Designing a One-Stop Shop for Businesses on Child Online Safety

Technical Report, June 2021

THE
BEHAVIOURAL
INSIGHTS
TEAM

Contents

Introduction

This Technical Report sits alongside the main research report titled Designing a One-Stop Shop for Businesses on Child Online Safety. We encourage you to read the main report either before or alongside this document.

The purpose of this Technical Report is to share the full details of our methods and findings. This maximises research transparency and allows readers to explore our work in more detail. We very much welcome open and thorough review of our methods and findings as we know that this will deliver richer insights into our findings and help ourselves and others to conduct better research in future.

The following chapters of this report describe four key elements of our research:

1. **Business survey and interviews:** a bespoke survey of 166 businesses conducted between 26 June and 21 August 2020. This covered businesses' experiences of searching for, navigating and implementing guidance on child online safety.
2. **Rapid evidence review:** a focussed search of relevant and published academic, public and private sector research, structured around (a) the triggers for businesses to search for information, (b) how and where businesses search for information, and (c) how businesses translate information into practice.
3. **Website audits:** we reviewed the features and techniques used in existing one-stop shop services. We identified and collated a range of design ideas.
4. **Online experiment:** an online experiment with 1,003 adults from across the UK. Participants interacted with one of the two website prototypes and answered questions to test their understanding of content. We also collected data on people's confidence in having understood the information as well as their trust and willingness to recommend the site to others.

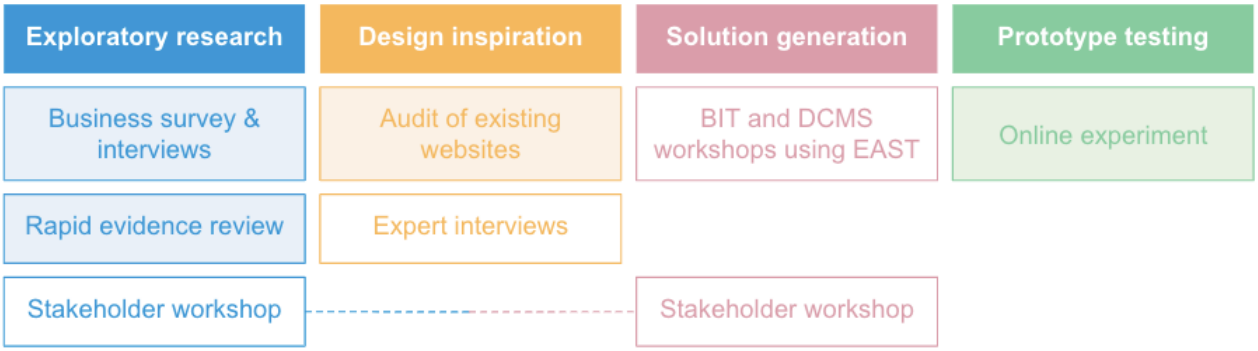


Figure 1. Overview of research activities conducted to inform the design of the One-Stop Shop, with shaded cells to highlight the areas covered in the Technical Report.

Chapter 1: Business survey and interviews

1. Method

As part of the exploratory research phase, surveys and interviews were triangulated in order to understand SMEs' experience of searching for and applying information and guidance on child online safety. Specifically, the survey identified the prevalence of information-searching behaviours among SMEs, and the interviews provided further insight into the barriers and facilitators of the process of finding (and where relevant, applying) the information to their business. Together the survey and interviews answered the six research questions listed in Table 2 of the main report.

1.1 Sampling and recruitment

Survey recruitment

The survey sampled individuals from companies with some interest in child online safety. To ensure that respondents' insights would be representative, the survey contained three initial screening questions. Respondents had to select 'yes' to the following questions in order to progress to the main survey:

1. Do you work in a small or medium sized enterprise? By this, we mean an organisation with less than 250 employees.
2. Does your business offer digital services, either online or via an app?
3. Does your website allow access to people aged under 18?

Question 1 was later removed as a requirement because the criterion was covered in a later question within the survey. We also felt that employees from larger organisations may still provide relevant insights with respect to their experiences with child online safety.

We used two approaches to find relevant respondents for the survey. Firstly, a survey link was shared with businesses by the Federation of Small Businesses and TIGA. Since this approach only attracted 19 respondents, the recruitment strategy was later changed to targeted advertising via market research panels where respondents are paid a small fee for completion. The initial recruitment target for the survey was 200 respondents; however, due to low traffic to the survey, only 155 additional responses were collected from the panellists, for a total of 174 responses. Of these, 8 responses were excluded as the participants dropped out partway through the survey, giving a total of 166 complete responses (13 from the distributed link and 153 from panels).

The data were collected between 26 June and 21 August 2020.

