RH This is the pilot focus group for the Seeing Data project.

Helen Thanks for coming everybody. We’ve introduced ourselves. I’m Helen Kennedy; this is Rosey Hill; this is Will Allen; and that’s Andy Cook who’s gone to meet another focus group participant. Thanks for agreeing to help us today. Hopefully you know that this project is called Seeing Data, and it’s about how people engage with and interact with data visualisations.

What we’ve asked you do today is to help us test a focus group that we’ve planned. The focus today is like a dummy trial run of focus groups that we will carry out in various parts of the country once we’ve really nailed it and feel like we’ve done a really good plan for our focus group.

Andy and I are going to quite weirdly step back and say nothing and do nothing. Rosey and Will are going to run the session as we would run one of our normal focus groups; and Andy and I are going to observe how it’s going. We’ll run through the process and at the end of it we’ll ask you for feedback on how well you think we’ve designed this focus group; how clearly we’ve given you instructions; if there is anything you think we could do better so that the focus group runs more smoothly.

What we’re testing today is our ability to plan a good focus group. We’re not testing you. So, you just go with the flow and follow the instructions that Rosey and Will will give you. Please don’t feel tested; please feel that the object that’s being tested is our focus group.

I think that’s everything I need to say for now. Now I’m going to step out of the loop and hand over to Rosey and Will.

WA Thanks a lot for coming to the trial focus group. As Helen mentioned my name is Will, this is Rosey, and we’re both researchers on the Seeing Data project.

RH As you know what we want to find out on the Seeing Data project is how people engage with data visualisations and how they feel about them, what they mean to them, whether they learn from them and that kind of thing. So, the focus group is really designed to find out how you do that. We’re not testing you; we’re testing how people engage with visualisations. There are no right or wrong answers here; it’s all very much a case of: do you find them interesting? Do you like them? Do you dislike them? What do they make you think of? Those kinds of things; rather than did you get the answer to the question that we’re asking in particular about this visualisation. Does that make sense? ((Agreement))

We want to hear all of your perspectives so please do shout out.

MEG Do you want us to comment as we see?

RH Yes please. So, any genuine responses that you have, even if you don’t like something and it doesn’t make sense, we want to hear those as well as this one was great and I loved this one. We should say as well that these visualisations we haven’t made them; these are made by other people. So, you don’t have to feel you can’t comment on them. We’re not going to be offended.

This focus group is confidential. You’ve signed consent forms already and that tells you a bit about the anonymising of the data. You’ll all be anonymous. That means that when you go away from here and talk about it you need to respect other people’s confidentiality as well. So, you shouldn’t be talking about it in a way that identifies anyone. Is that okay? ((Agreement))

WA But as a result of that confidentiality it also enables us to feel this is a space where we can discuss it and be critical about it and really share your opinions about what you found and what you thought about it generally. So, that is a good result of the confidentiality.

I’d like to give you an overview of what we’ll actually do today in the focus group. It’s going to be divided into broadly two sections: the first will be a time when you will look at some visualisations that we’ve provided for you, for about 45 minutes. And in the subsequent hour or so we will discuss your thoughts about them and what you discovered and what you thought about them at that point.

Each of you at your stations have the list of visualisations we’ll be accessing in order on the screens. You’ll also have a packet of materials which I will work you through very briefly. As you’re going through these visualisations in order we’ve provided little screen shots of them, and what we’d like you to do is on this giant A3 piece is to intuitively, impressionistically, at a gut level respond and locate each visualisation screen shot as you look at it on this grid. This grid is divided into two basic dimensions: the first is dislike it or like it; and the second is did you learn something from it or not. Again, these are not meant to be analytical, I need to think about this really deeply; it’s meant to be my instinct is telling me this so I will place the caption, the screen shot on that grid.

RH And there’s some Blutak. So, you should end up with something like this that Andy did earlier.

MARTY Does did you learn anything mean that you haven’t seen it before or if you think it’s informative?

WA More the second, if you think it’s informative.

RH The other thing is, similar to what some of you have seen before, the note sheets. That is different to what you two had seen because you had the previous sheet. It’s the same questions down the side. This is for you to make notes whilst you’re looking at it.

MEG ((0:06:43?))

RH That was the plan.

WA Again, as you go through these visualisations you will make notes on your sheets as well as locating and place one of these screen tiles in order. We’ll return to those in the second half of the focus group.

RH ((Housekeeping notes)) I think that’s it for the general beginning bits.

WA Do you have any questions for us?

MEG I’m sure we’ll think of some.

## How aware of data visualisations were you prior to participating in the study?

RH Let’s start with the general introductory questions and then we’ll get on with that. Before we approached you to come and join us in this focus group how aware were you of data visualisations? Had you seen many before or had you ever thought about them?

MEG I thought they were a very quick lazy way of saying minimal information for people who weren’t sufficiently qualified to take the thing out of.

PAUL-STEWART I would describe myself probably as working in that field. In my role I work for adult social care in L and what I do is I develop reports and analysis for management information for senior management. So, quite often what we try and do is, rather than producing a lot of in-depth data, we will provide a visualisation, which will mean that they can then quickly understand the headline points and then start to drill into the more detailed things. So, I’m relatively immersed in it.

MARK I’m similar to Will since I work in children’s services. For me it’s more getting the data out and don’t do too much of the visualisation side of it; somebody else does that. I tend to agree with [Meg] that visualisations is a good way of getting a quick glimpse of something; but once you start interrogating that I think it has limitations. You don’t get to see the data underneath it; it doesn’t really inform you. It’s great to see the trends and see patterns; but when you want to look deeper, certainly some of the visualisations that I looked at last week, they don’t give you that ability to interrogate them and really find out what’s beyond the picture that is presented.

