text” (for the slides with textual annotations).

| m1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** | |
| Recording1 | Participant1 | 4,14 | 14,55 | 46,89 | 21,86 | 14,55 | 65,57 | 79,85 | 1420,87 | |
| Recording2 | Participant2 | | | | | | | | 1211,30 | |
| Recording3 | Participant3 | 0,52 | 15,63 | 35,47 | 17,21 | 15,63 | 51,62 | 73,33 | 1410,88 | |
| Recording4 | Participant4 | | | | | | | | 1158,57 | |
| Recording5 | Participant5 | 10,71 | 19,47 | 50,03 | 26,74 | 19,47 | 80,21 | 102,32 | 1579,64 | |
| Recording6 | Participant6 | | | | | | | | 2281,24 | |
| Recording6b | Participant6 | | | | | | | | 152,11 | |
| Recording7 | Participant7 | 3,84 | 21,85 | 35,66 | 20,45 | 21,85 | 61,35 | 80,53 | 1502,30 | |
| Recording8 | Participant8 | | | | | | | | 1829,56 | |
| Recording9 | Participant9 | 0,44 | 25,44 | 17,75 | 14,54 | 17,75 | 43,63 | 53,98 | 1295,95 | |
| Recording10 | Participant10 | | | | | | | | 1989,69 | |
| Recording11 | Participant11 | 3,62 | 19,67 | 19,89 | 14,39 | 19,67 | 43,18 | 49,81 | 1318,99 | |
| Recording12 | Participant12 | | | | | | | | 1300,87 | |
| Recording13 | Participant13 | 11,90 | 14,44 | 37,86 | 21,40 | 14,44 | 64,20 | 109,70 | 1117,53 | |
| Recording14 | Participant14 | | | | | | | | 1007,85 | |
| Recording15 | Participant15 | 6,47 | 25,96 | 16,89 | 16,44 | 16,89 | 49,32 | 75,91 | 1642,18 | |
| Recording16 | Participant16 | | | | | | | | 1191,63 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Average** | | 5,20 | 19,63 | 32,56 | 19,13 | 17,53 | 57,39 | 78,18 | 1377,13 | |
| **Share of Total Time (%)** | | 9,07 | 34,20 | 56,73 | | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | | | | | | |
| **Variance** | | 18,14 | 21,09 | 168,84 | 18,08 | 7,08 | 162,76 | 429,15 | 209825,58 | |
| **Standard Deviation (n-1)** | | 4,26 | 4,59 | 12,99 | 4,25 | 2,66 | 12,76 | 20,72 | 458,07 | |
| | | | | | | | | | | |
| m1_t | | | | | | | | | | |
| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Text** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** |
| Recording1 | Participant1 | | | | | | | | | 1420,87 |
| Recording2 | Participant2 | 2,05 | 13,69 | 25,34 | 8,51 | 12,40 | 11,10 | 49,58 | 67,86 | 1211,30 |
| Recording3 | Participant3 | | | | | | | | | 1410,88 |
| Recording4 | Participant4 | | 10,34 | 24,12 | 12,90 | 15,79 | 12,90 | 47,36 | 63,66 | 1158,57 |
| Recording5 | Participant5 | | | | | | | | | 1579,64 |
| Recording6 | Participant6 | 1,69 | 37,85 | 42,56 | 4,43 | 21,63 | 21,14 | 86,53 | 160,46 | 2281,24 |
| Recording6b | Participant6 | | | | | | | | | 152,11 |
| Recording7 | Participant7 | | | | | | | | | 1502,30 |
| Recording8 | Participant8 | 5,38 | 27,80 | 33,50 | 0,56 | 16,81 | 16,59 | 67,24 | 100,27 | 1829,56 |
| Recording9 | Participant9 | | | | | | | | | 1295,95 |
| Recording10 | Participant10 | 3,82 | 29,03 | 30,06 | 29,88 | 23,20 | 29,45 | 92,78 | 125,34 | 1989,69 |
| Recording11 | Participant11 | | | | | | | | | 1318,99 |
| Recording12 | Participant12 | | 12,68 | 24,07 | 3,72 | 13,49 | 12,68 | 40,47 | 79,70 | 1300,87 |
| Recording13 | Participant13 | | | | | | | | | 1117,53 |
| Recording14 | Participant14 | 6,90 | 16,62 | 31,59 | 11,69 | 16,70 | 14,15 | 66,79 | 83,93 | 1007,85 |
| Recording15 | Participant15 | | | | | | | | | 1642,18 |
| Recording16 | Participant16 | 0,13 | 8,46 | 24,93 | 12,60 | 11,53 | 10,53 | 46,12 | 65,51 | 1191,63 |
| **Average** | | 3,33 | 19,56 | 29,52 | 10,53 | 16,44 | 16,07 | 62,11 | 93,34 | 1377,13 |
| **Share of Total Time (%)** | | 4,02 | 31,49 | 47,53 | 16,96 | | | | | |
| **Percentage Fixated (%)** | | 75,00 | 100,00 | 100,00 | 100,00 | | | | | |
| **Variance** | | 6,34 | 112,97 | 41,12 | 81,83 | 17,49 | 40,81 | 383,42 | 1165,18 | 209825,58 |
| **Standard Deviation (n-1)** | | 2,52 | 10,63 | 6,41 | 9,05 | 4,18 | 6,39 | 19,58 | 34,13 | 458,07 |
| | | | | | | | | | | |
| m2 | | | | | | | | | | |
| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** | |
| Recording1 | Participant1 | 0,86 | 23,49 | 34,88 | 19,75 | 23,49 | 59,24 | 75,75 | 1420,87 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording2 | Participant2 | | | | | | | | 1211,30 | |
| Recording3 | Participant3 | 0,74 | 14,55 | 37,14 | 17,48 | 14,55 | 52,43 | 71,33 | 1410,88 | |
| Recording4 | Participant4 | | | | | | | | 1158,57 | |
| Recording5 | Participant5 | 6,26 | 20,09 | 36,77 | 21,04 | 20,09 | 63,12 | 82,71 | 1579,64 | |
| Recording6 | Participant6 | | | | | | | | 2281,24 | |
| Recording6b | Participant6 | | | | | | | | 152,11 | |
| Recording7 | Participant7 | 3,66 | 22,43 | 39,02 | 21,70 | 22,43 | 65,11 | 80,85 | 1502,30 | |
| Recording8 | Participant8 | | | | | | | | 1829,56 | |
| Recording9 | Participant9 | 0,17 | 31,50 | 29,51 | 20,39 | 29,51 | 61,18 | 76,16 | 1295,95 | |
| Recording10 | Participant10 | | | | | | | | 1989,69 | |
| Recording11 | Participant11 | 2,99 | 37,82 | 59,10 | 33,30 | 37,82 | 99,90 | 113,97 | 1318,99 | |
| Recording12 | Participant12 | | | | | | | | 1300,87 | |
| Recording13 | Participant13 | 22,13 | 9,88 | 47,88 | 26,63 | 22,13 | 79,90 | 130,02 | 1117,53 | |
| Recording14 | Participant14 | | | | | | | | 1007,85 | |
| Recording15 | Participant15 | 7,56 | 32,29 | 25,32 | 21,72 | 25,32 | 65,17 | 81,21 | 1642,18 | |
| Recording16 | Participant16 | | | | | | | | 1191,63 | |
| **Average** | | 5,55 | 24,01 | 38,70 | 22,75 | 24,42 | 68,26 | 89,00 | 1377,13 | |
| **Share of Total Time (%)** | | 8,13 | 35,17 | 56,70 | | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | | | | | | |
| **Variance** | | 51,97 | 88,93 | 112,11 | 24,84 | 47,49 | 223,56 | 446,52 | 209825,58 | |
| **Standard Deviation (n-1)** | | 7,21 | 9,43 | 10,59 | 4,98 | 6,89 | 14,95 | 21,13 | 458,07 | |

m2_t

| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Text** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording1 | Participant1 | | | | | | | | | 1420,87 |
| Recording2 | Participant2 | 1,64 | 17,64 | 14,45 | 11,10 | 11,21 | 12,78 | 44,84 | 58,96 | 1211,30 |
| Recording3 | Participant3 | | | | | | | | | 1410,88 |
| Recording4 | Participant4 | 0,12 | 15,87 | 33,74 | 13,19 | 15,73 | 14,53 | 62,93 | 84,96 | 1158,57 |
| Recording5 | Participant5 | | | | | | | | | 1579,64 |
| Recording6 | Participant6 | 0,77 | 3,55 | 4,12 | 0,50 | 2,23 | 2,16 | 8,94 | 123,24 | 2281,24 |
| Recording6b | Participant6 | | | | | | | | | 152,11 |
| Recording7 | Participant7 | | | | | | | | | 1502,30 |
| Recording8 | Participant8 | 4,66 | 21,84 | 38,67 | 1,16 | 16,58 | 13,25 | 66,33 | 104,72 | 1829,56 |
| Recording9 | Participant9 | | | | | | | | | 1295,95 |
| Recording10 | Participant10 | 10,37 | 13,99 | 22,65 | 2,14 | 12,29 | 12,18 | 49,15 | 178,28 | 1989,69 |
| Recording11 | Participant11 | | | | | | | | | 1318,99 |
| Recording12 | Participant12 | 0,51 | 43,52 | 27,79 | 4,70 | 19,13 | 16,24 | 76,52 | 110,62 | 1300,87 |
| Recording13 | Participant13 | | | | | | | | | 1117,53 |
| Recording14 | Participant14 | 1,66 | 20,70 | 12,91 | 6,75 | 10,51 | 9,83 | 42,02 | 51,74 | 1007,85 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording15 | Participant15 | | | | | | | | | 1642,18 |
| Recording16 | Participant16 | 9,79 | 10,34 | 43,22 | 8,42 | 17,94 | 10,07 | 71,77 | 93,33 | 1191,63 |
| **Average** | | 3,69 | 18,43 | 24,69 | 5,99 | 13,20 | 11,38 | 52,81 | 100,73 | 1377,13 |
| **Share of Total Time (%)** | | 6,99 | 34,90 | 46,76 | 11,35 | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | 100,00 | | | | | |
| **Variance** | | 17,49 | 137,11 | 185,91 | 22,06 | 29,69 | 18,40 | 474,99 | 1583,17 | 209825,58 |
| **Standard Deviation (n-1)** | | 4,18 | 11,71 | 13,63 | 4,70 | 5,45 | 4,29 | 21,79 | 39,79 | 458,07 |

m3

| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** | |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording1 | Participant1 | 8,09 | 18,31 | 33,97 | 20,12 | 18,31 | 60,37 | 76,05 | 1420,87 | |
| Recording2 | Participant2 | | | | | | | | 1211,30 | |
| Recording3 | Participant3 | 0,60 | 15,95 | 22,19 | 12,91 | 15,95 | 38,74 | 55,43 | 1410,88 | |
| Recording4 | Participant4 | | | | | | | | 1158,57 | |
| Recording5 | Participant5 | 7,41 | 19,21 | 32,91 | 19,84 | 19,21 | 59,53 | 80,50 | 1579,64 | |
| Recording6 | Participant6 | | | | | | | | 2281,24 | |
| Recording6b | Participant6 | | | | | | | | 152,11 | |
| Recording7 | Participant7 | 4,18 | 22,65 | 30,79 | 19,21 | 22,65 | 57,62 | 74,91 | 1502,30 | |
| Recording8 | Participant8 | | | | | | | | 1829,56 | |
| Recording9 | Participant9 | 0,16 | 19,41 | 16,31 | 11,96 | 16,31 | 35,89 | 44,36 | 1295,95 | |
| Recording10 | Participant10 | | | | | | | | 1989,69 | |
| Recording11 | Participant11 | 0,79 | 25,18 | 42,65 | 22,87 | 25,18 | 68,62 | 77,66 | 1318,99 | |
| Recording12 | Participant12 | | | | | | | | 1300,87 | |
| Recording13 | Participant13 | 2,94 | 3,46 | 14,02 | 6,81 | 3,46 | 20,42 | 39,07 | 1117,53 | |
| Recording14 | Participant14 | | | | | | | | 1007,85 | |
| Recording15 | Participant15 | 22,45 | 44,06 | 21,07 | 29,19 | 22,45 | 87,58 | 114,77 | 1642,18 | |
| Recording16 | Participant16 | | | | | | | | 1191,63 | |
| **Average** | | 5,83 | 21,03 | 26,74 | 17,87 | 17,94 | 53,60 | 70,34 | 1377,13 | |
| **Share of Total Time (%)** | | 10,87 | 39,24 | 49,89 | | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | | | | | | |
| **Variance** | | 54,29 | 128,30 | 97,60 | 49,42 | 44,72 | 444,75 | 579,91 | 209825,58 | |
| **Standard Deviation (n-1)** | | 7,37 | 11,33 | 9,88 | 7,03 | 6,69 | 21,09 | 24,08 | 458,07 | |