Survey sample

Demographic information is only available for the 153 respondents who entered the survey via the market research panels. Although the sample is relatively small, respondents are reasonably well distributed across key demographic categories. There were 48 per cent males and 52 per cent females; about one-third had an income below the UK median (and two-thirds an above the median); respondents came from all major regions of the UK and worked for companies of all sizes, from revenue smaller than £100,000 to greater than £1 billion.[1] 81 per cent of respondents reported having at least one child. A full breakdown of the survey respondents' demographics can be found in Table 1.1 below.

Table 1.1. Summary of demographics of the survey respondents

	Respondents (n = 153)	Percentage
Sex		
Male	74	48%
Female	79	52%
Age		
Under 30	0	0%
30 to 39	71	46%
40 to 49	47	31%
50 and over	35	23%
Income		
Under £30,000	55	36%
£30,000 and more	96	63%
Prefer not to say	2	1%
Location		
London	31	20%
Midlands	23	15%
North England	33	22%
South and East England	43	28%
Wales, Scotland, Northern Ireland	23	15%
Education		
No university degree	95	62%
Some university degree	58	38%
Parental status		
No children	29	19%
Has children	124	81%
Organisation type		
For-profit (business-to-business)	30	20%
For-profit (business-to-customer)	48	31%

[1] The respondents from companies with very large revenue were recruited once we removed the SME requirement.

For-profit (serving both)	35	23%
Governmental	14	9%
Non-profit	13	8.5%
Other	13	8.5%
Company department		
Executive leadership	16	10.5%
Specialist*	70	46%
Admin/general staff	20	13%
Customer/client service	16	10.5%
Other	31	20%
Company revenue		
Less than £1 million	47	31%
£1 million to £10 million	36	23%
£10 million to £100 million	25	16%
£100 million or more	30	20%
Don't know	15	10%

*Finance, Accounting, Human Resources, Legal, Marketing, Operations, Procurement, Sales, IT.

The businesses that all 166 respondents worked at offered digital services, either online or via an app (see Table 1.2 for the types of services offered) and the majority worked at businesses whose websites allow access to people under the age of 18 (82 per cent). The most common sectors that the businesses operated in were IT services (16 per cent), retail (11 per cent) and education (11 per cent), followed by finance (7 per cent), professional services (6 per cent), and health (6 per cent).

Table 1.2. Percentage of respondents working at businesses that offer different types of online or app-based services

What online or app-based service(s) does your business offer to users?	Service categorisation	Respon-dents (n = 166)	Percentage
Retail (buying of goods or services from a single seller)	Commerce	57	34%
Social networking	Interactive/Content-sharing	46	28%
News / blogs / editorials	Content hosting	38	23%
Content sharing (pictures, links)	Interactive/Content-sharing	33	20%
Educational website	Content hosting	31	19%
Online marketplace (where there are multiple third party sellers)	Commerce	30	18%

Private messaging or internet-based calls	Interactive/Content-sharing	29	17%
Public chat/forums	Interactive/Content-sharing	25	15%
Content sharing (videos)	Interactive/Content-sharing	24	14%
Gaming	Interactive/Content-sharing	24	14%
Content streaming services (e.g. video, music or gaming)	Content hosting	14	8%
Personal finance	Commerce	8	4%

In line with the extended inclusion criteria, respondents came from companies of all sizes. 58 respondents (35 per cent) worked at small companies, defined as having up to 50 employees; 54 (32.5 per cent) worked at medium-sized companies, defined as having between 51 and 250 employees; and 54 (32.5 per cent) worked at large companies, defined as having over 250 employees. See Table 1.3 for details.

Table 1.3. Distribution of the survey respondents by the size of the company they work for

Company size (number of employees)	Size grouping	Respondents (n = 166)	Percentage
0–5	Small	14	8%
6–10	Small	15	9%
11–50	Small	29	18%
51–100	Medium	27	16%
101–250	Medium	27	16%
250 or more	Large	54	33%

Interview recruitment

Our intended recruitment strategy for interviews involved reaching out to individuals who had completed the survey and consented to participating in an interview. However, due to the market research panels' data protection policies, we were unable to collect personal data, such as email addresses, from panel respondents. This limited the number of people we could contact for a follow-up interview and meant that both of our interviews were conducted with the subsample recruited via the original survey link.

We received consent from four participants to contact them via email to arrange an interview. The initial email contained further information on what the interview would involve and an information sheet and consent form was attached. These documents detailed the data processing agreements in place and outlined the recording and transcribing process.

Two individuals responded to the email contact and we were then able to schedule telephone interviews; we sent follow-up emails to the remaining contacts we had but were unable to get

a response or schedule any other interviews. The remaining survey respondents that had consented to being invited to interview, were contacted no more than three times.