Nick I tend to come across them in the Guardian and I definitely had noticed them before. I’m quite visual anyway so I tend to see the visual thing and then refer to the article and then read more about it. So, it catches my eye first and draws me to the item.

MEG You only dwell if you’re interested in that matter.

Nick Yes.

MARTY I see it like entertainment in a way, because I like it if it’s visually pleasing. Recently there were several books about it, I think it starts with this information ((0:11:36?)), maybe three years ago. I think it’s great because it gives you often in an entertaining way often some surprising results. Sometimes it’s counterintuitive so visualisation gives you access to maybe an informal, easy way without having to think too much. Work wise I think I encounter more like charts and stuff like that; it’s probably not in the meaning of visualisation in the sense that you try to point out huge numbers in simple presentations – which is often the case in what I’m doing.

## How did the diary-keeping go?

RH How did the diary keeping go?

MEG Because I haven’t been out and about much I had the papers bought to me every day, so I actually had more time to look at them than I probably would do. I was actually looking in the project I was surprised how difficult it was to find things that actually caught my eye. I did look. It’s just one week; but the other times I would normally see ((0:13:05?)) where they try and represent facts and figures and things like that ((0:13:11?)).

PAUL-STEWART It’s also a funny time of year to do it almost in terms of if you like – it’s going to sound bad – serious news, in that you haven’t got parliament in; it is the traditional silly season. But on the other hand at the moment we have got some incredibly grey and serious news going on with things like the conflict in Gaza and the situation in Iraq as well and things like that. I don’t know if that maybe warps the content of the visualisations and things. Certainly in my diary some of the things I picked up were things around Gaza. Actually going through them almost that analysis you do writing about it and how you feel about it kind of changes your perspective of something from previously you might have looked at it and thought oh, it’s quite interesting; whereas you’re going actually this makes me quite angry, this situation and the number of people dying in these situations. So, in a way the analysis you go through maybe changes your attitudes towards it.

MEG ((0:14:30?)) I must admit I was quite relieved to get to the trivia of the Commonwealth Games because there were quite a lot of visualisations with that, and it was very trivial compared with these massive numbers on other things. So, it was a pendulum at the most extreme.

PAUL-STEWART You had the incredibly serious stuff and the relatively trivial.

MEG Yes, and the visual, fun, active. There were lots of figures and medal charts and things like that to play with.

WA Were there other kinds of visualisations that came up in your diary keeping?

MARTY I would probably agree that I found it more difficult than expected. Before really expecting to look for it as you go along, I expected to come across more.

MEG I expected to come across more. ((Agreement))

Nick I came across a lot of trivia to be honest, yeah.

MEG This is it, as I say: it was trivia or big numbers and serious.

WA What sort of trivia topics?

Nick Tour de France figures; what the British holiday maker does this summer.

MARK Giant penguins. ((Laughter))

Nick Relationships.

MEG It was so extreme, wasn’t it? ((Agreement)) I think that’s the thing I noticed.

WA It illustrates a range of topics of visualisation that you see or encounter in this. I think it’s a really good exercise to do.

Shall we move to the next bit? We’re going to move to a section where we’re going to put some visualisations in front of you. There are screens; if you just hit the space bar. This screen will take you through ten visualisations in order. For Will and [Meg] we’d like you to spend a maximum of ten minutes on each of them in order.

RH That doesn’t mean only ten minutes. If you’ve finished looking at them in three that’s fine.

WA Maximum of ten minutes. For the other three go at your own pace as your interest. The key thing is to go in order from number one to ten. I’ll remind you about the grid: you’re going to place the little tile along those two axes. Again, that’s an impression you get as a gut reaction. And also to take notes on each visualisation on your note sheet provided.

MEG They come up in order?

RH Yes, the screen grabs should be in order. Number three is on the desk between Will and [Mark]. So, you might have to go a bit out of order if there is somebody else looking at it. Just go on to the next one until it’s free.

WA We’ll do this for about 45 minutes or so, so ending at 1:10.

MEG Sticking these on but you also want us to do written comments?

RH Yes please. That’s to help you when we come to the discussion. If you’ve got any questions about anything or want any help give us a shout. It’s probably best to open the visualisations with a new tab each time so that you can get back to that page. We’ve got it written on the board as well.

WA Just to be clear, if you don’t get through all ten that’s okay, especially as people are going at your own pace.

((Background talking as group does exercise))

We’ve come to the end of 45 minutes so if you can wrap up with some last comments on your board to finish up. So, they’re quite spread. Quite a few in the upper right, which shows you liked and learned. Some in the lower quarter.

## How did you feel?

WA So, we’ll start by asking how do you feel about these visualisations?

MEG Certain subjects were interesting.

Nick I found there was a lot of information. ((Agreement))

MARTY Can we see the list because there were several and I can’t remember them all. ((Laughter))

MEG I think it goes together, the subjects of interest and also the information, the volume of information available. Personally being aware of the volume of information available I just filter it out ((1:07:24?)). The criteria for filtering is just based on my interest.

WA I’m interested in what struck at you.

Nick I was quite interested in the migration numbers. ((Agreement))

MEG And the actual population of ((1:07:45?)) came up, because I couldn’t believe it was so dominantly Irish.

Nick I get a bit confused with a lot of numbers, so for me a lot of numbers thrown at me which weren’t visual.

MEG But they were in colour blocks; so, that helps you get an idea of scale without actually having to register the numbers.

Nick They were quite monochrome. Some of them were very dark.

MEG I didn’t like the sinister security one. ((Laughter))

WA Yes, bottom right migration data.

MEG Really dark. ((1:08:31?))

PAUL-STEWART Unfriendly. ((Agreement))

MEG The dark blue one.

MARK I seemed to find it a lot better as you got into it though. As you got more colours coming at you. Initially that dark blue not much contrast.

MEG I would choose to not think about probably.