m3_t

| Total duration of fixation in AOI | Participant | Legend | Model | Questions | Text | Average | Median | Sum | Total Time of Interest Duration | Total Recording Duration |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording1 | Participant1 | | | | | | | | | 1420,87 |
| Recording2 | Participant2 | 1,55 | 18,12 | 14,56 | 7,01 | 10,31 | 10,79 | 41,24 | 79,86 | 1211,30 |
| Recording3 | Participant3 | | | | | | | | | 1410,88 |
| Recording4 | Participant4 | 0,12 | 2,53 | 4,91 | 0,77 | 2,08 | 1,65 | 8,32 | 63,41 | 1158,57 |
| Recording5 | Participant5 | | | | | | | | | 1579,64 |
| Recording6 | Participant6 | 11,42 | 68,11 | 43,68 | 5,70 | 32,23 | 27,55 | 128,90 | 189,33 | 2281,24 |
| Recording6b | Participant6 | | | | | | | | | 152,11 |
| Recording7 | Participant7 | | | | | | | | | 1502,30 |
| Recording8 | Participant8 | 6,58 | 9,65 | 13,41 | 0,65 | 7,57 | 8,12 | 30,30 | 76,70 | 1829,56 |
| Recording9 | Participant9 | | | | | | | | | 1295,95 |
| Recording10 | Participant10 | 20,38 | 21,44 | 42,72 | 21,52 | 26,52 | 21,48 | 106,06 | 153,23 | 1989,69 |
| Recording11 | Participant11 | | | | | | | | | 1318,99 |
| Recording12 | Participant12 | 0,42 | 29,66 | 16,80 | 7,21 | 13,52 | 12,00 | 54,09 | 83,95 | 1300,87 |
| Recording13 | Participant13 | | | | | | | | | 1117,53 |
| Recording14 | Participant14 | 8,36 | 21,65 | 11,61 | 8,85 | 12,62 | 10,23 | 50,46 | 61,01 | 1007,85 |
| Recording15 | Participant15 | | | | | | | | | 1642,18 |
| Recording16 | Participant16 | 0,19 | 13,22 | 18,81 | 9,19 | 10,35 | 11,20 | 41,40 | 52,01 | 1191,63 |
| **Average** | | 6,13 | 23,05 | 20,81 | 7,61 | 14,40 | 12,88 | 57,60 | 94,94 | 1377,13 |
| **Share of Total Time (%)** | | 10,63 | 40,01 | 36,13 | 13,22 | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | 100,00 | | | | | |
| **Variance** | | 51,60 | 400,04 | 207,80 | 42,43 | 100,00 | 64,71 | 1599,97 | 2425,24 | 209825,58 |
| **Standard Deviation (n-1)** | | 7,18 | 20,00 | 14,42 | 6,51 | 10,00 | 8,04 | 40,00 | 49,25 | 458,07 |

m4

| Total duration of fixation in AOI | Participant | Legend | Model | Questions | Average | Median | Sum | Total Time of Interest Duration | Total Recording Duration |
|---|---|---|---|---|---|---|---|---|---|
| Recording1 | Participant1 | | | | | | | | 1420,87 |
| Recording2 | Participant2 | 1,08 | 25,73 | 21,58 | 16,13 | 21,58 | 48,39 | 62,34 | 1211,30 |
| Recording3 | Participant3 | | | | | | | | 1410,88 |
| Recording4 | Participant4 | 5,62 | 20,89 | 12,34 | 12,95 | 12,34 | 38,85 | 72,53 | 1158,57 |
| Recording5 | Participant5 | | | | | | | | 1579,64 |
| Recording6 | Participant6 | 3,46 | 25,09 | 47,20 | 25,25 | 25,09 | 75,76 | 140,84 | 2281,24 |
| Recording6b | Participant6 | | | | | | | | 152,11 |
| Recording7 | Participant7 | | | | | | | | 1502,30 |
| Recording8 | Participant8 | 0,16 | 1,39 | 8,77 | 3,44 | 1,39 | 10,32 | 147,58 | 1829,56 |
| Recording9 | Participant9 | | | | | | | | 1295,95 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording10 | Participant10 | 17,40 | 25,17 | 25,71 | 22,76 | 25,17 | 68,28 | 100,30 | 1989,69 | |
| Recording11 | Participant11 | | | | | | | | 1318,99 | |
| Recording12 | Participant12 | 0,12 | 30,88 | 19,18 | 16,72 | 19,18 | 50,17 | 71,10 | 1300,87 | |
| Recording13 | Participant13 | | | | | | | | 1117,53 | |
| Recording14 | Participant14 | 9,88 | 25,47 | 25,09 | 20,15 | 25,09 | 60,44 | 75,73 | 1007,85 | |
| Recording15 | Participant15 | | | | | | | | 1642,18 | |
| Recording16 | Participant16 | 9,67 | 25,10 | 22,99 | 19,26 | 22,99 | 57,77 | 70,38 | 1191,63 | |
| **Average** | | 5,92 | 22,46 | 22,86 | 17,08 | 19,11 | 51,25 | 92,60 | 1377,13 | |
| **Share of Total Time (%)** | | 11,56 | 43,84 | 44,61 | | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | | | | | | |
| **Variance** | | 36,86 | 79,72 | 132,89 | 45,33 | 69,88 | 407,95 | 1138,28 | 209825,58 | |
| **Standard Deviation (n-1)** | | 6,07 | 8,93 | 11,53 | 6,73 | 8,36 | 20,20 | 33,74 | 458,07 | |
| | | | | | | | | | | |
| m4_t | | | | | | | | | | |
| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **TExt** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** |
| Recording1 | Participant1 | 0,20 | 19,88 | 32,19 | 11,98 | 16,06 | 15,93 | 64,24 | 90,37 | 1420,87 |
| Recording2 | Participant2 | | | | | | | | | 1211,30 |
| Recording3 | Participant3 | 0,58 | 16,07 | 48,24 | 3,40 | 17,07 | 9,73 | 68,29 | 117,62 | 1410,88 |
| Recording4 | Participant4 | | | | | | | | | 1158,57 |
| Recording5 | Participant5 | 0,89 | 35,90 | 48,70 | 12,46 | 24,49 | 24,18 | 97,94 | 148,61 | 1579,64 |
| Recording6 | Participant6 | | | | | | | | | 2281,24 |
| Recording6b | Participant6 | | | | | | | | | 152,11 |
| Recording7 | Participant7 | 5,27 | 32,38 | 37,22 | 27,48 | 25,59 | 29,93 | 102,36 | 126,16 | 1502,30 |
| Recording8 | Participant8 | | | | | | | | | 1829,56 |
| Recording9 | Participant9 | 0,19 | 26,79 | 23,38 | 1,44 | 12,95 | 12,41 | 51,79 | 74,88 | 1295,95 |
| Recording10 | Participant10 | | | | | | | | | 1989,69 |
| Recording11 | Participant11 | 1,21 | 15,58 | 18,57 | 24,33 | 14,92 | 17,08 | 59,69 | 70,91 | 1318,99 |
| Recording12 | Participant12 | | | | | | | | | 1300,87 |
| Recording13 | Participant13 | 17,70 | 5,51 | 29,66 | 2,77 | 13,91 | 11,61 | 55,64 | 110,34 | 1117,53 |
| Recording14 | Participant14 | | | | | | | | | 1007,85 |
| Recording15 | Participant15 | 15,01 | 45,30 | 15,48 | 8,60 | 21,10 | 15,25 | 84,39 | 120,17 | 1642,18 |
| Recording16 | Participant16 | | | | | | | | | 1191,63 |
| **Average** | | 5,13 | 24,68 | 31,68 | 11,56 | 18,26 | 17,01 | 73,04 | 107,38 | 1377,13 |
| **Share of Total Time (%)** | | 7,03 | 33,78 | 43,37 | 15,82 | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | 100,00 | | | | | |
| **Variance** | | 51,22 | 166,02 | 157,44 | 96,10 | 23,58 | 46,57 | 377,23 | 715,03 | 209825,58 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Standard Deviation (n-1)** | | 7,16 | 12,88 | 12,55 | 9,80 | 4,86 | 6,82 | 19,42 | 26,74 | 458,07 |
| | | | | | | | | | | |
| m5 | | | | | | | | | | |
| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** | |
| Recording1 | Participant1 | | | | | | | | 1420,87 | |
| Recording2 | Participant2 | 4,57 | 40,31 | 26,61 | 23,83 | 26,61 | 71,49 | 90,78 | 1211,30 | |
| Recording3 | Participant3 | | | | | | | | 1410,88 | |
| Recording4 | Participant4 | 2,48 | 15,22 | 2,30 | 6,67 | 2,48 | 20,00 | 73,50 | 1158,57 | |
| Recording5 | Participant5 | | | | | | | | 1579,64 | |
| Recording6 | Participant6 | 14,45 | 52,92 | 21,83 | 29,73 | 21,83 | 89,20 | 117,92 | 2281,24 | |
| Recording6b | Participant6 | | | | | | | | 152,11 | |
| Recording7 | Participant7 | | | | | | | | 1502,30 | |
| Recording8 | Participant8 | 2,94 | 28,03 | 31,65 | 20,88 | 28,03 | 62,63 | 99,33 | 1829,56 | |
| Recording9 | Participant9 | | | | | | | | 1295,95 | |
| Recording10 | Participant10 | 17,09 | 31,85 | 30,35 | 26,43 | 30,35 | 79,28 | 111,04 | 1989,69 | |
| Recording11 | Participant11 | | | | | | | | 1318,99 | |
| Recording12 | Participant12 | 4,95 | 32,59 | 23,90 | 20,48 | 23,90 | 61,43 | 82,43 | 1300,87 | |
| Recording13 | Participant13 | | | | | | | | 1117,53 | |
| Recording14 | Participant14 | 6,13 | 18,32 | 14,64 | 13,03 | 14,64 | 39,10 | 49,26 | 1007,85 | |
| Recording15 | Participant15 | | | | | | | | 1642,18 | |
| Recording16 | Participant16 | 1,90 | 18,39 | 27,90 | 16,06 | 18,39 | 48,19 | 60,48 | 1191,63 | |
| **Average** | | 6,81 | 29,70 | 22,40 | 19,64 | 20,78 | 58,91 | 85,59 | 1377,13 | |
| **Share of Total Time (%)** | | 11,57 | 50,42 | 38,02 | | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | | | | | | |
| **Variance** | | 32,98 | 162,06 | 94,77 | 56,06 | 81,05 | 504,57 | 573,64 | 209825,58 | |
| **Standard Deviation (n-1)** | | 5,74 | 12,73 | 9,73 | 7,49 | 9,00 | 22,46 | 23,95 | 458,07 | |
| | | | | | | | | | | |
| m5_t | | | | | | | | | | |
| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Text** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** |
| Recording1 | Participant1 | 12,07 | 23,53 | 35,40 | 11,50 | 20,63 | 17,80 | 82,50 | 102,38 | 1420,87 |
| Recording2 | Participant2 | | | | | | | | | 1211,30 |
| Recording3 | Participant3 | 0,34 | 13,34 | 26,06 | 13,26 | 13,25 | 13,30 | 53,00 | 78,35 | 1410,88 |
| Recording4 | Participant4 | | | | | | | | | 1158,57 |
| Recording5 | Participant5 | 0,31 | 27,48 | 33,17 | 22,88 | 20,96 | 25,18 | 83,83 | 100,98 | 1579,64 |
| Recording6 | Participant6 | | | | | | | | | 2281,24 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording6b | Participant6 | | | | | | | | | 152,11 |
| Recording7 | Participant7 | 2,17 | 23,87 | 46,49 | 10,80 | 20,84 | 17,34 | 83,34 | 108,04 | 1502,30 |
| Recording8 | Participant8 | | | | | | | | | 1829,56 |
| Recording9 | Participant9 | 3,65 | 29,38 | 38,86 | 2,85 | 18,68 | 16,51 | 74,73 | 106,02 | 1295,95 |
| Recording10 | Participant10 | | | | | | | | | 1989,69 |
| Recording11 | Participant11 | 0,61 | 15,92 | 23,08 | 18,71 | 14,58 | 17,32 | 58,34 | 66,58 | 1318,99 |
| Recording12 | Participant12 | | | | | | | | | 1300,87 |
| Recording13 | Participant13 | 4,78 | 4,48 | 18,57 | 5,53 | 8,34 | 5,15 | 33,36 | 63,18 | 1117,53 |
| Recording14 | Participant14 | | | | | | | | | 1007,85 |
| Recording15 | Participant15 | 7,42 | 33,39 | 17,58 | 11,33 | 17,43 | 14,46 | 69,73 | 100,45 | 1642,18 |
| Recording16 | Participant16 | | | | | | | | | 1191,63 |
| **Average** | | 3,92 | 21,42 | 29,90 | 12,11 | 16,84 | 15,88 | 67,35 | 90,75 | 1377,13 |
| **Share of Total Time (%)** | | 5,82 | 31,81 | 44,40 | 17,98 | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | 100,00 | | | | | |
| **Variance** | | 17,04 | 90,91 | 105,39 | 41,82 | 20,18 | 31,21 | 322,84 | 337,78 | 209825,58 |
| **Standard Deviation (n-1)** | | 4,13 | 9,53 | 10,27 | 6,47 | 4,49 | 5,59 | 17,97 | 18,38 | 458,07 |