Interview sample

Table 1.4. Interview sample

Participant	Role	Sex	SME size
Professional 1	Manager, director, or senior official	Female	Less than 50
Professional 2	Manager, director, or senior official	Male	Less than 50

It is worth noting that both our interviewees have experience advising other organisations on online safety, be it as a board member for a gaming company or as head of cyber for an advisory organisation.They thus have more experience with navigating online safety information than a typical SME employee, as well as insight from both searching for and also providing guidance to others.

1.2 Data collection

Surveys

The survey aimed to understand business owners' and employees' experiences and understanding of child safety online and where to find guidance or information. All respondents were asked questions about their companies (such as about roles and responsibilities with respect to child online safety), their personal views on issues related to the presented topic (such as their level of trust in different information sources), and their preferences (such as what kinds of resources a dedicated website for child online safety should include). Respondents who said they had personally sought out information or guidance on child online safety in the preceding 12 months were asked additional questions, such as the ease with which they were able to access relevant information. The survey also included a section for respondents to provide further details or links to any resources they had found useful with respect to information on child online safety. It also asked respondents for their own opinion on the type of resources they would like to see on any future website about online safety guidance. The full list of questions is included in the Appendix.

Interviews

The interviews explored, in further detail, professionals' experience of searching for and (where relevant) applying information and guidance on child online safety to their SME. As the interviews were conducted after the survey, it provided an opportunity to follow-up on participants' survey responses in more detail. The interview guides were generated following the initial Explore work using insights from both the literature review and the desk research. Both interviews were conducted over the phone and lasted 35 and 45 minutes. Participants were informed at the beginning of the interview that their responses would be treated in strict confidence, that they could withdraw from the interview at any time and that they did not

have to answer any questions they did not want to. Participants were offered a £10 voucher following the interview to thank them for their time; one participant declined this offer.

1.3 Data analysis

Survey analysis

Two datasets, each containing data from one of the recruitment approaches, were downloaded and merged into a single data file. Incomplete responses were excluded from the dataset for the sake of consistency across the analysis. Since the remaining sample of 166 respondents is relatively small, we generally avoided splitting responses to the survey questions by sample demographics, since the resultant subgroups would often be too small to allow for meaningful inference. Only descriptive statistics of the responses were computed; no statistical testing was performed. Where summary statistics were split by subgroups, we ensured that the number of subgroups was small, such as by grouping service type (Table 1.2) into three categories or by aggregating agreement-type questions into two answer categories (‘Agree’, ‘Don’t agree or disagree’).

Interview analysis

Audio recordings were transcribed verbatim and deleted from the recording device. Firstly, emerging themes were identified through familiarisation with the data by re-reading the transcripts. Analysis involved working through the transcripts to draw out the range of the professionals’ thoughts and experiences relevant to finding and applying information and guidance on child online safety. Similarities, differences, and links between professionals’ experiences were identified, and categorised according to the emerging themes and concepts.

During the analytical process a balance was maintained between deduction (which involved using the research questions and existing knowledge from the literature review and desk research, to guide the analysis) and induction (which involved allowing new concepts and ways of interpreting professionals’ experience to emerge from the data). Qualitative data can only be generalised in terms of range and diversity and not in terms of prevalence, and therefore the interview findings detailed in this section focus on the nature of professionals’ experiences, without the use of numerical language such as ‘most’ and ‘majority’.

2. Findings

This section documents the findings from the survey and interview data, which are discussed under the three key themes: 1) initiating the information-searching process, 2) finding relevant information and guidance, and 3) usefulness of information and resources. For each question in the survey, we present descriptive statistics either for the whole sample of respondents or for major subgroups of interest. Identifiable information has been removed from interview quotes in order to protect participant confidentiality.

2.1 Initiating the information-searching process

What prompts SMEs to search for information?

Individuals search for information about child online safety for a range of reasons. We asked respondents to select, from among a list of nine factors, which are the most important and that might prompt their business to seek out information about child online safety. Respondents identified changes to government legislation (47 per cent), internal knowledge gaps in child online safety (33 per cent), and knowledge of other SMEs' practices[2] (28 per cent) as the most common factors, while press coverage (15 per cent) and informal external advice (14 per cent) were the least common reasons. See Figure 1.1 for the full list of factors.