PAUL-STEWART Also, I don’t know if it’s just me, but that first one I didn’t feel like it was very good on the browser. There were little bits of information missing off the bottom. ((Agreement))

MARTY Need to increase the font size actually to see the year because you couldn’t see it on the chart. ((Agreement))

PAUL-STEWART It felt to me a little bit like it had been too designer led and not functionality led. I don’t think anyone had actually sat down and really tested it properly and things like that.

## Did any of the visualisations arouse particular feelings as you viewed or interacted with them (e.g. pleasure, delight, anxiety, confusion, sadness, anger, curiosity)? Which visualisations, & what feelings? How strong? Why do you think that was?

WA What are some of the emotions that as you were looking at the visualisations came up?

MARTY I was interested in the athlete one. I should go and play hockey. ((Laughter))

MEG Yes, I had a sport I didn’t know.

MARK I actually really hated that one ((laughter)), mainly because a lot of kids have body issues and I work with people who have body image issues.

MEG Yes, I can understand that.

MARK And I think that instantly created a barrier for me with that one. So, I didn’t look at it for very long. I was really quite offended by it and came off it. But I think that’s more because of what I came into it with, rather than the actual visualisation. As a visualisation it seemed to work quite well; it was quite simple and a good amount of interactivity. But I think I came at it with that barrier and there was nothing there to break that barrier down.

NOON Yes, I had the same feeling. I was a former athlete, and the body weight and height I didn’t understand. I did different sports and currently participating in multiple kinds of sports, apart from the result I got. So, when I got the result I went, hey? ((Laughter)) How do I relate to the information? The function of the application wants you to interact with the application by putting in your weight and your height; but I couldn’t even make sense of the purpose of participating or interacting with this application in the first place simply because I’m not self-conscious or that self-conscious of my weight and my body height and my figure. Put it this way: if I wasn’t participating in this workshop when I see this I will just pass it. First glance yeah, choice of pictures and so on look nice. But when I can’t work out why I have to interact or engage with this thing I’ll just move on. So, it’s the purpose that attracts me or holds to this or a particular visualisation.

MARK I found that with the ebb and flow one. I felt great, a moving one, I’ll enjoy this; and it was just horrible to look at.

Nick I found that!

MARK You click on something and it didn’t tell you anything. Or click on a link and it went to a dead link. There was no information on the page. I just thought you’d get bored.

NOON Yeah.

Nick It looked great the imagery though.

NOON Yes, the colour looked great. But other than that it was sort of: and so? ((Laughter))

MARTY Same with the water consumption where it’s more form than function, because you have lots of crossing lines that look nice, like abstract art, but it’s totally confusing.

PAUL-STEWART I think I’d stick up for the ebb and flow one. I quite liked it.

## Were there any visualisations that you particularly liked or disliked (in anyway)? Why? (e.g. aesthetic design overall, colours, fonts, visual style, appeal).

WA What did you like about it?

PAUL-STEWART I think all ((1:13:05?)) to be honest. I don’t know, it’s about the fourth or fifth time I’ve seen it. I’ve come across it a number of different times. At first I found it really confusing. I felt it was almost like you were assigning values to those that were above and below the x axis; you were saying the ones that are below the x axis are bad films and the ones that are above are good films and things like that. But once I got my head around the fact that there were no values assigned to that at all I found it quite interesting. I think it does look very, very aesthetically pleasing. But I also do find the level of information it’s pitching is round about right for me. I’m not looking for a huge amount of information from this particular thing. What it does do is show you how popular a film is; how much it took over time; how much longevity it had. I find that interesting. I like it.

NOON Similar to him I like the coordination between the image used to represent the revenue as in the height and the width. I think that’s clever because, I can’t quite describe it, but I could relate to it quite easily compared to other forms of charts that are designed to present or speak of similar types of data. I find that easier.

Compared to graphs, for example, where you have a small little box to describe what colour, which line represents what; I find that this design of presenting stuff and the description for me it just clicked: okay I’m looking at this; this is what I can expect of it.

The reason why I didn’t stay on very long to look for more information is because I know from this one that this particular film makes the most revenue in the shortest period of time; whereas other films made it to the box office and take a longer time to build up the revenue and so on and so forth. But because I’m not interested in that information I just moved on. It’s just the impact of the image and the way it’s represented that caught my attention for a minute, and then once that’s gone I’m out.

MARTY I think it would have been nice if they’d provided other ways to break it down or stream it, so everything from 1988 would fit on one screen; or you could compare decades with other decades or months or July across years.

MEG It just made me realise I’ve got ((1:16:28?)). Unless I took the grandchildren of course, that was all right, the Harry Potters.

MARTY That was nice with the ((OCD?)) stuff on the happiness index. It starts with a very simple overview, but there’s lots and lots of backbone data; I could probably spend an hour on it.

MEG That was the daisy one?

MARTY Yes.

MEG Too much information on a simple graph. You really need to do it individually.

MARTY It would be better if they give the user the chance to stop if you want to stop or go further if you want to go further.

MEG You couldn’t get quick information from it.

MARTY I thought the starting page was already enough to get a comparison and then you could stop.

MEG I just thought it was too busy.

WA How was it too busy?

MEG There was just too much information in the first shot. So, until you actually started individualising it. I think perhaps if it was in a newspaper or something I probably would not even go further because of its busyness.

## Which subject matters interested you? Which did not? Did your level of interest in the subject matter affect your response to the visualisations? In what ways?

WA At the beginning when we asked you how you feel when you look at these, one of the issues you raised was interest: I’m interested in something already so I want to go into it; or I didn’t like it because I’m not interested in the subject. Some of your comments raised that. Which of the subjects that you got to really did interest you? Or conversely which ones did you think I’m bored by this; I’m not interested?

NOON The Shakira one puts me off.

WA Why?

NOON It’s nonsense. ((Agreement)) Why would you want to visualise junk?