m6

| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** | |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording1 | Participant1 | | | | | | | | 1420,87 | |
| Recording2 | Participant2 | 7,23 | 16,73 | 14,63 | 12,86 | 14,63 | 38,59 | 49,76 | 1211,30 | |
| Recording3 | Participant3 | | | | | | | | 1410,88 | |
| Recording4 | Participant4 | 25,70 | 20,89 | 13,68 | 20,09 | 20,89 | 60,27 | 83,25 | 1158,57 | |
| Recording5 | Participant5 | | | | | | | | 1579,64 | |
| Recording6 | Participant6 | 34,73 | 43,84 | 26,98 | 35,18 | 34,73 | 105,55 | 181,12 | 2281,24 | |
| Recording6b | Participant6 | | | | | | | | 152,11 | |
| Recording7 | Participant7 | | | | | | | | 1502,30 | |
| Recording8 | Participant8 | 8,72 | 20,22 | 24,36 | 17,77 | 20,22 | 53,30 | 109,34 | 1829,56 | |
| Recording9 | Participant9 | | | | | | | | 1295,95 | |
| Recording10 | Participant10 | 11,14 | 22,86 | 22,28 | 18,76 | 22,28 | 56,27 | 91,32 | 1989,69 | |
| Recording11 | Participant11 | | | | | | | | 1318,99 | |
| Recording12 | Participant12 | 7,59 | 20,29 | 21,01 | 16,30 | 20,29 | 48,90 | 63,98 | 1300,87 | |
| Recording13 | Participant13 | | | | | | | | 1117,53 | |
| Recording14 | Participant14 | 17,77 | 28,13 | 12,76 | 19,55 | 17,77 | 58,66 | 74,76 | 1007,85 | |
| Recording15 | Participant15 | | | | | | | | 1642,18 | |
| Recording16 | Participant16 | 21,13 | 23,93 | 23,60 | 22,88 | 23,60 | 68,65 | 82,45 | 1191,63 | |
| **Average** | | 16,75 | 24,61 | 19,91 | 20,42 | 21,80 | 61,27 | 92,00 | 1377,13 | |
| **Share of Total Time (%)** | | 27,34 | 40,17 | 32,50 | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | | | | | | |
| **Variance** | | 99,18 | 71,38 | 29,71 | 44,11 | 34,85 | 397,02 | 1611,00 | 209825,58 | |
| **Standard Deviation (n-1)** | | 9,96 | 8,45 | 5,45 | 6,64 | 5,90 | 19,93 | 40,14 | 458,07 | |
| | | | | | | | | | | |
| m6_t | | | | | | | | | | |
| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Text** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** |
| Recording1 | Participant1 | 4,80 | 17,28 | 20,88 | 6,56 | 12,38 | 11,92 | 49,51 | 70,95 | 1420,87 |
| Recording2 | Participant2 | | | | | | | | | 1211,30 |
| Recording3 | Participant3 | 0,63 | 19,86 | 34,90 | 5,13 | 15,13 | 12,50 | 60,52 | 109,75 | 1410,88 |
| Recording4 | Participant4 | | | | | | | | | 1158,57 |
| Recording5 | Participant5 | 6,49 | 29,96 | 27,04 | 21,45 | 21,23 | 24,24 | 84,93 | 105,35 | 1579,64 |
| Recording6 | Participant6 | | | | | | | | | 2281,24 |
| Recording6b | Participant6 | | | | | | | | | 152,11 |
| Recording7 | Participant7 | 1,58 | 17,38 | 24,24 | 5,02 | 12,05 | 11,20 | 48,22 | 61,08 | 1502,30 |
| Recording8 | Participant8 | | | | | | | | | 1829,56 |
| Recording9 | Participant9 | 6,60 | 21,74 | 11,73 | 0,38 | 10,11 | 9,16 | 40,45 | 75,21 | 1295,95 |
| Recording10 | Participant10 | | | | | | | | | 1989,69 |
| Recording11 | Participant11 | 0,10 | 12,79 | 24,81 | 15,77 | 13,37 | 14,28 | 53,47 | 61,43 | 1318,99 |
| Recording12 | Participant12 | | | | | | | | | 1300,87 |
| Recording13 | Participant13 | 5,25 | 4,42 | 15,75 | 6,08 | 7,88 | 5,67 | 31,51 | 68,53 | 1117,53 |
| Recording14 | Participant14 | | | | | | | | | 1007,85 |
| Recording15 | Participant15 | 0,35 | 26,39 | 16,41 | 10,84 | 13,49 | 13,62 | 53,98 | 83,43 | 1642,18 |
| Recording16 | Participant16 | | | | | | | | | 1191,63 |
| **Average** | | 3,22 | 18,73 | 21,97 | 8,90 | 13,21 | 12,82 | 52,82 | 79,47 | 1377,13 |
| **Share of Total Time (%)** | | 6,10 | 35,45 | 41,59 | 16,85 | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | 100,00 | | | | | |
| **Variance** | | 8,02 | 62,73 | 54,55 | 46,25 | 15,46 | 28,77 | 247,39 | 353,84 | 209825,58 |
| **Standard Deviation (n-1)** | | 2,83 | 7,92 | 7,39 | 6,80 | 3,93 | 5,36 | 15,73 | 18,81 | 458,07 |
| | | | | | | | | | | |
| m7 | | | | | | | | | | |
| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** | |
| Recording1 | Participant1 | 10,69 | 33,20 | 36,25 | 26,71 | 33,20 | 80,14 | 99,80 | 1420,87 | |
| Recording2 | Participant2 | | | | | | | | 1211,30 | |
| Recording3 | Participant3 | 5,09 | 30,47 | 27,31 | 20,96 | 27,31 | 62,87 | 120,95 | 1410,88 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording4 | Participant4 | | | | | | | | 1158,57 | |
| Recording5 | Participant5 | 13,13 | 63,79 | 46,79 | 41,23 | 46,79 | 123,70 | 157,09 | 1579,64 | |
| Recording6 | Participant6 | | | | | | | | 2281,24 | |
| Recording6b | Participant6 | | | | | | | | 152,11 | |
| Recording7 | Participant7 | 90,05 | 110,23 | 50,25 | 83,51 | 90,05 | 250,52 | 316,82 | 1502,30 | |
| Recording8 | Participant8 | | | | | | | | 1829,56 | |
| Recording9 | Participant9 | 19,58 | 92,46 | 22,68 | 44,91 | 22,68 | 134,72 | 187,67 | 1295,95 | |
| Recording10 | Participant10 | | | | | | | | 1989,69 | |
| Recording11 | Participant11 | 8,42 | 29,60 | 29,90 | 22,64 | 29,60 | 67,91 | 77,86 | 1318,99 | |
| Recording12 | Participant12 | | | | | | | | 1300,87 | |
| Recording13 | Participant13 | 7,54 | 3,90 | 18,45 | 9,96 | 7,54 | 29,89 | 65,33 | 1117,53 | |
| Recording14 | Participant14 | | | | | | | | 1007,85 | |
| Recording15 | Participant15 | 27,97 | 57,61 | 25,14 | 36,91 | 27,97 | 110,72 | 147,51 | 1642,18 | |
| Recording16 | Participant16 | | | | | | | | 1191,63 | |
| **Average** | | 22,81 | 52,66 | 32,10 | 35,85 | 35,64 | 107,56 | 146,63 | 1377,13 | |
| **Share of Total Time (%)** | | 21,20 | 48,96 | 29,84 | | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | | | | | | |
| **Variance** | | 793,38 | 1260,89 | 130,54 | 504,77 | 601,95 | 4542,95 | 6421,53 | 209825,58 | |
| **Standard Deviation (n-1)** | | 28,17 | 35,51 | 11,43 | 22,47 | 24,53 | 67,40 | 80,13 | 458,07 | |