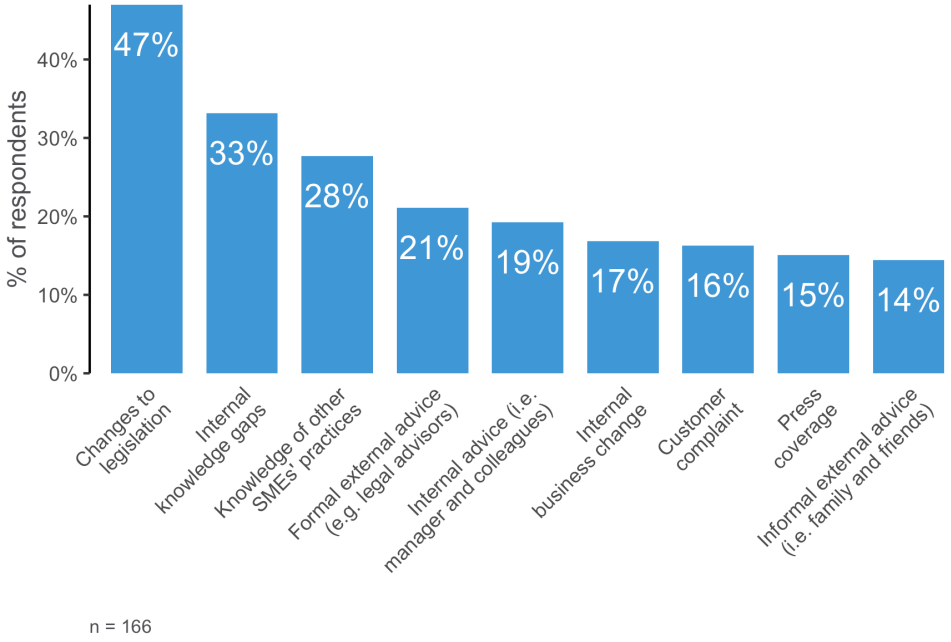


Figure 1.1. Percentage of respondents who ticked each answer option to the question "Which factors might prompt your business to seek out information or guidance on child online safety?"[3]

[2] There was a small error in the survey whereby the answer option said 'other SMEs', even though we broadened the inclusion criteria to allow respondents from non-SMEs

[3] Respondents could select up to three options.

The ordering of the factors showed little variation between respondents from small, medium-sized and large businesses. It also showed little difference between respondents from businesses with clear internal responsibilities for finding and implementing new guidance and those where responsibilities are less clear.

The factors listed above can be thought of as belonging to two categories – those that are external to the company and those that are internal; see Table 1.5 below.

Table 1.5. Categorisation of factors prompting information seeking.

External factors	Internal factors
Changes to government legislation	Internal knowledge gaps in child online safety
Knowledge of other SMEs' practices regarding child online safety	Internal advice (i.e. managers, colleagues)
Formal external advice (i.e. professionals such as legal advisors or accountants)	Internal business change (i.e. leadership team, business model)
Informal external advice (i.e. family, friends)	Customer complaint
Press coverage	

Among our respondents, external factors were more commonly identified as likely prompts for information seeking, with 80 per cent of respondents selecting at least one external factor and 61 per cent of respondents selecting at least one internal factor.

Interviews provided further insight to the internal factors which motivate individuals to seek out information or guidance. A viewpoint expressed by one interviewee was that simply working within the gaming industry should be motivation enough to ensure one keeps updated on guidance around online harms to children and young people. Being informed on relevant guidance was viewed as their own responsibility and something that people within the industry ought to be interested in. Attending training on child online safety gave them "peace of mind" (Participant 1) and compared the importance of child safety training to be as necessary as undertaking mental health awareness training or basic hygiene training, for their industry.

> *"I think in general if you're working in games, this is something that is top of mind. That even if you think, 'I think it doesn't really affect us…' I think it's just good practice to do a little, like take stock of it... Just an example or a reference that I'm thinking of is, we've just done mental health awareness, like training of our managers, right. I think it's just a basic hygiene education that if you're working in this industry you should do it."* - Participant 1

Within companies, the interviewees explained that there are individuals responsible for online safety; it was felt that, for those people, an awareness of child safety was paramount. As a result, interviewees felt that responsible individuals searched for guidance, in part from internal pressure around being the person responsible for keeping up to date and knowing

best practice as well as demonstrating they are fulfilling the demands of their job. One interviewee stated that organisations need to be held accountable that they are doing all they can to make sure children are safe when engaging with their organisation.

> *"I think that's an organisational responsibility for those charged with that in a particular company or an organisation to make sure that they're doing everything they can to make sure children stay safe online and that they're not abused in any way, shape or form."* - Participant 2

A further motivation for searching for online information for one organisation was their decision to release a new online game, which was likely to attract a younger audience than they had done previously. Although the game did not contain any microtransactions or have online access, the developers wanted to make sure they were aware of best practises, to minimise the risk of doing anything that could be potentially harmful. In this example, the organisation had reflected that they may have gaps in their knowledge, which prompted them to seek support from an external agency (SuperAwesome) and run a workshop on digital child safety, which was very well received.

A more external motivator for seeking guidance is the ever-changing landscape of the online world and the way updates around technology are shared widely. When large changes or updates occur, information-sharing platforms or organisations often highlight or promote them, an example being sharing knowledge around weaknesses to an app following a new software update. This sharing acts as reminders for other companies to check and reflect on the current guidance they're using.