WA What do other people think? I notice your grids had it lower.

PAUL-STEWART To me there are a number of things wrong with this one. Part of me feels like it’s just the Metro wanting to try and put pictures of attractive women in their newspaper on the basis that you’ll sit on the bus, you’ll see the bloke in front of you reading it and you’ll want to go and get a copy yourself. It doesn’t feel like it’s given me any information.

NOON Exactly.

PAUL-STEWART To me how many Twitter followers, how many Instagram followers one has doesn’t really strike me as information. I know Shakira is going to have lots of people following her on social media platforms, but I don’t really care.

MEG Yes, I was just the same. Totally indifferent to it.

RH Did any of you find it interesting?

NOON I would say that that information is, and this goes back to the interest, the data – not the image; the image is designed to attract males – but the data is probably designed to attract females, teenagers aged between 17 and late 20s, something along that line.

MEG I agree.

NOON Or her fan club or something along the line; but not people like me for example. I’m going to go: huh?

MARK I found it interesting, but interesting like that. ((Clicks fingers)) It’s one of those things that you say oh, you smile a little bit and then you get on with your life.

MARTY That’s the purpose: it’s just for entertainment.

MARK There’s nothing really worth dwelling on.

MEG It was to fill a sheet of paper, wasn’t it? They’d obviously got colour print so they could have fun with the colours.

NOON It’s just so stereotypical: the design, the layout, the colour used.

MEG You’d almost call it chocolate box, wouldn’t you?

NOON Exactly.

RH What did you think, Nick?

Nick Yeah, I thought it was a bit of cut and paste images.

MEG Probably didn’t know who she was.

Nick Yeah. ((Laughs))

## Trust is an important thing in visualisations. Did you ‘distrust’ any of them? Which ones? Why?

WA A related issue you mentioned who is viewing that; it’s trust in the producer and designer. So, did you trust these visualisations? Or did you trust some more than others or distrust?

MEG Are you talking now generally?

WA The ones that you saw; not necessarily the Shakira one but possibly.

Nick I did trust them all, yes. ((Agreement))

MEG And presumably they’d been researched and factual, so I didn’t think to actually query the figures; though you have no comparisons to other things.

WA What made you think they were researched?

MEG I suppose because it looked an authoritative looking diagram.

WA Do you have specific ones in mind?

MEG I liked the population one; water flow one; the ones that were to do with the environment. I think those were the ones that interested me most.

MARTY I do check the source of the data and thought about if there was any information provided how it was analysed. There’s the danger some of the data also like occurrence of words for the data, the graphs shown were very noisy. Depending on how you interpret or generate the graph you can probably get slightly different outcomes to create bias. That aspect I would want to go much deeper to know if I really trusted it or not, the idea you wouldn’t do that; you wouldn’t have to do it for some higher purpose.

MEG As though you were going to act on the information; you would have to do some more research. If only general ((1:22:31)).

MARTY For most of them I don’t care so much if I trust… if it reflects my own perception maybe then I might trust it more than others. If it shows me something that contradicts my own expectations then maybe I would look into it more if I can trust it.

WA Were there any that contradicted people’s expectations?

MEG Some surprised me; as I say the population one did.

MARTY It was surprising but it also made sense that India for water consumption, much less water for meat production compared with countries like China or the US.

MEG Or the fact that it was high as it was. You think of them having to reuse water rather than have fresh water, so I was quite surprised at the fresh water consumption. There again it’s perception because you get visual images all the time ((1:23:36?)).

WA Were there other elements of some of the visual images that you saw that were surprising?

NOON Surprising no; interesting yes. When I say surprising no it’s just because A, I don’t know such information before – I don’t have background knowledge of it so I don’t have anything to hold back against it or use as a benchmark to be surprised by. So, it has that.

But interesting yes because it’s the depths of – for example the immigration one, two blue ones interest me because of the depths of the data, because of the way the data is broken down and classified into two different groups and presented accordingly. The last one I was looking at, the migration news one, is very clear in terms of how the objective of the visualisation of the data. So, it’s very clear in terms of what is being presented. That means okay, I know exactly what I can expect from looking at the data. So, it’s clear from that objective. And I can then decide whether to continue looking for information from that or whether to move on because it doesn’t interest me. It just so happens that it does interest me, so I continued looking.

I want to go back to the trust bit. I kind of think the visual effect does have some impact in terms of the level, the first impression that I get. For example comparing the Shakira one with the immigration one: the Shakira one is like yes, I don’t care; but if it was the information that I would continue looking further if I were to use it for research or to cite it then I would look for sources. So, in terms of trust I do get an impression that because of the image, the layout, the colour used and the data classification does have an impact on the level of trust that I initially have with when I first see the information. But does that become a conviction that this piece of information is trustworthy? No, it’s not. I would look first of all where does it come from; who publishes it; and then go through what’s the message. Because knowing where data comes from and how numbers can be manipulated it does affect my level of trust. So, it’s a different stage.

As to how much time I spend on evaluating that trust or evaluating the source and so on and so forth depends entirely on the amount of time I have available and the amount of interest I have in that particular information.

RH I was going to ask what you thought of the context of each visualisation; whether you’d looked into that as you’re looking at them today.

PAUL-STEWART There is the first one around migration, people coming into the country. I thought that was OMS type stuff when I first saw it, because it seemed to be in that style, that kind of thing you can image coming onto an OMS website for census data and things like that. It was only when I got the second one from the same source I started going oh well, this is familiar, it’s just like the first example. And actually it’s clearly not government product; it would be some kind of lobby group with an axe to grind. All of a sudden I started to question the provenance of the data and if it’s being done specifically to try and back it up to make a point, and if it is then which side of the debate is it coming in.

RH And what was you’re feeling about that which side of the debate?

PAUL-STEWART My feeling was that it was pro-immigration, pro-migration.