m7_t

| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Text** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording1 | Participant1 | | | | | | | | | 1420,87 |
| Recording2 | Participant2 | 2,19 | 39,57 | 21,84 | 30,70 | 23,57 | 26,27 | 94,29 | 131,02 | 1211,30 |
| Recording3 | Participant3 | | | | | | | | | 1410,88 |
| Recording4 | Participant4 | | 4,07 | 3,74 | 2,38 | 3,40 | 3,74 | 10,20 | 76,25 | 1158,57 |
| Recording5 | Participant5 | | | | | | | | | 1579,64 |
| Recording6 | Participant6 | 9,56 | 105,27 | 61,09 | 16,00 | 47,98 | 38,55 | 191,92 | 349,49 | 2281,24 |
| Recording6b | Participant6 | | | | | | | | | 152,11 |
| Recording7 | Participant7 | | | | | | | | | 1502,30 |
| Recording8 | Participant8 | | 7,80 | 19,85 | 0,19 | 9,28 | 7,80 | 27,84 | 158,76 | 1829,56 |
| Recording9 | Participant9 | | | | | | | | | 1295,95 |
| Recording10 | Participant10 | 28,51 | 38,59 | 26,03 | 21,98 | 28,78 | 27,27 | 115,11 | 188,62 | 1989,69 |
| Recording11 | Participant11 | | | | | | | | | 1318,99 |
| Recording12 | Participant12 | 1,15 | 55,64 | 24,31 | 3,33 | 21,10 | 13,82 | 84,42 | 120,30 | 1300,87 |
| Recording13 | Participant13 | | | | | | | | | 1117,53 |
| Recording14 | Participant14 | 8,38 | 28,14 | 23,16 | 21,79 | 20,37 | 22,48 | 81,47 | 99,50 | 1007,85 |
| Recording15 | Participant15 | | | | | | | | | 1642,18 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording16 | Participant16 | 19,55 | 32,76 | 42,52 | 26,24 | 30,27 | 29,50 | 121,07 | 159,33 | 1191,63 |
| **Average** | | 11,56 | 38,98 | 27,82 | 15,33 | 23,09 | 21,18 | 90,79 | 160,41 | 1377,13 |
| **Share of Total Time (%)** | | 9,55 | 42,93 | 30,64 | 16,88 | | | | | |
| **Percentage Fixated (%)** | | 75,00 | 100,00 | 100,00 | 100,00 | | | | | |
| **Variance** | | 112,31 | 1002,69 | 291,36 | 140,36 | 184,78 | 138,96 | 3190,55 | 7116,85 | 209825,58 |
| **Standard Deviation (n-1)** | | 10,60 | 31,67 | 17,07 | 11,85 | 13,59 | 11,79 | 56,48 | 84,36 | 458,07 |
| | | | | | | | | | | |
| m8 | | | | | | | | | | |
| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** | |
| Recording1 | Participant1 | 4,46 | 33,73 | 40,13 | 26,11 | 33,73 | 78,32 | 97,70 | 1420,87 | |
| Recording2 | Participant2 | | | | | | | | 1211,30 | |
| Recording3 | Participant3 | 0,34 | 22,58 | 21,38 | 14,77 | 21,38 | 44,30 | 150,89 | 1410,88 | |
| Recording4 | Participant4 | | | | | | | | 1158,57 | |
| Recording5 | Participant5 | 2,59 | 34,01 | 22,19 | 19,59 | 22,19 | 58,78 | 87,53 | 1579,64 | |
| Recording6 | Participant6 | | | | | | | | 2281,24 | |
| Recording6b | Participant6 | | | | | | | | 152,11 | |
| Recording7 | Participant7 | | 25,11 | 30,83 | 27,97 | 27,97 | 55,94 | 96,13 | 1502,30 | |
| Recording8 | Participant8 | | | | | | | | 1829,56 | |
| Recording9 | Participant9 | 3,15 | 36,37 | 20,12 | 19,88 | 20,12 | 59,64 | 75,13 | 1295,95 | |
| Recording10 | Participant10 | | | | | | | | 1989,69 | |
| Recording11 | Participant11 | 11,05 | 30,25 | 53,06 | 31,45 | 30,25 | 94,35 | 108,92 | 1318,99 | |
| Recording12 | Participant12 | | | | | | | | 1300,87 | |
| Recording13 | Participant13 | 9,80 | 11,64 | 15,93 | 12,46 | 11,64 | 37,37 | 76,65 | 1117,53 | |
| Recording14 | Participant14 | | | | | | | | 1007,85 | |
| Recording15 | Participant15 | 1,40 | 56,13 | 27,28 | 28,27 | 27,28 | 84,82 | 115,69 | 1642,18 | |
| Recording16 | Participant16 | | | | | | | | 1191,63 | |
| **Average** | | 4,68 | 31,23 | 28,87 | 22,56 | 24,32 | 64,19 | 101,08 | 1377,13 | |
| **Share of Total Time (%)** | | 6,39 | 48,65 | 44,97 | | | | | | |
| **Percentage Fixated (%)** | | 87,50 | 100,00 | 100,00 | | | | | | |
| **Variance** | | 17,18 | 165,38 | 151,88 | 47,47 | 48,21 | 395,38 | 606,57 | 209825,58 | |
| **Standard Deviation (n-1)** | | 4,15 | 12,86 | 12,32 | 6,89 | 6,94 | 19,88 | 24,63 | 458,07 | |
| | | | | | | | | | | |
| m8_t | | | | | Text* | | | | | |
| **Total duration of** | **Participant** | **Legend** | **Model** | **Questions** | **Polygon** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** |

| fixation in AOI | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording1 | Participant1 | | | | | | | | | 1420,87 |
| Recording2 | Participant2 | 3,07 | 18,88 | 11,09 | 11,26 | 11,08 | 11,17 | 44,30 | 61,74 | 1211,30 |
| Recording3 | Participant3 | | | | | | | | | 1410,88 |
| Recording4 | Participant4 | 0,52 | 17,44 | 24,36 | 17,49 | 14,95 | 17,47 | 59,81 | 70,48 | 1158,57 |
| Recording5 | Participant5 | | | | | | | | | 1579,64 |
| Recording6 | Participant6 | 24,19 | 64,32 | 27,82 | 18,05 | 33,60 | 26,01 | 134,38 | 211,29 | 2281,24 |
| Recording6b | Participant6 | | | | | | | | | 152,11 |
| Recording7 | Participant7 | | | | | | | | | 1502,30 |
| Recording8 | Participant8 | 5,53 | 36,27 | 26,32 | 3,16 | 17,82 | 15,92 | 71,26 | 180,21 | 1829,56 |
| Recording9 | Participant9 | | | | | | | | | 1295,95 |
| Recording10 | Participant10 | 6,14 | 56,59 | 52,51 | 17,37 | 33,15 | 34,94 | 132,61 | 199,45 | 1989,69 |
| Recording11 | Participant11 | | | | | | | | | 1318,99 |
| Recording12 | Participant12 | 2,97 | 61,51 | 32,55 | 5,13 | 25,54 | 18,84 | 102,16 | 134,34 | 1300,87 |
| Recording13 | Participant13 | | | | | | | | | 1117,53 |
| Recording14 | Participant14 | 1,64 | 50,25 | 30,59 | 17,95 | 25,11 | 24,27 | 100,43 | 132,61 | 1007,85 |
| Recording15 | Participant15 | | | | | | | | | 1642,18 |
| Recording16 | Participant16 | 3,14 | 22,84 | 40,51 | 13,58 | 20,02 | 18,21 | 80,07 | 109,07 | 1191,63 |
| **Average** | | 5,90 | 41,01 | 30,72 | 13,00 | 22,66 | 20,85 | 90,63 | 137,40 | 1377,13 |
| **Share of Total Time (%)** | | 6,51 | 45,25 | 33,89 | 14,34 | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | 100,00 | | | | | |
| **Variance** | | 58,02 | 384,14 | 146,83 | 35,92 | 66,86 | 53,90 | 1069,69 | 3168,57 | 209825,58 |
| **Standard Deviation (n-1)** | | 7,62 | 19,60 | 12,12 | 5,99 | 8,18 | 7,34 | 32,71 | 56,29 | 458,07 |

m9

| Total duration of fixation in AOI | Participant | Legend | Model | Questions | Average | Median | Sum | Total Time of Interest Duration | Total Recording Duration | |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording1 | Participant1 | 11,31 | 31,37 | 43,41 | 28,69 | 31,37 | 86,08 | 111,05 | 1420,87 | |
| Recording2 | Participant2 | | | | | | | | 1211,30 | |
| Recording3 | Participant3 | 0,26 | 16,05 | 45,56 | 20,62 | 16,05 | 61,87 | 92,58 | 1410,88 | |
| Recording4 | Participant4 | | | | | | | | 1158,57 | |
| Recording5 | Participant5 | 12,01 | 29,60 | 56,52 | 32,71 | 29,60 | 98,12 | 119,67 | 1579,64 | |
| Recording6 | Participant6 | | | | | | | | 2281,24 | |
| Recording6b | Participant6 | | | | | | | | 152,11 | |
| Recording7 | Participant7 | 6,31 | 12,24 | 33,23 | 17,26 | 12,24 | 51,78 | 64,73 | 1502,30 | |
| Recording8 | Participant8 | | | | | | | | 1829,56 | |
| Recording9 | Participant9 | 0,18 | 23,18 | 20,67 | 14,68 | 20,67 | 44,03 | 59,78 | 1295,95 | |
| Recording10 | Participant10 | | | | | | | | 1989,69 | |
| Recording11 | Participant11 | 32,15 | 29,09 | 52,94 | 38,06 | 32,15 | 114,19 | 130,91 | 1318,99 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording12 | Participant12 | | | | | | | | 1300,87 | |
| Recording13 | Participant13 | 7,81 | 4,60 | 14,92 | 9,11 | 7,81 | 27,33 | 52,89 | 1117,53 | |
| Recording14 | Participant14 | | | | | | | | 1007,85 | |
| Recording15 | Participant15 | 15,15 | 34,19 | 25,01 | 24,79 | 25,01 | 74,36 | 102,53 | 1642,18 | |
| Recording16 | Participant16 | | | | | | | | 1191,63 | |
| **Average** | | 10,65 | 22,54 | 36,53 | 23,24 | 21,86 | 69,72 | 91,77 | 1377,13 | |
| **Share of Total Time (%)** | | 15,27 | 32,33 | 52,40 | | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | | | | | | |
| **Variance** | | 104,19 | 110,95 | 237,11 | 93,85 | 84,45 | 844,68 | 866,39 | 209825,58 | |
| **Standard Deviation (n-1)** | | 10,21 | 10,53 | 15,40 | 9,69 | 9,19 | 29,06 | 29,43 | 458,07 | |

m9_t

| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Text** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording1 | Participant1 | | | | | | | | | 1420,87 |
| Recording2 | Participant2 | 0,61 | 18,45 | 20,78 | 19,06 | 14,72 | 18,75 | 58,89 | 83,18 | 1211,30 |
| Recording3 | Participant3 | | | | | | | | | 1410,88 |
| Recording4 | Participant4 | | | 1,70 | 0,39 | 1,05 | 1,05 | 2,09 | 41,17 | 1158,57 |
| Recording5 | Participant5 | | | | | | | | | 1579,64 |
| Recording6 | Participant6 | | | | | | | | 1,05 | 2281,24 |
| Recording6b | Participant6 | 1,87 | 41,69 | 40,98 | 3,13 | 21,92 | 22,05 | 87,67 | 116,49 | 152,11 |
| Recording7 | Participant7 | | | | | | | | | 1502,30 |
| Recording8 | Participant8 | 5,26 | 12,11 | 20,78 | 1,71 | 9,97 | 8,68 | 39,87 | 109,17 | 1829,56 |
| Recording9 | Participant9 | | | | | | | | | 1295,95 |
| Recording10 | Participant10 | 1,39 | 14,21 | 16,47 | 20,63 | 13,18 | 15,34 | 52,71 | 98,22 | 1989,69 |
| Recording11 | Participant11 | | | | | | | | | 1318,99 |
| Recording12 | Participant12 | 0,75 | 16,14 | 16,01 | 3,33 | 9,06 | 9,67 | 36,23 | 71,48 | 1300,87 |
| Recording13 | Participant13 | | | | | | | | | 1117,53 |
| Recording14 | Participant14 | 8,74 | 11,85 | 15,70 | 7,77 | 11,01 | 10,29 | 44,05 | 57,33 | 1007,85 |
| Recording15 | Participant15 | | | | | | | | | 1642,18 |
| Recording16 | Participant16 | 0,35 | 12,89 | 44,97 | 10,03 | 17,06 | 11,46 | 68,22 | 85,76 | 1191,63 |
| **Average** | | 2,71 | 18,19 | 22,17 | 8,26 | 12,24 | 12,16 | 48,72 | 73,76 | 1377,13 |
| **Share of Total Time (%)** | | 4,87 | 32,67 | 45,52 | 16,95 | | | | | |
| **Percentage Fixated (%)** | | 77,78 | 77,78 | 88,89 | 88,89 | | | | | |
| **Variance** | | 9,86 | 112,94 | 201,20 | 61,19 | 38,00 | 42,47 | 635,33 | 1316,78 | 209825,58 |
| **Standard Deviation (n-1)** | | 3,14 | 10,63 | 14,18 | 7,82 | 6,16 | 6,52 | 25,21 | 36,29 | 458,07 |