> *"I think in the ever changing landscape that is cyber and digital, it's sometimes hard for agencies to stay up-to-speed and contemporary with the latest threats. I think that's the sharing mechanism through the various organisations that are responsible for the education and guidance and safeguarding of our young people. We try, and do, assist in the promotion of that type of safety"* - Participant 2

An interviewee also described how using external platforms to host online games can allow some organisations to become more complacent about their own safety checks or consulting guidance. They may assume if they have fulfilled requirements for one hosting platform, their game would be suitable for another, not understanding that different platforms have their own safety measures already in place and different platforms may offer less consumer protection. An example the interviewee gave was about an app store and its reputation for having very stringent requirements around data safety and use of personal data. Developers may assume that if their game has fulfilled the requirements to be on the app store, they are safe. However, once the game leaves the ecosystem that the app store has created, the safety barriers created by Apple are no longer there and developers may find their players are at risk of harm.

What types of information are SMEs searching for?

Almost half (49 per cent, n = 81) of our respondents had personally sought out information or guidance for their business on child online safety in the 12 months preceding the survey. We asked these respondents to choose, from five listed categories, those types of information for

which they had searched (see Figure 1.2). Information on privacy and data protection stood out as the most searched-for type of information, with 82 per cent reporting having sought it out. Other forms of information, including about advertising, harassment, content-sharing, and sexual abuse were sought out by between 50 and 65 per cent of respondents.

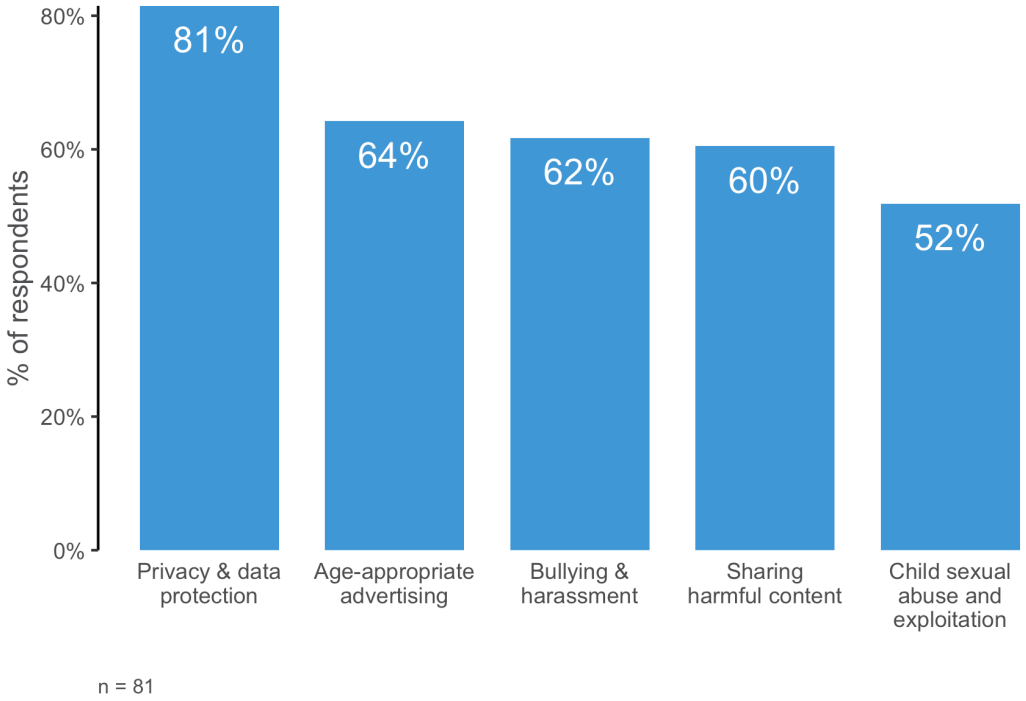


Figure 1.2. Percentage of respondents who ticked each answer option when asked for which areas of child online safety they had sought information or guidance in the preceding 12 months.[4]

Generally, respondents who worked in businesses that offered interactive or content-sharing services had sought out a greater range of information related to child online safety, having selected, on average, 3.4 out of the 5 listed categories, as opposed to 3.1 for the businesses that offer commerce-related services and 2.8 for the businesses that offer content-hosting services (see Table 1.2 in section 1.1. for details on this categorisation). Figure 1.3 below demonstrates these differences in more detail.

[4] Respondents could tick all that apply.