WA What gave you that? Was it the visual elements key to that?

PAUL-STEWART No, I think it was more the stuff around what the papers’ attitudes are and things like that, and looking at an analysis of media and media attitude to information. If I was to ((1:29:09?)) that is probably one of the points that I would start to address.

MEG I found it puzzling. According to the media ((1:29:19?)) when I actually looked at the ((asylums?)) government figure it had dropped considerably; yet you wouldn’t think that from the media. So, things like that, although I took it to be accurate, it’s not how the media feeds the information to you on a general basis.

MARTY I would be pro-migration and I would just use plenty of colours and more sort of…

MEG How do you mean user friendly?

MARTY I would make it bright and highlight positive words in yellow and green or something, I don’t know, use daisies and stuff.

MARK It comes back to what you said about you come onto it and it looks a very official government type data set. As you said, it’s not till you look at it you realise it’s not a statistical census based data set; it’s actually an analysis of media data. So, I think the colour power and the design is probably deliberate to make it look like something more official and much more data led. ((Agreement))

WA What do you think?

Nick I thought immigration looked quite interesting at the beginning. But the more I went into it the four questions you sort of pressed on one about actors involved, and I found that really confusing; I didn’t understand.

PAUL-STEWART You didn’t know if you were going to get a list of different actors. There seemed to be an awful lot of assumed knowledge of who people were.

Nick Yes, and what they were doing.

MARTY Not only actors; there were other parties.

Nick MPs as well.

PAUL-STEWART Yes, actors as parties involved. It was almost like stakeholders.

Nick They were all just presented; they just all came up. What am I supposed to do now with that data? ((Laughter))

WA Understand that or give a little more after?

Nick Yeah, I think it did need some colour and some guidance with it.

MARTY The chart was really small.

PAUL-STEWART It never really fully explained either. ((Agreement)) Sod it, I’m going to ((1:31:45?)) this. ((Laughter))

MEG ((?))

MARK But there were parts of that visualisation that were really quite well done. The actors one was really not well done. It was a bit strange that one.

PAUL-STEWART Yes, it was almost like it had been done by a number of different people, some of whom were better than others.

MARTY ((1:32:14?)) the words with the highest frequency. It would have been nicer to also change font size where the most frequent were bigger. I found myself clicking through the different groups to see which would stay the same and which changed, so they were unique to each group. So, it would be nice to show that in some type of visualisation too ((1:32:43?)) across all groups.

## Which visualisations were easiest to understand? Which were hardest? Why do you think that is? (chart type; colours; interaction design; annotation (is more or less info needed?); layout)

RH Would you say that was difficult to understand? Were there other ones that were easier to understand or more difficult?

Nick I think I found that one the hardest.

WA The media one?

Nick On immigration, yes.

WA Which ones did people find difficult?

MEG Difficult to understand.

PAUL-STEWART Shakira.

NOON On many levels! ((Laughter))

WA Which ones seemed more straightforward then?

Nick I found the sport one quite easy. That was about sharing information with other people I suppose, friends.

NOON Yes.

MEG I thought the water information one was the easiest to understand, the consumption of fresh water.

WA What made it easy for you?

MEG Because it just concentrated on two aspects really; the distinction.

MARTY Interesting because I found it a bit more difficult.

MEG Really?

WA What was difficult?

MARTY Because of the crossing lines in the middle and then to figure out who the countries differ in terms of the household usage, and then to figure out this is Indonesia and this is Nigeria or something. So, I found the lines, especially when they become really thin, confusing.

MEG They were thin, that’s true.

MARTY Have writing on the right-hand side with the countries again or just split it entirely.

MEG Do two separate charts; I suppose that would have seemed simpler. There were various aspects in that I found really interesting. ((1:34:50?)) Yet they itemise cereal ((?)) a completely different section so I found that a wee bit… But apart from that I…

## Did any of the visualisations change your mind about anything? How?

WA Did any of them make you change your mind about the subjects? We said earlier we don’t necessarily know a lot about the subject. In the cases where you did know something about the subject how did the visualisations influence your thinking about the subject?

MEG Some of them surprised me. ((1:35:30?))

NOON For example with the immigration information, I wouldn’t go out to look for the information myself. Also if it was narrated as in written up I wouldn’t read it because it was boring. ((Laughter)) Because the visualisation breaks this information down. I’m a visual person so I can understand it much quicker, at least from the overall message aspect of it. Then I can choose to continue looking closer to detailed information. So, in that respect, from the perspective of someone who wouldn’t have been interested in this subject, I did.

However, with the Shakira one it just confirms my initial perception. ((Laughter))

MEG I don’t think ((1:36:45?)).

WA What did other people think? Was there anything that changed or influenced your thinking?

MARTY I found it interesting on the better life index visualisations. For me I always see Germany to be more risk averse and more focused on maybe safety. But then this is the biggest difference between the UK and Germany in terms of the ranking: in Germany safety ranks several ranks lower in importance in England.

MEG You make the rules; we follow them. ((Laughter))

MARTY I don’t know. Maybe in the United Kingdom they feel less safe in their daily life maybe. It’s interesting.

MEG I think it’s policed better over here. You are supervised; risk assessments everywhere.

MARTY But then you would think safety is not that much of an issue; but people see it as an issue.

MEG I don’t think they see it as an issue; I think they see it as something to resent because it’s curtailing. That’s the way I look at it.

PAUL-STEWART It becomes a lazy excuse for not doing something.

MEG It does for repressing your children and keeping them inside – all these things that I didn’t have to experience in my youth. Nobody could you phone you or contact you, which was wonderful. I feel sorry for the youth of today; they’re so ((1:38:38?)).

Nick I didn’t get to that one.

MEG This was the daisy one. ((1:38:45?))

Nick I wonder if it went on to have a graph of accidents that happened in Germany compared to the ones in England to see the difference.