m10

| Total duration of fixation in AOI | Participant | Legend | Model | Questions | Average | Median | Sum | Total Time of Interest Duration | Total Recording Duration |
|---|---|---|---|---|---|---|---|---|---|
| Recording1 | Participant1 | | | | | | | | 1420,87 |
| Recording2 | Participant2 | 1,23 | 19,46 | 18,68 | 13,13 | 18,68 | 39,38 | 69,45 | 1211,30 |
| Recording3 | Participant3 | | | | | | | | 1410,88 |
| Recording4 | Participant4 | | 8,58 | 14,27 | 11,43 | 11,43 | 22,85 | 68,36 | 1158,57 |
| Recording5 | Participant5 | | | | | | | | 1579,64 |
| Recording6 | Participant6 | 4,74 | 40,84 | 29,33 | 24,97 | 29,33 | 74,90 | 116,04 | 2281,24 |
| Recording6b | Participant6 | | | | | | | | 152,11 |
| Recording7 | Participant7 | | | | | | | | 1502,30 |
| Recording8 | Participant8 | | | 0,69 | 0,69 | 0,69 | 0,69 | 83,01 | 1829,56 |
| Recording9 | Participant9 | | | | | | | | 1295,95 |
| Recording10 | Participant10 | 12,06 | 24,62 | 19,82 | 18,83 | 19,82 | 56,50 | 121,24 | 1989,69 |
| Recording11 | Participant11 | | | | | | | | 1318,99 |
| Recording12 | Participant12 | 0,11 | 34,20 | 21,30 | 18,54 | 21,30 | 55,61 | 81,93 | 1300,87 |
| Recording13 | Participant13 | | | | | | | | 1117,53 |
| Recording14 | Participant14 | 5,79 | 29,70 | 12,66 | 16,05 | 12,66 | 48,15 | 57,29 | 1007,85 |
| Recording15 | Participant15 | | | | | | | | 1642,18 |
| Recording16 | Participant16 | 2,84 | 36,29 | 40,03 | 26,39 | 36,29 | 79,16 | 94,98 | 1191,63 |
| **Average** | | 4,46 | 27,67 | 19,60 | 16,25 | 18,77 | 47,15 | 86,54 | 1377,13 |
| **Share of Total Time (%)** | | 7,10 | 51,35 | 41,56 | | | | | |
| **Percentage Fixated (%)** | | 75,00 | 87,50 | 100,00 | | | | | |
| **Variance** | | 18,30 | 122,54 | 135,74 | 66,56 | 120,61 | 680,62 | 522,43 | 209825,58 |
| **Standard Deviation (n-1)** | | 4,28 | 11,07 | 11,65 | 8,16 | 10,98 | 26,09 | 22,86 | 458,07 |

m10_t

| Total duration of fixation in AOI | Participant | Legend | Model | Questions | Text | Average | Median | Sum | Total Time of Interest Duration | Total Recording Duration |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording1 | Participant1 | 0,57 | 53,80 | 38,81 | 21,82 | 28,75 | 30,31 | 115,00 | 147,68 | 1420,87 |
| Recording2 | Participant2 | | | | | | | | | 1211,30 |
| Recording3 | Participant3 | 0,17 | 12,21 | 24,97 | 0,57 | 9,48 | 6,39 | 37,93 | 69,63 | 1410,88 |
| Recording4 | Participant4 | | | | | | | | | 1158,57 |
| Recording5 | Participant5 | 0,13 | 41,88 | 38,57 | 40,21 | 30,20 | 39,39 | 120,79 | 154,59 | 1579,64 |
| Recording6 | Participant6 | | | | | | | | | 2281,24 |
| Recording6b | Participant6 | | | | | | | | | 152,11 |
| Recording7 | Participant7 | 0,39 | 14,52 | 25,63 | 2,81 | 10,84 | 8,66 | 43,35 | 58,11 | 1502,30 |
| Recording8 | Participant8 | | | | | | | | | 1829,56 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording9 | Participant9 | 0,27 | 35,90 | 13,40 | 0,62 | 12,55 | 7,01 | 50,19 | 73,81 | 1295,95 |
| Recording10 | Participant10 | | | | | | | | | 1989,69 |
| Recording11 | Participant11 | 0,96 | 21,35 | 27,55 | 35,98 | 21,46 | 24,45 | 85,83 | 97,80 | 1318,99 |
| Recording12 | Participant12 | | | | | | | | | 1300,87 |
| Recording13 | Participant13 | 3,94 | 3,11 | 20,30 | 2,61 | 7,49 | 3,52 | 29,96 | 55,81 | 1117,53 |
| Recording14 | Participant14 | | | | | | | | | 1007,85 |
| Recording15 | Participant15 | 17,19 | 50,84 | 14,50 | 19,62 | 25,54 | 18,40 | 102,15 | 126,41 | 1642,18 |
| Recording16 | Participant16 | | | | | | | | | 1191,63 |
| **Average** | | 2,95 | 29,20 | 25,47 | 15,53 | 18,29 | 17,27 | 73,15 | 97,98 | 1377,13 |
| **Share of Total Time (%)** | | 4,04 | 39,92 | 34,82 | 21,23 | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | 100,00 | | | | | |
| **Variance** | | 34,67 | 360,83 | 92,40 | 265,47 | 85,21 | 171,27 | 1363,31 | 1605,51 | 209825,58 |
| **Standard Deviation (n-1)** | | 5,89 | 19,00 | 9,61 | 16,29 | 9,23 | 13,09 | 36,92 | 40,07 | 458,07 |

m11

| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** |
|---|---|---|---|---|---|---|---|---|---|
| Recording1 | Participant1 | | | | | | | | 1420,87 |
| Recording2 | Participant2 | 0,84 | 25,12 | 18,86 | 14,94 | 18,86 | 44,82 | 60,23 | 1211,30 |
| Recording3 | Participant3 | | | | | | | | 1410,88 |
| Recording4 | Participant4 | | 0,80 | 2,24 | 1,52 | 1,52 | 3,04 | 49,38 | 1158,57 |
| Recording5 | Participant5 | | | | | | | | 1579,64 |
| Recording6 | Participant6 | 5,25 | 49,81 | 18,72 | 24,59 | 18,72 | 73,78 | 102,63 | 2281,24 |
| Recording6b | Participant6 | | | | | | | | 152,11 |
| Recording7 | Participant7 | | | | | | | | 1502,30 |
| Recording8 | Participant8 | 1,47 | 10,00 | 23,93 | 11,80 | 10,00 | 35,40 | 124,62 | 1829,56 |
| Recording9 | Participant9 | | | | | | | | 1295,95 |
| Recording10 | Participant10 | 6,34 | 27,81 | 30,42 | 21,52 | 27,81 | 64,57 | 91,75 | 1989,69 |
| Recording11 | Participant11 | | | | | | | | 1318,99 |
| Recording12 | Participant12 | 0,28 | 37,47 | 14,04 | 17,26 | 14,04 | 51,79 | 83,61 | 1300,87 |
| Recording13 | Participant13 | | | | | | | | 1117,53 |
| Recording14 | Participant14 | 3,39 | 23,02 | 10,25 | 12,22 | 10,25 | 36,66 | 45,96 | 1007,85 |
| Recording15 | Participant15 | | | | | | | | 1642,18 |
| Recording16 | Participant16 | 14,90 | 17,47 | 26,05 | 19,47 | 17,47 | 58,42 | 72,50 | 1191,63 |
| **Average** | | 4,64 | 23,94 | 18,06 | 15,42 | 14,83 | 46,06 | 78,83 | 1377,13 |
| **Share of Total Time (%)** | | 8,81 | 51,97 | 39,22 | | | | | |
| **Percentage Fixated (%)** | | 87,50 | 100,00 | 100,00 | | | | | |
| **Variance** | | 25,61 | 234,48 | 82,76 | 51,14 | 61,27 | 478,67 | 741,10 | 209825,58 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Standard Deviation (n-1)** | | 5,06 | 15,31 | 9,10 | 7,15 | 7,83 | 21,88 | 27,22 | 458,07 | |
| | | | | | | | | | | |
| m11_t | | | | | | | | | | |
| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Text** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** |
| Recording1 | Participant1 | 0,74 | 14,41 | 42,20 | 15,58 | 18,23 | 14,99 | 72,92 | 95,92 | 1420,87 |
| Recording2 | Participant2 | | | | | | | | | 1211,30 |
| Recording3 | Participant3 | 1,74 | 17,03 | 44,25 | 4,87 | 16,97 | 10,95 | 67,89 | 104,38 | 1410,88 |
| Recording4 | Participant4 | | | | | | | | | 1158,57 |
| Recording5 | Participant5 | 0,06 | 13,63 | 32,65 | 13,01 | 14,83 | 13,32 | 59,34 | 88,13 | 1579,64 |
| Recording6 | Participant6 | | | | | | | | | 2281,24 |
| Recording6b | Participant6 | | | | | | | | | 152,11 |
| Recording7 | Participant7 | 3,96 | 23,72 | 54,64 | 15,29 | 24,40 | 19,50 | 97,60 | 119,59 | 1502,30 |
| Recording8 | Participant8 | | | | | | | | | 1829,56 |
| Recording9 | Participant9 | 3,55 | 53,31 | 28,26 | 10,77 | 23,97 | 19,51 | 95,88 | 166,75 | 1295,95 |
| Recording10 | Participant10 | | | | | | | | | 1989,69 |
| Recording11 | Participant11 | 2,47 | 26,68 | 45,89 | 23,70 | 24,69 | 25,19 | 98,75 | 113,04 | 1318,99 |
| Recording12 | Participant12 | | | | | | | | | 1300,87 |
| Recording13 | Participant13 | 4,45 | 5,50 | 32,29 | 12,37 | 13,65 | 8,93 | 54,60 | 91,82 | 1117,53 |
| Recording14 | Participant14 | | | | | | | | | 1007,85 |
| Recording15 | Participant15 | 0,77 | 48,05 | 25,36 | 16,31 | 22,62 | 20,84 | 90,50 | 128,07 | 1642,18 |
| Recording16 | Participant16 | | | | | | | | | 1191,63 |
| **Average** | | 2,22 | 25,29 | 38,19 | 13,99 | 19,92 | 16,65 | 79,68 | 113,46 | 1377,13 |
| **Share of Total Time (%)** | | 2,78 | 31,74 | 47,93 | 17,55 | | | | | |
| **Percentage Fixated (%)** | | 100,00 | 100,00 | 100,00 | 100,00 | | | | | |
| **Variance** | | 2,71 | 288,88 | 101,63 | 28,72 | 20,46 | 30,38 | 327,36 | 655,82 | 209825,58 |
| **Standard Deviation (n-1)** | | 1,65 | 17,00 | 10,08 | 5,36 | 4,52 | 5,51 | 18,09 | 25,61 | 458,07 |
| | | | | | | | | | | |
| m12 | | | | | | | | | | |
| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** | |
| Recording1 | Participant1 | | | | | | | | 1420,87 | |
| Recording2 | Participant2 | 1,87 | 18,23 | 21,29 | 13,80 | 18,23 | 41,39 | 72,78 | 1211,30 | |
| Recording3 | Participant3 | | | | | | | | 1410,88 | |
| Recording4 | Participant4 | | 0,58 | 0,65 | 0,62 | 0,62 | 1,23 | 59,88 | 1158,57 | |
| Recording5 | Participant5 | | | | | | | | 1579,64 | |
| Recording6 | Participant6 | 19,64 | 49,51 | 41,35 | 36,84 | 41,35 | 110,51 | 177,95 | 2281,24 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording6b | Participant6 | | | | | | | | 152,11 | |
| Recording7 | Participant7 | | | | | | | | 1502,30 | |
| Recording8 | Participant8 | 9,93 | 24,04 | 46,75 | 26,90 | 24,04 | 80,71 | 134,47 | 1829,56 | |
| Recording9 | Participant9 | | | | | | | | 1295,95 | |
| Recording10 | Participant10 | 48,76 | 39,19 | 45,11 | 44,35 | 45,11 | 133,06 | 189,50 | 1989,69 | |
| Recording11 | Participant11 | | | | | | | | 1318,99 | |
| Recording12 | Participant12 | 9,99 | 53,87 | 42,96 | 35,61 | 42,96 | 106,82 | 157,03 | 1300,87 | |
| Recording13 | Participant13 | | | | | | | | 1117,53 | |
| Recording14 | Participant14 | 17,22 | 16,28 | 18,75 | 17,42 | 17,22 | 52,26 | 65,48 | 1007,85 | |
| Recording15 | Participant15 | | | | | | | | 1642,18 | |
| Recording16 | Participant16 | 3,19 | 27,32 | 34,12 | 21,54 | 27,32 | 64,63 | 76,35 | 1191,63 | |
| **Average** | | 15,80 | 28,63 | 31,37 | 24,63 | 27,11 | 73,83 | 116,68 | 1377,13 | |
| **Share of Total Time (%)** | | 18,73 | 38,78 | 42,50 | | | | | | |
| **Percentage Fixated (%)** | | 87,50 | 100,00 | 100,00 | | | | | | |
| **Variance** | | 254,05 | 322,11 | 267,30 | 202,72 | 238,00 | 1837,24 | 2914,74 | 209825,58 | |
| **Standard Deviation (n-1)** | | 15,94 | 17,95 | 16,35 | 14,24 | 15,43 | 42,86 | 53,99 | 458,07 | |