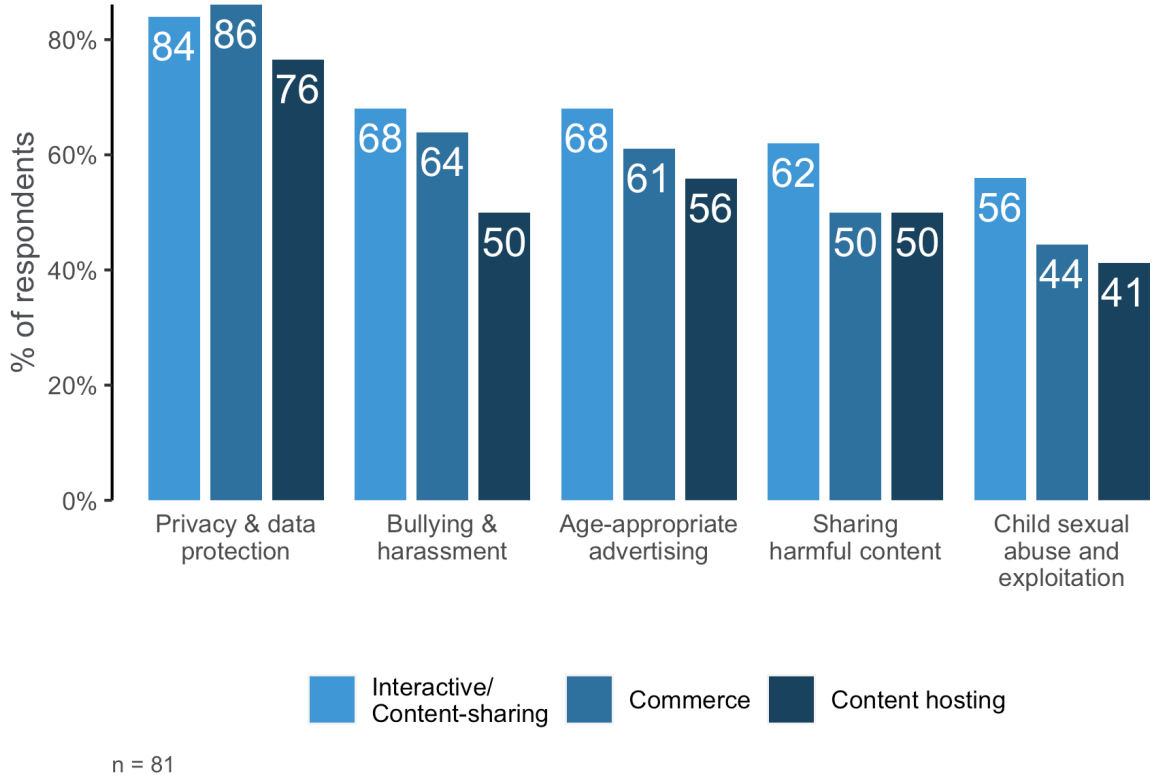


Figure 1.3. Percentage of respondents who ticked each answer option when asked for which areas of child online safety they had sought information or guidance in the preceding 12 months, split by the type of services offered by the respondents' businesses.[5]

When asked for specific examples of guidance sought in the past, respondents listed:

- data gathering, tracking, notifications, and advertising in relation to a mobile game that may be accessed by children
- company safeguarding policies
- age-appropriate design code proposals
- audiovisual media service requirements
- implementation of age verification as required by the Digital Economy Act
- digital marketing
- how to keep school-age students safe online
- child-safe browsers
- GDPR and ICO guidance on data protection
- correct protocols for child protection concern reporting; sharing of harmful content and child exploitation
- installing child protection software

[5] Note that a single respondent may belong to multiple categories if their business offers different kinds of services.

Who is responsible for searching for information?

The majority of respondents (66 per cent) agreed that it is clear who in their business would be responsible for finding and implementing new guidance on online safety, while only a relatively small proportion (13 per cent) disagreed. See Figure 1.4 below.

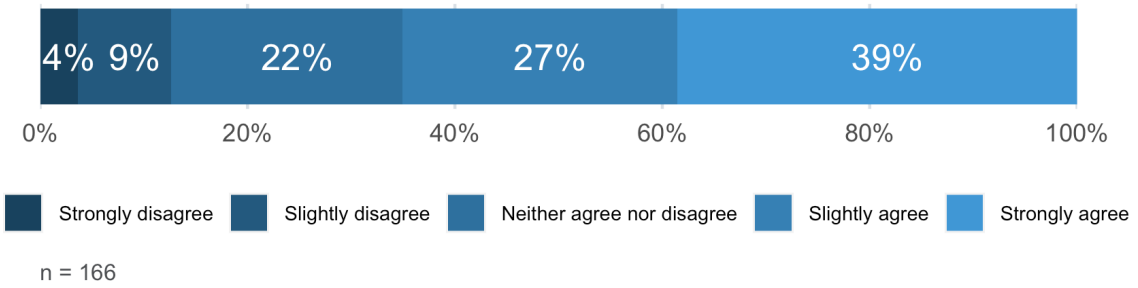


Figure 1.4. Level of agreement with the statement "It is clear in our business who would be responsible for finding and implementing new guidance on a given area of online safety (e.g. relating to user privacy, or child safety from online abuse)."