MARTY Or link that to crime records, the statistics and how that compares, the correlation between the different countries.

MEG Didn’t have that.

WA So, you would have liked to have seen more data?

MARTY Yes.

MEG There was too much information. You had to go country and by country and it would have been all our time here.

## What do you think helps you to be able to understand a visualisation?

RH There are some really rich perspectives of those visualisations that you’ve looked at and that’s fantastic. If we move now to think about visualisations in a really general sense what do you think helps you to be able to understand data and visualisations? Are there particular things that help?

MEG Simplicity. ((Agreement))

WA Simplicity of?

MEG Whatever graph or whatever was representing, as you say like the one with water, it probably would have been easier if they’d done parallel graphs. You would have been able to carry the picture with your mind’s eye from one to the other easier than trying to do it – like this with a ruler on to keep your eye on the right line. I think the two separate ones would have shown that simplification of information.

PAUL-STEWART There’s something about elimination of unnecessary noise, visual noise. It’s what I was saying earlier on about the designer getting carried away with ((1:40:39?)).

MEG They’re justifying their job, aren’t they?

PAUL-STEWART Exactly. You can see you’ve got a really good clear idea about how you can present that data. And then someone…

MEG Clouds of darkness.

PAUL-STEWART Exactly, someone comes along and sticks a lot of unnecessary visual noise in there. What you want is information that is easy to understand and you can see through.

MEG It’s concerning we get so much information ((1:41:07?)). It’s just the way the world is. ((?)) specific subject that interests you, we carry all these images with us and make judgements on some of them, which we probably shouldn’t. ((?))

MARTY There’s also a danger someone presents some nice visualisation that leads you to a completely wrong conclusion.

RH What do you think might help you to understand these complex data?

NOON Breaking it down. Classification of data and classification of data according to that classification. So, I think a few of us have mentioned too much information or it would be better to present it say as country by country information and that sort of thing. Also thinking in terms of the objective of that particular shot. So, if you have one screen shot what is the message that you want to communicate?

For example, if you want to compare say broadband consumption between ten different countries then you focus on that comparison country by country. But when you start to break it down to the specific purpose of consumption, for example, then it might not be viable to present it and compare it across ten different countries because, especially if you’re going to try and do it over a period of time, then you get a graph to show trends and so on and then it becomes too much information. Whereas if you would just limit and classify the message to present in one shot, bearing in mind the simplicity in the sense of clarity more like of what you want to say, or what you want that picture to say, it would better serve the purpose of using an image to present information rather than a writing. That’s my personal view.

PAUL-STEWART You need clarity of the media that you use. Obviously if you’re using computer screens will mean more interactive things than just print for example. Sometimes you have to accept the limitations of whichever means you’re using.

MARK I think the interactivity aspect is really useful as well. The ones I’ve come across, the best ones are the ones that give you that initial grab and then let you delve deeper into it. It reminds me of a good website is one that holds your attention, your eye, and lets you click deeper and deeper into it and allows you to interact deeper and deeper into it and keeps you on there. And I think a good visualisation does that. It has good design; it allows you delve to the amount of data that you want to go to. So, if somebody only wants to go certain levels into it that’s fine; if somebody wants to go deeper then allow them to do that is just really good.

Those are good design principles, especially in the ones we looked at today, are becoming more and more important.

MARTY It invites you to interact, like a game. ((Agreement)) You can play with it. See what happens if I change this.

MEG I think ((1:45:25?)) simple issues ((?)) because most of them come ((?)) to have national statistics ((?)) but they never want to show you those on the same page ((?)).

PAUL-STEWART I liked that about the migration one that it at least gave you a bit of background to how it got the data together. It looked at so many newspapers over so many periods of time and how it had got the importance of the words together, for example, and which tools it had used to put the data together.

MEG So, it gave you a lot more confidence that it was much more open decision making based.

MARTY Sometimes it’s the coming from a science background I always balk if I see any diagrams or graphs and they don’t show any margin of error. That makes it a bit difficult for me to interpret because is there really a difference if this bar is higher than the other one. Maybe the data they have is plus, minus such huge numbers that actually you can’t say there’s a difference between 2008 and 2010.

MEG The margins are not as extreme as they would indicate.

MARTY But then I also understand that if you start to introduce error bars then the general public might be a bit overwhelmed or not know what to do with it. Then that again goes down to education at school or whether everybody knows it. It’s not like a wide there are always some greys ((1:47:10?)).

MEG They show what they would like you to believe; they’re not really interested in the grey areas, are they?

MARTY Exactly.

WA Thank you so much for your comments and insights into this. It’s been really interesting hearing your thoughts on this. Again, thank you for ((1:47:36?)). We’ll collect your grids at the end.

Helen I’m just going to go back and ask you to give us some feedback on how we have planned this focus group and if we could have done anything better; if anything would have made it easier for you or more fun; is anything confusing; anything at all about the way we’ve planned it that could be enhanced?

MEG Maybe you need to give more time. It was a subject we wanted to go into but we didn’t feel we had time because we had so many to get through in a period of time.

Helen In terms of the focus group itself?

MEG Yes. That’s what you’re asking for now, isn’t it?

Helen And the diary keeping as well; the combination of the whole thing.

MEG I thought the diary keeping was…

Andy Where did that picture come from? Was it a ((1:48:30?))?

Helen Yes.

Andy Was it instructions or was it something you drew yourself?

MEG No, I just thought we had these hours to get through them and maybe not dwell on any specific subject because I wanted to do a broad base I suppose.

PAUL-STEWART I kind of gave up on the prospect of getting through all ten within about the first…

Nick Yes.

MARK It would have been nice to go through them.

Helen We didn’t want you to get… we wanted to test how many you can get through in 45 minutes. But I think we could maybe have made that clearer. We thought we’ll have more than we think we need. So, we got ten; we thought that’s more than we think we need. But that made you feel like we’re got to get through ten. So, if we’d have had eight you might have changed your pace.