m12_t

| **Total duration of fixation in AOI** | **Participant** | **Legend** | **Model** | **Questions** | **Text** | **Average** | **Median** | **Sum** | **Total Time of Interest Duration** | **Total Recording Duration** |
|---|---|---|---|---|---|---|---|---|---|---|
| Recording1 | Participant1 | 0,66 | 28,22 | 47,80 | 12,32 | 22,25 | 20,27 | 89,00 | 111,60 | 1420,87 |
| Recording2 | Participant2 | | | | | | | | | 1211,30 |
| Recording3 | Participant3 | 0,29 | 22,11 | 56,09 | 1,17 | 19,91 | 11,64 | 79,66 | 109,92 | 1410,88 |
| Recording4 | Participant4 | | | | | | | | | 1158,57 |
| Recording5 | Participant5 | 0,49 | 23,19 | 42,10 | 29,80 | 23,90 | 26,50 | 95,58 | 119,00 | 1579,64 |
| Recording6 | Participant6 | | | | | | | | | 2281,24 |
| Recording6b | Participant6 | | | | | | | | | 152,11 |
| Recording7 | Participant7 | 8,24 | 21,40 | 57,13 | 17,21 | 25,99 | 19,31 | 103,98 | 127,12 | 1502,30 |
| Recording8 | Participant8 | | | | | | | | | 1829,56 |
| Recording9 | Participant9 | | 13,39 | 25,67 | 0,48 | 13,18 | 13,39 | 39,54 | 50,18 | 1295,95 |
| Recording10 | Participant10 | | | | | | | | | 1989,69 |
| Recording11 | Participant11 | 0,22 | 11,19 | 30,75 | 26,51 | 17,17 | 18,85 | 68,66 | 79,11 | 1318,99 |
| Recording12 | Participant12 | | | | | | | | | 1300,87 |
| Recording13 | Participant13 | 9,03 | 3,07 | 24,18 | 9,44 | 11,43 | 9,24 | 45,72 | 78,20 | 1117,53 |
| Recording14 | Participant14 | | | | | | | | | 1007,85 |
| Recording15 | Participant15 | 11,14 | 37,89 | 27,35 | 20,48 | 24,21 | 23,92 | 96,86 | 146,66 | 1642,18 |
| Recording16 | Participant16 | | | | | | | | | 1191,63 |
| **Average** | | 4,29 | 20,06 | 38,89 | 14,68 | 19,76 | 17,89 | 77,38 | 102,72 | 1377,13 |
| **Share of Total Time (%)** | | 4,86 | 25,92 | 50,25 | 18,97 | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Percentage Fixated (%)** | | 87,50 | 100,00 | 100,00 | 100,00 | | | | | |
| **Variance** | | 24,19 | 116,01 | 186,98 | 117,98 | 28,78 | 36,17 | 581,24 | 977,37 | 209825,58 |
| **Standard Deviation (n-1)** | | 4,92 | 10,77 | 13,67 | 10,86 | 5,36 | 6,01 | 24,11 | 31,26 | 458,07 |

The raw data from the GSR. Each table shows the cognitive load that participants spend on each slide. There are two tables for each model, one for hybrid representation (m1_t, m2_t, …) and one without (m1, m2, …). The final table shows the average cognitive load across the different groupings.

m1

| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
|---|---|---|---|---|---|
| Recording1 | Participant1 | 12,73 | 12,73 | 12,73 | 1 |
| Recording2 | Participant2 | | | | 0 |
| Recording3 | Participant3 | 1,59 | 1,59 | 1,59 | 1 |
| Recording4 | Participant4 | | | | 0 |
| Recording5 | Participant5 | 3,53 | 3,53 | 3,53 | 1 |
| Recording6 | Participant6 | | | | 0 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | 8,38 | 8,38 | 8,38 | 1 |
| Recording8 | Participant8 | | | | 0 |
| Recording9 | Participant9 | 2,76 | 2,76 | 2,76 | 1 |
| Recording10 | Participant10 | | | | 0 |
| Recording11 | Participant11 | 5,37 | 5,37 | 5,37 | 1 |
| Recording12 | Participant12 | | | | 0 |
| Recording13 | Participant13 | 3,72 | 3,72 | 3,72 | 1 |
| Recording14 | Participant14 | | | | 0 |
| Recording15 | Participant15 | 1,46 | 1,46 | 1,46 | 1 |
| Recording16 | Participant16 | | | | 0 |
| **Count** | | 8 | | | |

m1_t

| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
|---|---|---|---|---|---|
| Recording1 | Participant1 | | | | 0 |
| Recording2 | Participant2 | 1,63 | 1,63 | 1,63 | 1 |
| Recording3 | Participant3 | | | | 0 |
| Recording4 | Participant4 | 5,20 | 5,20 | 5,20 | 1 |
| Recording5 | Participant5 | | | | 0 |
| Recording6 | Participant6 | 6,09 | 6,09 | 6,09 | 1 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | | | | 0 |
| Recording8 | Participant8 | 11,71 | 11,71 | 11,71 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Recording9 | Participant9 | | | | 0 |
| Recording10 | Participant10 | 3,03 | 3,03 | 3,03 | 1 |
| Recording11 | Participant11 | | | | 0 |
| Recording12 | Participant12 | 4,35 | 4,35 | 4,35 | 1 |
| Recording13 | Participant13 | | | | 0 |
| Recording14 | Participant14 | 7,72 | 7,72 | 7,72 | 1 |
| Recording15 | Participant15 | | | | 0 |
| Recording16 | Participant16 | 9,96 | 9,96 | 9,96 | 1 |
| **Count** | | 8 | | | |

m2

| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
|---|---|---|---|---|---|
| Recording1 | Participant1 | 16,83 | 16,83 | 16,83 | 1 |
| Recording2 | Participant2 | | | | 0 |
| Recording3 | Participant3 | 2,54 | 2,54 | 2,54 | 1 |
| Recording4 | Participant4 | | | | 0 |
| Recording5 | Participant5 | 3,76 | 3,76 | 3,76 | 1 |
| Recording6 | Participant6 | | | | 0 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | 9,65 | 9,65 | 9,65 | 1 |
| Recording8 | Participant8 | | | | 0 |
| Recording9 | Participant9 | 1,98 | 1,98 | 1,98 | 1 |
| Recording10 | Participant10 | | | | 0 |
| Recording11 | Participant11 | 3,95 | 3,95 | 3,95 | 1 |
| Recording12 | Participant12 | | | | 0 |
| Recording13 | Participant13 | 3,23 | 3,23 | 3,23 | 1 |
| Recording14 | Participant14 | | | | 0 |
| Recording15 | Participant15 | 1,94 | 1,94 | 1,94 | 1 |
| Recording16 | Participant16 | | | | 0 |
| **Count** | | 8 | | | |

m2_t

| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
|---|---|---|---|---|---|
| Recording1 | Participant1 | | | | 0 |
| Recording2 | Participant2 | 1,63 | 1,63 | 1,63 | 1 |
| Recording3 | Participant3 | | | | 0 |
| Recording4 | Participant4 | 5,19 | 5,19 | 5,19 | 1 |
| Recording5 | Participant5 | | | | 0 |
| Recording6 | Participant6 | 5,79 | 5,79 | 5,79 | 1 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | | | | 0 |
| Recording8 | Participant8 | 8,05 | 8,05 | 8,05 | 1 |
| Recording9 | Participant9 | | | | 0 |
| Recording10 | Participant10 | 4,85 | 4,85 | 4,85 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Recording11 | Participant11 | | | | 0 |
| Recording12 | Participant12 | 4,01 | 4,01 | 4,01 | 1 |
| Recording13 | Participant13 | | | | 0 |
| Recording14 | Participant14 | 11,70 | 11,70 | 11,70 | 1 |
| Recording15 | Participant15 | | | | 0 |
| Recording16 | Participant16 | 10,17 | 10,17 | 10,17 | 1 |
| **Count** | | 8 | | | |
| | | | | | |
| m3 | | | | | |
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | 14,70 | 14,70 | 14,70 | 1 |
| Recording2 | Participant2 | | | | 0 |
| Recording3 | Participant3 | 0,91 | 0,91 | 0,91 | 1 |
| Recording4 | Participant4 | | | | 0 |
| Recording5 | Participant5 | 3,28 | 3,28 | 3,28 | 1 |
| Recording6 | Participant6 | | | | 0 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | 9,49 | 9,49 | 9,49 | 1 |
| Recording8 | Participant8 | | | | 0 |
| Recording9 | Participant9 | 2,83 | 2,83 | 2,83 | 1 |
| Recording10 | Participant10 | | | | 0 |
| Recording11 | Participant11 | 5,07 | 5,07 | 5,07 | 1 |
| Recording12 | Participant12 | | | | 0 |
| Recording13 | Participant13 | 3,76 | 3,76 | 3,76 | 1 |
| Recording14 | Participant14 | | | | 0 |
| Recording15 | Participant15 | 2,02 | 2,02 | 2,02 | 1 |
| Recording16 | Participant16 | | | | 0 |
| **Count** | | 8 | | | |
| | | | | | |
| m3_t | | | | | |
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | | | | 0 |
| Recording2 | Participant2 | 1,40 | 1,40 | 1,40 | 1 |
| Recording3 | Participant3 | | | | 0 |
| Recording4 | Participant4 | 6,86 | 6,86 | 6,86 | 1 |
| Recording5 | Participant5 | | | | 0 |
| Recording6 | Participant6 | 5,72 | 5,72 | 5,72 | 1 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | | | | 0 |
| Recording8 | Participant8 | 11,20 | 11,20 | 11,20 | 1 |
| Recording9 | Participant9 | | | | 0 |
| Recording10 | Participant10 | 3,31 | 3,31 | 3,31 | 1 |
| Recording11 | Participant11 | | | | 0 |
| Recording12 | Participant12 | 5,17 | 5,17 | 5,17 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Recording13 | Participant13 | | | | 0 |
| Recording14 | Participant14 | 6,29 | 6,29 | 6,29 | 1 |
| Recording15 | Participant15 | | | | 0 |
| Recording16 | Participant16 | 12,33 | 12,33 | 12,33 | 1 |
| **Count** | | 8 | | | |
| | | | | | |
| m4 | | | | | |
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | | | | 0 |
| Recording2 | Participant2 | 1,48 | 1,48 | 1,48 | 1 |
| Recording3 | Participant3 | | | | 0 |
| Recording4 | Participant4 | 5,56 | 5,56 | 5,56 | 1 |
| Recording5 | Participant5 | | | | 0 |
| Recording6 | Participant6 | 5,16 | 5,16 | 5,16 | 1 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | | | | 0 |
| Recording8 | Participant8 | 11,39 | 11,39 | 11,39 | 1 |
| Recording9 | Participant9 | | | | 0 |
| Recording10 | Participant10 | 3,18 | 3,18 | 3,18 | 1 |
| Recording11 | Participant11 | | | | 0 |
| Recording12 | Participant12 | 4,94 | 4,94 | 4,94 | 1 |
| Recording13 | Participant13 | | | | 0 |
| Recording14 | Participant14 | 8,54 | 8,54 | 8,54 | 1 |
| Recording15 | Participant15 | | | | 0 |
| Recording16 | Participant16 | 12,62 | 12,62 | 12,62 | 1 |
| **Count** | | 8 | | | |
| | | | | | |
| m4_t | | | | | |
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | 16,99 | 16,99 | 16,99 | 1 |
| Recording2 | Participant2 | | | | 0 |
| Recording3 | Participant3 | 1,91 | 1,91 | 1,91 | 1 |
| Recording4 | Participant4 | | | | 0 |
| Recording5 | Participant5 | 2,05 | 2,05 | 2,05 | 1 |
| Recording6 | Participant6 | | | | 0 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | 8,03 | 8,03 | 8,03 | 1 |
| Recording8 | Participant8 | | | | 0 |
| Recording9 | Participant9 | 1,71 | 1,71 | 1,71 | 1 |
| Recording10 | Participant10 | | | | 0 |
| Recording11 | Participant11 | 4,42 | 4,42 | 4,42 | 1 |
| Recording12 | Participant12 | | | | 0 |
| Recording13 | Participant13 | 3,92 | 3,92 | 3,92 | 1 |
| Recording14 | Participant14 | | | | 0 |