At the same time, this responsibility does not tend to sit with a single person: 61 per cent of respondents agreed that the responsibility for implementing new guidance would be spread across multiple people in their business (see Figure 1.5). This is in line with findings from the interviews, suggesting that organisations need to hold the overall responsibility for finding and implementing guidance and drive that agenda, as opposed to individual employees. One interviewee gave an example of this whereby multiple representatives from across their organisation attended a child safety workshop to help increase awareness across the organisation and make it a conversation that all employees can be a part of.

> *"In this workshop that we did ... we made sure to bring our designers, to bring in our marketeers, to bring in our artists, because then what you're doing is you're increasing the awareness across the organisation. Then it's more likely that you're not going to blindly walk into something just because you didn't think of it, or because it's not something that you're constantly talking about."* - Participant 1

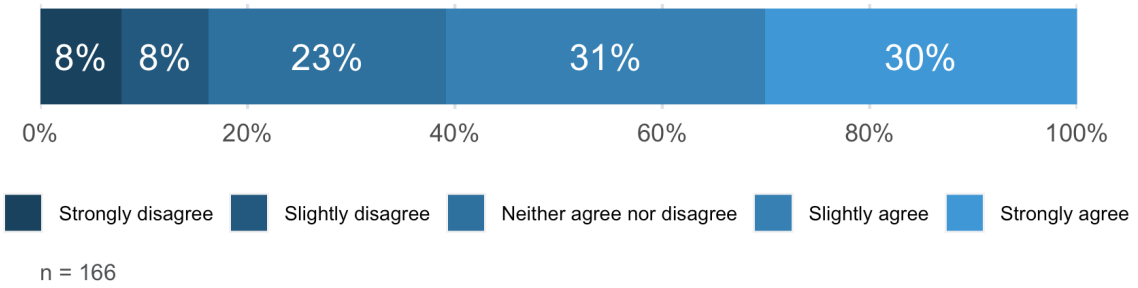


Figure 1.5. Level of agreement with the statement "In general, the responsibility for implementing new guidance on online safety would be spread across multiple people in our business."

Clarity of responsibility and the spread of responsibility among multiple people seem to be very correlated: the greater the degree of agreement that respondents showed for one of the above statements, the more they also agreed with the other (see Figure 1.6 below). This suggests that responsibilities may be clearer in businesses that have a dedicated team whose role it would be to find and implement new guidance.

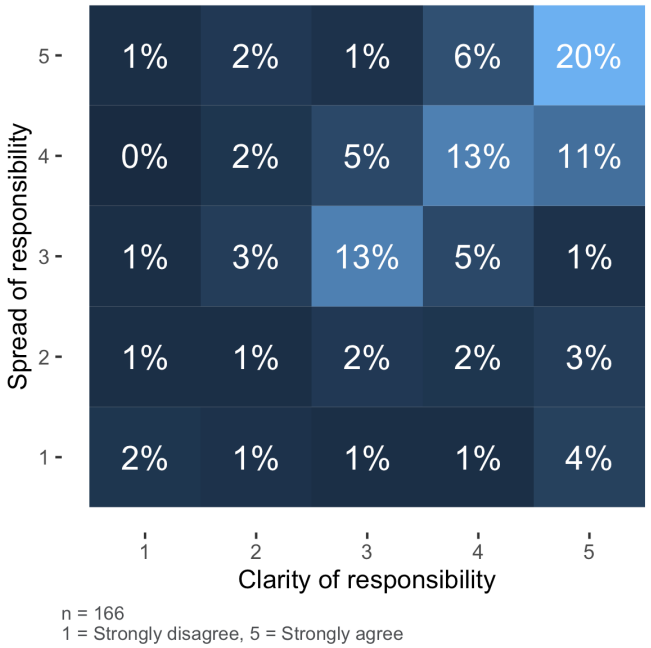


Figure 1.6. Relationship between the 'Clarity of responsibility' and 'Spread of responsibility' questions.

2.2 Finding relevant information and guidance

How confident do SMEs feel finding the information?

The majority of survey respondents (72 per cent) indicated they felt 'confident' or 'very confident' in their ability to find information or guidance, while only 10 per cent felt 'unconfident' or 'not at all confident'. Figure 1.7 shows that respondents who work at businesses with greater clarity around the responsibilities for finding and implementing guidance on child online safety reported greater levels of confidence: 55 per cent reported being 'very confident', versus 33 per cent of respondents from businesses with lower clarity of responsibility.