MARK How about if it was one at a time, and you clicked on next and then another one would come up?

MEG Perhaps controlled time probably; but then you’re not using people’s desire to find more info and build that up. So, it’s a no win on that. ((Agreement))

MARTY It’s almost better that people look at the same visualisations. Because after the first two I realised I was never going to make all ten, so I started to just select the ones I wanted to look at.

Helen We put them in an order that we…

MARTY I don’t want to look at this Shakira one; I don’t want to look at…

MEG I would have done but, as I say, I just did them in order.

Helen We put them in our order of preference of you going through them. So, numbers nine or ten, the kind of chart type topic is kind of covered elsewhere. So, we were hoping that people would go through, if they go through in order, there will be at least consistency in which ones people have looked at. So, we probably need to emphasise please go through them in order. What else?

MEG Or maybe I would suggest you do it visually: put all ten up and then ask people to then pick and select the ones that they’re interested in going through in more detail. Then you get the ten subjects, which is really what you’re aiming at as to what grabs people’s attention.

Andy In a sense. The snapshot that you see there is an artificial window as to how that would look in the wild, in a sense. Maybe that’s misleading. It’s a good point to bring that up about doing all ten in the time.

Was there anything in the 45 minutes that created a barrier or an obstacle for you to progress? Like the amount of paperwork that you had in front of you? Having to read all the instructions? If that was maybe frontloaded before the event, give you a sense of the grade and what’s that about beforehand would that have made it quicker through the 45 minutes?

Nick I found there were quite a few questions on the side bar there.

Helen For here of for the diary keeping or both?

Nick Both.

Helen Too many questions.

RH Would it be better to get rid of the questions from this all together and just allow free comments?

MEG I would have thought free comments.

NOON Free comments on this particular exercise would be better, given the fact that a similar, if not the same instruction, has been given for the diary keeping. I think it was the prerequisite that you keep the diary, so in that respect I already familiarised myself with the information. So, I know how I’m supposed to approach the data.

Helen That’s good. That worked then. That was the intention that we could be more effective in these two hours, so in that sense that did work. That means you don’t really need those questions here because you’d had them.

NOON Yes.

MARTY I found it almost quite helpful, although some of the ((1:52:35?)), especially the second, what did you feel, what did you think, is quite over-analysis. ((Agreement)) It was stuff that could be put in one or other box.

PAUL-STEWART And from a layout point of view it might make sense just to have one single prompt sheet which has got prompts for each of the questions just down that sheet rather than repeating them.

RH On the back, something like that?

PAUL-STEWART Something like that. It feels like here you’re just losing all that space.

Helen It would be better with the layout in front of us. We just wondered whether having to go from this page to that page back to this page to that page would be a problem; and that’s why we put it all on one page. But we can see there are pros and cons.

MARK It was useful when keeping the diary; but I think as you write, once you’re used to keeping the diary you kind of follow the same prompts anyway without looking at them.

Helen So, put the prompts on a separate sheet and you can look at them if you want to? ((Agreement))

NOON But you might as well just show the prompt on a big screen as a point of reference in case people forget or something like that.

Andy How about the grid? Did that make sense, the language, where you felt you had to put things? ((Agreement))

NOON It is brilliant.

Andy Did some people think that they had to put them in almost different grades?

MEG ((Just read in the list what’s there?))

Helen We will have smaller bits of paper to stick on next time.

MEG I found it quite satisfying.

PAUL-STEWART Some of the more statistical bit of me was wondering where you were going to take the measurement from. Is it where the Bluetak goes in? ((Laughter))

Helen Anything else that confused you that we could improve on?

MARTY My browser crashed at some point and I couldn’t go back with the back arrow so I had to restart the page.

NOON Yes, I had the same problem.

Helen Which visualisation were you looking at?

MARTY The better life.

NOON Shakira; I think the computer doesn’t like it. ((Laughter))

MEG Obviously got an intelligent one!

Helen I did notice you were on it for about two seconds and then off again. ((Laughter)) Anything else?

RH What about the communication beforehand, how was that? Did you have too much information or just enough?

MARK It was all right.

Andy Time wise I feel there was quite a lot of energy left in the visualisation stage. It seemed to go quite fast from my perspective. I actually felt that the discussion starts to dry up a little bit around 35 minutes of the 45-minute chunk of the discussion. Did the balance feel right? I think you had about 45 minutes of each. Would you have liked or would you have had the energy or the willpower to stay another ten minutes for example with the visualisations, and eaten into the discussion?

Helen Do more looking? Do more talking?

Andy Because I sense that the things you mentioned had already been written down.

PAUL-STEWART I think looking at visualisations a bit longer.

Helen You want to look longer?

PAUL-STEWART Yes.

MARK But on the other hand this kind of timeslot, I’m certainly struggling to get out of work for more than two hours.

NOON I missed the first bit so I don’t know if you got around to discuss or talk about the diary keeping. You probably did.

Helen We did a bit, yes.

NOON But I thought that if for example you get the people to refer to the diary as well during the discussion in comparison to the information that you selected it might be beneficial. Because from what you said I think you have set criteria. What we’re seeing here is pre-selected; whereas what we encounter in daily life is random.

Helen I know you have to go back to work, Will, so please feel free to leave if you need to.

RH Give me your diary. If you haven’t given your participant survey and your consent form we need that. And we need to talk about travel expenses.

Helen They get vouchers before they go. But stay and tell us more if you’ve got a couple of minutes to tell us more.

MARTY It might be interesting to have a summary afterwards ((1:57:33?)) TV and newspapers and so on. I realised with hindsight after doing the diary how I perceive myself is actually not what I’m doing. ((Laughter))

RH So, would that be better to fill in today?