| | | | | | |
|---|---|---|---|---|---|
| Recording15 | Participant15 | 1,43 | 1,43 | 1,43 | 1 |
| Recording16 | Participant16 | | | | 0 |
| **Count** | | 8 | | | |
| | | | | | |
| m5 | | | | | |
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | | | | 0 |
| Recording2 | Participant2 | 1,29 | 1,29 | 1,29 | 1 |
| Recording3 | Participant3 | | | | 0 |
| Recording4 | Participant4 | 6,16 | 6,16 | 6,16 | 1 |
| Recording5 | Participant5 | | | | 0 |
| Recording6 | Participant6 | 6,96 | 6,96 | 6,96 | 1 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | | | | 0 |
| Recording8 | Participant8 | 9,06 | 9,06 | 9,06 | 1 |
| Recording9 | Participant9 | | | | 0 |
| Recording10 | Participant10 | 3,18 | 3,18 | 3,18 | 1 |
| Recording11 | Participant11 | | | | 0 |
| Recording12 | Participant12 | 5,40 | 5,40 | 5,40 | 1 |
| Recording13 | Participant13 | | | | 0 |
| Recording14 | Participant14 | 8,20 | 8,20 | 8,20 | 1 |
| Recording15 | Participant15 | | | | 0 |
| Recording16 | Participant16 | 12,37 | 12,37 | 12,37 | 1 |
| **Count** | | 8 | | | |
| | | | | | |
| m5_t | | | | | |
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | 15,88 | 15,88 | 15,88 | 1 |
| Recording2 | Participant2 | | | | 0 |
| Recording3 | Participant3 | 1,80 | 1,80 | 1,80 | 1 |
| Recording4 | Participant4 | | | | 0 |
| Recording5 | Participant5 | 3,55 | 3,55 | 3,55 | 1 |
| Recording6 | Participant6 | | | | 0 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | 10,26 | 10,26 | 10,26 | 1 |
| Recording8 | Participant8 | | | | 0 |
| Recording9 | Participant9 | 2,99 | 2,99 | 2,99 | 1 |
| Recording10 | Participant10 | | | | 0 |
| Recording11 | Participant11 | 4,88 | 4,88 | 4,88 | 1 |
| Recording12 | Participant12 | | | | 0 |
| Recording13 | Participant13 | 3,76 | 3,76 | 3,76 | 1 |
| Recording14 | Participant14 | | | | 0 |
| Recording15 | Participant15 | 1,21 | 1,21 | 1,21 | 1 |
| Recording16 | Participant16 | | | | 0 |

| **Count** | | 8 | | | |
|---|---|---|---|---|---|
| | | | | | |
| m6 | | | | | |
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | | | | 0 |
| Recording2 | Participant2 | 1,72 | 1,72 | 1,72 | 1 |
| Recording3 | Participant3 | | | | 0 |
| Recording4 | Participant4 | 5,01 | 5,01 | 5,01 | 1 |
| Recording5 | Participant5 | | | | 0 |
| Recording6 | Participant6 | 6,45 | 6,45 | 6,45 | 1 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | | | | 0 |
| Recording8 | Participant8 | 12,60 | 12,60 | 12,60 | 1 |
| Recording9 | Participant9 | | | | 0 |
| Recording10 | Participant10 | 3,62 | 3,62 | 3,62 | 1 |
| Recording11 | Participant11 | | | | 0 |
| Recording12 | Participant12 | 4,76 | 4,76 | 4,76 | 1 |
| Recording13 | Participant13 | | | | 0 |
| Recording14 | Participant14 | 5,69 | 5,69 | 5,69 | 1 |
| Recording15 | Participant15 | | | | 0 |
| Recording16 | Participant16 | 11,62 | 11,62 | 11,62 | 1 |
| **Count** | | 8 | | | |
| | | | | | |
| m6_t | | | | | |
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | 16,97 | 16,97 | 16,97 | 1 |
| Recording2 | Participant2 | | | | 0 |
| Recording3 | Participant3 | 1,63 | 1,63 | 1,63 | 1 |
| Recording4 | Participant4 | | | | 0 |
| Recording5 | Participant5 | 2,72 | 2,72 | 2,72 | 1 |
| Recording6 | Participant6 | | | | 0 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | 10,45 | 10,45 | 10,45 | 1 |
| Recording8 | Participant8 | | | | 0 |
| Recording9 | Participant9 | 2,30 | 2,30 | 2,30 | 1 |
| Recording10 | Participant10 | | | | 0 |
| Recording11 | Participant11 | 4,21 | 4,21 | 4,21 | 1 |
| Recording12 | Participant12 | | | | 0 |
| Recording13 | Participant13 | 3,69 | 3,69 | 3,69 | 1 |
| Recording14 | Participant14 | | | | 0 |
| Recording15 | Participant15 | 2,46 | 2,46 | 2,46 | 1 |
| Recording16 | Participant16 | | | | 0 |
| **Count** | | 8 | | | |
| | | | | | |

| m7 | | | | | |
|---|---|---|---|---|---|
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | 15,39 | 15,39 | 15,39 | 1 |
| Recording2 | Participant2 | | | | 0 |
| Recording3 | Participant3 | 1,08 | 1,08 | 1,08 | 1 |
| Recording4 | Participant4 | | | | 0 |
| Recording5 | Participant5 | 2,47 | 2,47 | 2,47 | 1 |
| Recording6 | Participant6 | | | | 0 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | 6,36 | 6,36 | 6,36 | 1 |
| Recording8 | Participant8 | | | | 0 |
| Recording9 | Participant9 | 1,80 | 1,80 | 1,80 | 1 |
| Recording10 | Participant10 | | | | 0 |
| Recording11 | Participant11 | 4,88 | 4,88 | 4,88 | 1 |
| Recording12 | Participant12 | | | | 0 |
| Recording13 | Participant13 | 4,14 | 4,14 | 4,14 | 1 |
| Recording14 | Participant14 | | | | 0 |
| Recording15 | Participant15 | 1,70 | 1,70 | 1,70 | 1 |
| Recording16 | Participant16 | | | | 0 |
| **Count** | | 8 | | | |

| m7_t | | | | | |
|---|---|---|---|---|---|
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | | | | 0 |
| Recording2 | Participant2 | 1,36 | 1,36 | 1,36 | 1 |
| Recording3 | Participant3 | | | | 0 |
| Recording4 | Participant4 | 6,58 | 6,58 | 6,58 | 1 |
| Recording5 | Participant5 | | | | 0 |
| Recording6 | Participant6 | 7,04 | 7,04 | 7,04 | 1 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | | | | 0 |
| Recording8 | Participant8 | 9,51 | 9,51 | 9,51 | 1 |
| Recording9 | Participant9 | | | | 0 |
| Recording10 | Participant10 | 2,24 | 2,24 | 2,24 | 1 |
| Recording11 | Participant11 | | | | 0 |
| Recording12 | Participant12 | 5,69 | 5,69 | 5,69 | 1 |
| Recording13 | Participant13 | | | | 0 |
| Recording14 | Participant14 | 4,32 | 4,32 | 4,32 | 1 |
| Recording15 | Participant15 | | | | 0 |
| Recording16 | Participant16 | 8,59 | 8,59 | 8,59 | 1 |
| **Count** | | 8 | | | |

| m8 | | | | | |
|---|---|---|---|---|---|
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |

| | | | | | |
|---|---|---|---|---|---|
| Recording1 | Participant1 | 16,56 | 16,56 | 16,56 | 1 |
| Recording2 | Participant2 | | | | 0 |
| Recording3 | Participant3 | 1,38 | 1,38 | 1,38 | 1 |
| Recording4 | Participant4 | | | | 0 |
| Recording5 | Participant5 | 3,35 | 3,35 | 3,35 | 1 |
| Recording6 | Participant6 | | | | 0 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | 10,74 | 10,74 | 10,74 | 1 |
| Recording8 | Participant8 | | | | 0 |
| Recording9 | Participant9 | 1,97 | 1,97 | 1,97 | 1 |
| Recording10 | Participant10 | | | | 0 |
| Recording11 | Participant11 | 2,99 | 2,99 | 2,99 | 1 |
| Recording12 | Participant12 | | | | 0 |
| Recording13 | Participant13 | 3,49 | 3,49 | 3,49 | 1 |
| Recording14 | Participant14 | | | | 0 |
| Recording15 | Participant15 | 1,45 | 1,45 | 1,45 | 1 |
| Recording16 | Participant16 | | | | 0 |
| **Count** | | 8 | | | |

m8_t

| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
|---|---|---|---|---|---|
| Recording1 | Participant1 | | | | 0 |
| Recording2 | Participant2 | 1,80 | 1,80 | 1,80 | 1 |
| Recording3 | Participant3 | | | | 0 |
| Recording4 | Participant4 | 5,65 | 5,65 | 5,65 | 1 |
| Recording5 | Participant5 | | | | 0 |
| Recording6 | Participant6 | 3,92 | 3,92 | 3,92 | 1 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | | | | 0 |
| Recording8 | Participant8 | 10,23 | 10,23 | 10,23 | 1 |
| Recording9 | Participant9 | | | | 0 |
| Recording10 | Participant10 | 4,86 | 4,86 | 4,86 | 1 |
| Recording11 | Participant11 | | | | 0 |
| Recording12 | Participant12 | 3,16 | 3,16 | 3,16 | 1 |
| Recording13 | Participant13 | | | | 0 |
| Recording14 | Participant14 | 9,79 | 9,79 | 9,79 | 1 |
| Recording15 | Participant15 | | | | 0 |
| Recording16 | Participant16 | 7,17 | 7,17 | 7,17 | 1 |
| **Count** | | 8 | | | |

m9

| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
|---|---|---|---|---|---|
| Recording1 | Participant1 | 16,16 | 16,16 | 16,16 | 1 |
| Recording2 | Participant2 | | | | 0 |

| | | | | | |
|---|---|---|---|---|---|
| Recording3 | Participant3 | 2,21 | 2,21 | 2,21 | 1 |
| Recording4 | Participant4 | | | | 0 |
| Recording5 | Participant5 | 3,09 | 3,09 | 3,09 | 1 |
| Recording6 | Participant6 | | | | 0 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | 10,12 | 10,12 | 10,12 | 1 |
| Recording8 | Participant8 | | | | 0 |
| Recording9 | Participant9 | 2,92 | 2,92 | 2,92 | 1 |
| Recording10 | Participant10 | | | | 0 |
| Recording11 | Participant11 | 3,64 | 3,64 | 3,64 | 1 |
| Recording12 | Participant12 | | | | 0 |
| Recording13 | Participant13 | 3,52 | 3,52 | 3,52 | 1 |
| Recording14 | Participant14 | | | | 0 |
| Recording15 | Participant15 | 2,24 | 2,24 | 2,24 | 1 |
| Recording16 | Participant16 | | | | 0 |
| **Count** | | 8 | | | |

m9_t

| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
|---|---|---|---|---|---|
| Recording1 | Participant1 | | | | 0 |
| Recording2 | Participant2 | 1,59 | 1,59 | 1,59 | 1 |
| Recording3 | Participant3 | | | | 0 |
| Recording4 | Participant4 | 6,67 | 6,67 | 6,67 | 1 |
| Recording5 | Participant5 | | | | 0 |
| Recording6 | Participant6 | 4,20 | 4,20 | 4,20 | 1 |
| Recording6b | Participant6 | 7,04 | 7,04 | 7,04 | 1 |
| Recording7 | Participant7 | | | | 0 |
| Recording8 | Participant8 | 7,88 | 7,88 | 7,88 | 1 |
| Recording9 | Participant9 | | | | 0 |
| Recording10 | Participant10 | 4,11 | 4,11 | 4,11 | 1 |
| Recording11 | Participant11 | | | | 0 |
| Recording12 | Participant12 | 6,00 | 6,00 | 6,00 | 1 |
| Recording13 | Participant13 | | | | 0 |
| Recording14 | Participant14 | 6,70 | 6,70 | 6,70 | 1 |
| Recording15 | Participant15 | | | | 0 |
| Recording16 | Participant16 | 12,38 | 12,38 | 12,38 | 1 |
| **Count** | | 9 | | | |