MARTY I don’t know if that’s of interest to you.

NOON Yes, I was going to mention the same thing. I had to go out of my way to keep the diary.

MEG I think we all probably did.

NOON That’s what I find quite interesting, because when I read the instruction I thought whoever wrote this is probably under the impression that there is a huge amount of data available and it’s that easy for anyone to just bump into them. For example I was away – and this is why my diary keeping is a bit scattered; I knew I was going to be travelling and therefore I wouldn’t have access to internet, I wouldn’t have access to newspaper or in a language I could read etc. So, I found I was collecting information for the diary before I travelled. I went to the Azores so there was nothing available, and I was expecting as I was travelling…

MEG Sounds like the perfect holiday. ((Laughter))

NOON All the time I felt guilty, like oh shit, I’m not collecting any information here.

Helen Are you thinking we need to give more relaxed instructions about diary keeping, where the timeframe is a bit more flexible and where we reassure people it’s okay if you don’t find many? Because I don’t think everyone did find many.

NOON Would you factor in the fact that the visualisation is not that readily available? It’s not that you find this information every day?

Andy Absolutely, that’s a finding.

Helen It’s a real finding.

Andy If you’re not encountering these many times in your daily life then that gives a sense of its role in society.

Helen Because we think there is visualisation everywhere and it’s really important because we make them or we study them. So, it’s a bit of a wake-up call that actually people aren’t seeing many, there aren’t that many out there.

Andy Should there be more?

Nick Are we the right people? ((Laughter))

Helen It depends who you think the right people are. What we’re looking at is people that are inclined to visual; people that are inclined to data; people that aren’t inclined to any of those; people that are interested in some subject matters – like migration gets visualised a lot so people who might be interested in migration; people who might be interested in sport, that gets visualised a lot. So, we have thought about who our right people are. You have one each, that’s why we asked you.

MARK It’s also about what your concept of visualisation is. For me, and I think this comes across in my diary, basically any data which has been transformed into some kind of chart, graph, infographic, for me that’s a visualisation of some kind.

Andy Which is what we would intend it to be.

Helen That’s an important point. A couple of you asked for clarification.

MARK If I can see something I can see oh, there’s some data around it. There’s one thing that I picked up which was about Hiroshima way back from 1945.

Andy Time travelling doing this. Two quick questions. The fascinating discussion for me about the migration project was this sense of provenance and the fact that it was not from the government side. Did people look at the URL to determine that, the web address?

Helen The migration of ((military?)) stuff is hosted in a random place at the moment.

Andy Yes, but it’s also a place that isn’t the name of a government organisation. If that was its true place it would look more authoritative, the URL.

MARK Is it a government agency?

Helen The dark blue one is an agency that Will works for which is called the Migration Observatory, which aims to be impartial to sort of present data impartially. I hope that’s a fair summary, Will. It’s quite interesting that you saw it as being pro-migration sort of lobbying.

WA It’s interesting you said about colours as well because that’s the University of Oxford’s colours.

Helen They’re based at the University of Oxford. So, they had no choice, and the people who made those visualisations had no choice.

WA We consciously did choose ((2:02:35?)) Oxford.

MEG The colours, looking at the screen over there, I find that a strange colour combination, the film one.

Andy My second question. So, you came in with a certain view about what you perceived to be visualisation’s role. Has this session changed your awareness, understanding, appreciation, positively or negatively towards it? I think a few of you felt at the start that if a message is not portrayed in five or ten seconds it’s not really playing a role. But obviously these aren’t instant; you’ve spent minutes with them. Has it changed your perception about visualisation? Is its role good or bad?

Helen You spent between nine and 11 minutes on the first visualisation, which is quite a lot of time on one. You didn’t spent five to ten seconds.

MEG In a normal day none of us would.

Helen Or would you? You wanted to go back and spend an hour on the better life index.

MARTY Yes it happens you get sucked into it. That’s a good visualisation that has managed to engage people.

Helen Made you feel that, yes.

MARTY What did you ask?

Helen Are you changed?

MARTY In terms of time it’s also interesting because I think I tend to underestimate the time I spent on them, so I think five minutes, and now I’m surprised you are telling me I spent nine to ten minutes. You think it’s five to ten minutes but it’s only two minutes or much longer.

MEG When you are engrossed in something time doesn’t seem…

NOON The thing is, especially with this visualisation, I’m comparing how I approach data when I’m doing the diary thing and writing it down. For me this takes longer; not because I spend more time studying the data or the information presented, not necessarily, but because I’m more conscious about what I want to write down to answer the question.

Andy It’s a bit of an artificial situation.

NOON Yes. Whereas when I do it in my own time I treat it as how easily accessible such information is and the manner in which I’d encounter it in my daily life and so on and so forth. So, when I looked at it it’s what’s the message that I get from this image; do I understand it; do I want to interact with it more and so on. The timeframe that I spend on the image is perhaps more realistic and more accurate in terms of the time I would spend, which then reflects my interest in the information, the time I would spend on any such information. That would then perhaps be a more accurate reflection of how effective that visual communication is.

MEG I think it also depends what medium you’re using to get your information. If it’s a newspaper item which prolongs your ((2:06:05?)) is already a block, so it defines how much time you spend. Whereas this is a rolling thing so the comparison is very difficult to do really in that sense.

Helen I think we need to draw it to a close. It’s really interesting hearing from you, but we asked you to spend two hours and the two hours is up. Thank you very much. Really fantastically helpful. Rosey is going to give you your prizes and sort out travel expenses.

RH Can you leave me your diary, participant survey, consent form, come and talk to me about travel expenses, and if you need to email me your diary please do that.

NOON I’ve emailed my diary to you with the photos.

RH Did you do that today?

NOON Yes.

RH That is fine. I had a sneaky suspicion I wouldn’t make it on time.

((Background talking to end))