m10

| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
|---|---|---|---|---|---|
| Recording1 | Participant1 | | | | 0 |
| Recording2 | Participant2 | 1,45 | 1,45 | 1,45 | 1 |
| Recording3 | Participant3 | | | | 0 |
| Recording4 | Participant4 | 5,99 | 5,99 | 5,99 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Recording5 | Participant5 | | | | 0 |
| Recording6 | Participant6 | 6,78 | 6,78 | 6,78 | 1 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | | | | 0 |
| Recording8 | Participant8 | 11,28 | 11,28 | 11,28 | 1 |
| Recording9 | Participant9 | | | | 0 |
| Recording10 | Participant10 | 5,21 | 5,21 | 5,21 | 1 |
| Recording11 | Participant11 | | | | 0 |
| Recording12 | Participant12 | 5,62 | 5,62 | 5,62 | 1 |
| Recording13 | Participant13 | | | | 0 |
| Recording14 | Participant14 | 10,86 | 10,86 | 10,86 | 1 |
| Recording15 | Participant15 | | | | 0 |
| Recording16 | Participant16 | 11,88 | 11,88 | 11,88 | 1 |
| **Count** | | 8 | | | |
| | | | | | |
| m10_t | | | | | |
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | 16,83 | 16,83 | 16,83 | 1 |
| Recording2 | Participant2 | | | | 0 |
| Recording3 | Participant3 | 1,22 | 1,22 | 1,22 | 1 |
| Recording4 | Participant4 | | | | 0 |
| Recording5 | Participant5 | 3,83 | 3,83 | 3,83 | 1 |
| Recording6 | Participant6 | | | | 0 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | 10,56 | 10,56 | 10,56 | 1 |
| Recording8 | Participant8 | | | | 0 |
| Recording9 | Participant9 | 2,61 | 2,61 | 2,61 | 1 |
| Recording10 | Participant10 | | | | 0 |
| Recording11 | Participant11 | 2,61 | 2,61 | 2,61 | 1 |
| Recording12 | Participant12 | | | | 0 |
| Recording13 | Participant13 | 4,30 | 4,30 | 4,30 | 1 |
| Recording14 | Participant14 | | | | 0 |
| Recording15 | Participant15 | 2,10 | 2,10 | 2,10 | 1 |
| Recording16 | Participant16 | | | | 0 |
| **Count** | | 8 | | | |
| | | | | | |
| m11 | | | | | |
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | | | | 0 |
| Recording2 | Participant2 | 1,56 | 1,56 | 1,56 | 1 |
| Recording3 | Participant3 | | | | 0 |
| Recording4 | Participant4 | 6,47 | 6,47 | 6,47 | 1 |
| Recording5 | Participant5 | | | | 0 |
| Recording6 | Participant6 | 4,60 | 4,60 | 4,60 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | | | | 0 |
| Recording8 | Participant8 | 8,71 | 8,71 | 8,71 | 1 |
| Recording9 | Participant9 | | | | 0 |
| Recording10 | Participant10 | 2,66 | 2,66 | 2,66 | 1 |
| Recording11 | Participant11 | | | | 0 |
| Recording12 | Participant12 | 3,87 | 3,87 | 3,87 | 1 |
| Recording13 | Participant13 | | | | 0 |
| Recording14 | Participant14 | 9,49 | 9,49 | 9,49 | 1 |
| Recording15 | Participant15 | | | | 0 |
| Recording16 | Participant16 | 10,82 | 10,82 | 10,82 | 1 |
| **Count** | | 8 | | | |
| | | | | | |
| m11_t | | | | | |
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | 13,68 | 13,68 | 13,68 | 1 |
| Recording2 | Participant2 | | | | 0 |
| Recording3 | Participant3 | 2,30 | 2,30 | 2,30 | 1 |
| Recording4 | Participant4 | | | | 0 |
| Recording5 | Participant5 | 2,99 | 2,99 | 2,99 | 1 |
| Recording6 | Participant6 | | | | 0 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | 9,23 | 9,23 | 9,23 | 1 |
| Recording8 | Participant8 | | | | 0 |
| Recording9 | Participant9 | 2,29 | 2,29 | 2,29 | 1 |
| Recording10 | Participant10 | | | | 0 |
| Recording11 | Participant11 | 3,31 | 3,31 | 3,31 | 1 |
| Recording12 | Participant12 | | | | 0 |
| Recording13 | Participant13 | 3,64 | 3,64 | 3,64 | 1 |
| Recording14 | Participant14 | | | | 0 |
| Recording15 | Participant15 | 1,57 | 1,57 | 1,57 | 1 |
| Recording16 | Participant16 | | | | 0 |
| **Count** | | 8 | | | |
| | | | | | |
| m12 | | | | | |
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | | | | 0 |
| Recording2 | Participant2 | 1,37 | 1,37 | 1,37 | 1 |
| Recording3 | Participant3 | | | | 0 |
| Recording4 | Participant4 | 6,17 | 6,17 | 6,17 | 1 |
| Recording5 | Participant5 | | | | 0 |
| Recording6 | Participant6 | 5,02 | 5,02 | 5,02 | 1 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | | | | 0 |

| | | | | | |
|---|---|---|---|---|---|
| Recording8 | Participant8 | 12,02 | 12,02 | 12,02 | 1 |
| Recording9 | Participant9 | | | | 0 |
| Recording10 | Participant10 | 2,50 | 2,50 | 2,50 | 1 |
| Recording11 | Participant11 | | | | 0 |
| Recording12 | Participant12 | 3,57 | 3,57 | 3,57 | 1 |
| Recording13 | Participant13 | | | | 0 |
| Recording14 | Participant14 | 7,15 | 7,15 | 7,15 | 1 |
| Recording15 | Participant15 | | | | 0 |
| Recording16 | Participant16 | 11,55 | 11,55 | 11,55 | 1 |
| **Count** | | 8 | | | |

m12_t

| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
|---|---|---|---|---|---|
| Recording1 | Participant1 | 16,91 | 16,91 | 16,91 | 1 |
| Recording2 | Participant2 | | | | 0 |
| Recording3 | Participant3 | 1,65 | 1,65 | 1,65 | 1 |
| Recording4 | Participant4 | | | | 0 |
| Recording5 | Participant5 | 3,87 | 3,87 | 3,87 | 1 |
| Recording6 | Participant6 | | | | 0 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | 8,72 | 8,72 | 8,72 | 1 |
| Recording8 | Participant8 | | | | 0 |
| Recording9 | Participant9 | 2,91 | 2,91 | 2,91 | 1 |
| Recording10 | Participant10 | | | | 0 |
| Recording11 | Participant11 | 4,63 | 4,63 | 4,63 | 1 |
| Recording12 | Participant12 | | | | 0 |
| Recording13 | Participant13 | 3,52 | 3,52 | 3,52 | 1 |
| Recording14 | Participant14 | | | | 0 |
| Recording15 | Participant15 | 1,83 | 1,83 | 1,83 | 1 |
| Recording16 | Participant16 | | | | 0 |
| **Count** | | 8 | | | |

m_dummy

| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
|---|---|---|---|---|---|
| Recording1 | Participant1 | 11,56 | 11,56 | 11,56 | 1 |
| Recording2 | Participant2 | 1,14 | 1,14 | 1,14 | 1 |
| Recording3 | Participant3 | 0,74 | 0,74 | 0,74 | 1 |
| Recording4 | Participant4 | 4,52 | 4,52 | 4,52 | 1 |
| Recording5 | Participant5 | 1,78 | 1,78 | 1,78 | 1 |
| Recording6 | Participant6 | 3,19 | 3,19 | 3,19 | 1 |
| Recording6b | Participant6 | | | | 0 |
| Recording7 | Participant7 | 4,77 | 4,77 | 4,77 | 1 |
| Recording8 | Participant8 | 7,31 | 7,31 | 7,31 | 1 |
| Recording9 | Participant9 | 1,45 | 1,45 | 1,45 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Recording10 | Participant10 | 2,12 | 2,12 | 2,12 | 1 |
| Recording11 | Participant11 | 2,58 | 2,58 | 2,58 | 1 |
| Recording12 | Participant12 | 2,89 | 2,89 | 2,89 | 1 |
| Recording13 | Participant13 | 2,77 | 2,77 | 2,77 | 1 |
| Recording14 | Participant14 | 3,40 | 3,40 | 3,40 | 1 |
| Recording15 | Participant15 | 1,46 | 1,46 | 1,46 | 1 |
| Recording16 | Participant16 | 6,81 | 6,81 | 6,81 | 1 |
| **Count** | | 16 | | | |
| | | | | | |
| Entire Recording | | | | | |
| **GSR Average** | **Participant** | **1** | **Average** | **Median** | **Count** |
| Recording1 | Participant1 | 15,26 | 15,26 | 15,26 | 1 |
| Recording2 | Participant2 | 1,42 | 1,42 | 1,42 | 1 |
| Recording3 | Participant3 | 1,55 | 1,55 | 1,55 | 1 |
| Recording4 | Participant4 | 5,38 | 5,38 | 5,38 | 1 |
| Recording5 | Participant5 | 3,01 | 3,01 | 3,01 | 1 |
| Recording6 | Participant6 | 5,48 | 5,48 | 5,48 | 1 |
| Recording6b | Participant6 | 6,94 | 6,94 | 6,94 | 1 |
| Recording7 | Participant7 | 8,26 | 8,26 | 8,26 | 1 |
| Recording8 | Participant8 | 9,58 | 9,58 | 9,58 | 1 |
| Recording9 | Participant9 | 2,17 | 2,17 | 2,17 | 1 |
| Recording10 | Participant10 | 3,36 | 3,36 | 3,36 | 1 |
| Recording11 | Participant11 | 3,83 | 3,83 | 3,83 | 1 |
| Recording12 | Participant12 | 4,42 | 4,42 | 4,42 | 1 |
| Recording13 | Participant13 | 3,55 | 3,55 | 3,55 | 1 |
| Recording14 | Participant14 | 7,41 | 7,41 | 7,41 | 1 |
| Recording15 | Participant15 | 1,75 | 1,75 | 1,75 | 1 |
| Recording16 | Participant16 | 10,22 | 10,22 | 10,22 | 1 |
| **Count** | | 17 | | | |
| Summarized over | | | | | |
| the 4 groupings | | | | | |
| **GSR Average** | **Participant** | **Text multi** | **Multi** | **Text single** | **Single** |
| Recording1 | Participant1 | 15,81 | 16,03 | 16,61 | 14,75 |
| Recording2 | Participant2 | 1,58 | 1,46 | 1,55 | 1,5 |
| Recording3 | Participant3 | 1,72 | 1,56 | 1,78 | 1,68 |
| Recording4 | Participant4 | 6,3 | 6,21 | 5,75 | 5,58 |
| Recording5 | Participant5 | 3,57 | 2,97 | 2,77 | 3,52 |
| Recording6 | Participant6 | 6 | 5,46 | 5,87 | 6,19 |
| Recording7 | Participant7 | 9,50 | 9,07 | 9,58 | 9,17 |
| Recording8 | Participant8 | 9,21 | 10,67 | 10,32 | 11,02 |
| Recording9 | Participant9 | 2,60 | 2,23 | 2,34 | 2,52 |
| Recording10 | Participant10 | 3,74 | 3,45 | 3,73 | 3,32 |
| Recording11 | Participant11 | 3,52 | 3,84 | 4,50 | 4,80 |

| | | | | | |
|---|---|---|---|---|---|
| Recording12 | Participant12 | 4,95 | 4,35 | 4,51 | 5,03 |
| Recording13 | Participant13 | 3,82 | 3,72 | 3,79 | 3,57 |
| Recording14 | Participant14 | 6,94 | 9,17 | 8,57 | 7,47 |
| Recording15 | Participant15 | 1,83 | 1,80 | 1,70 | 1,81 |
| Recording16 | Participant16 | 9,38 | 11,42 | 10,82 | 12,2 |
| | | 5,65 | 5,84 | 5,89 | 5,88 |