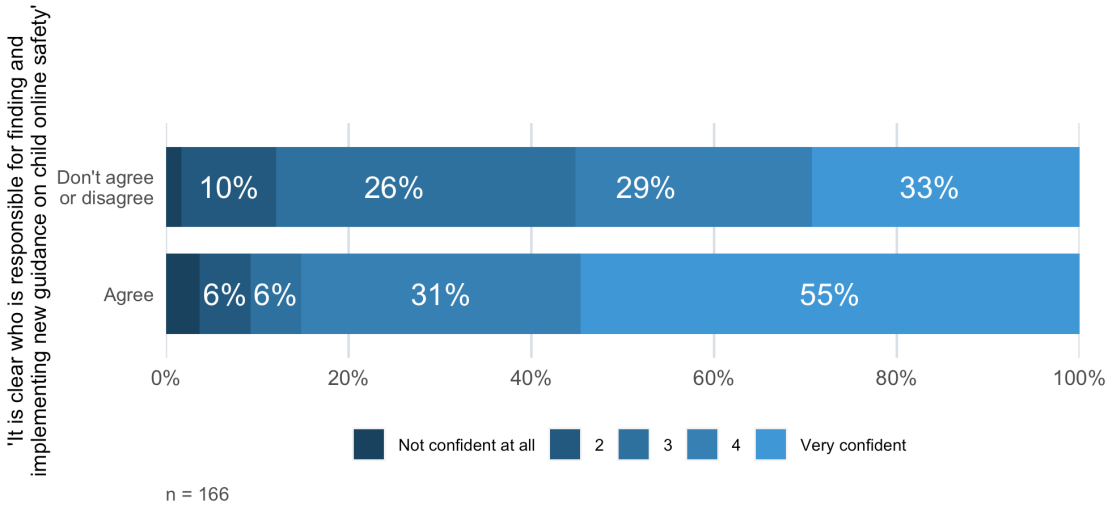


Figure 1.7. Answers to the question "How confident are you in the ability of your business to find information or guidance on child online safety?" (Where 1 is not confident at all, and 5 is very confident[6])

Additionally, reported confidence somewhat varied by respondents' firm size: while 83 per cent of respondents from medium-sized and 78 per cent of respondents from large companies felt confident or very confident, only 64 per cent of respondents from small companies did (see Figure 1.8 below).

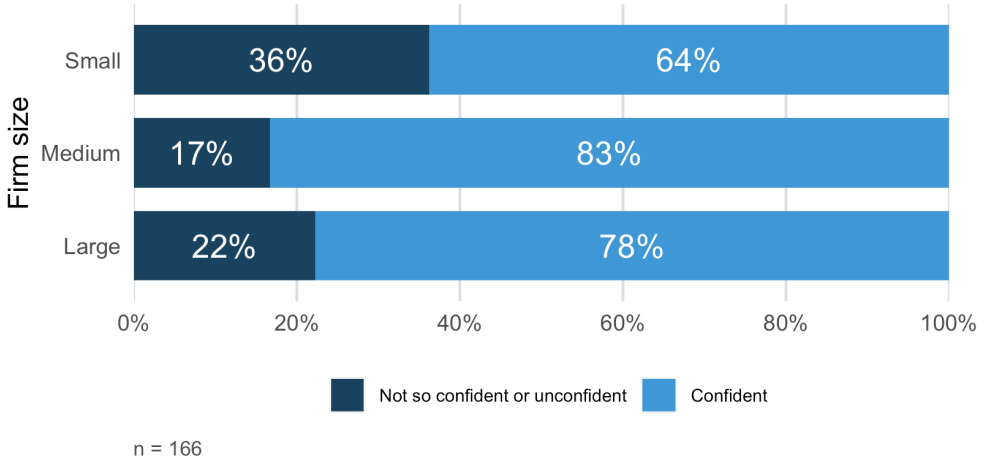


Figure 1.8. Confidence in respondents' businesses' ability to find information or guidance on child online safety. In order to avoid small cell sizes, confidence ratings 1-3 were grouped together as "Not so confident or unconfident" and ratings 4-5 were grouped as "Confident".

Do SMEs know where to find this information?

Searching the internet for information summaries seems to be a common way businesses learn about guidance on child online safety: More survey respondents agreed or strongly agreed (47 per cent) than disagreed or strongly disagreed (26 per cent) with the statement

[6] Participants used a 1-to-5 scale where 1 was labelled as "Not at all confident" in their ability to find information or guidance and 5 was labelled as "Very confident". We have considered ratings of 4/5 and 5/5 to signal "confident" and "very confident", and ratings of 1/5 and 2/5 to signal "not at all confident" and "unconfident".

"In general, our business would search the internet for a summary, rather than reading official guidance in full" (see Figure 1.9).

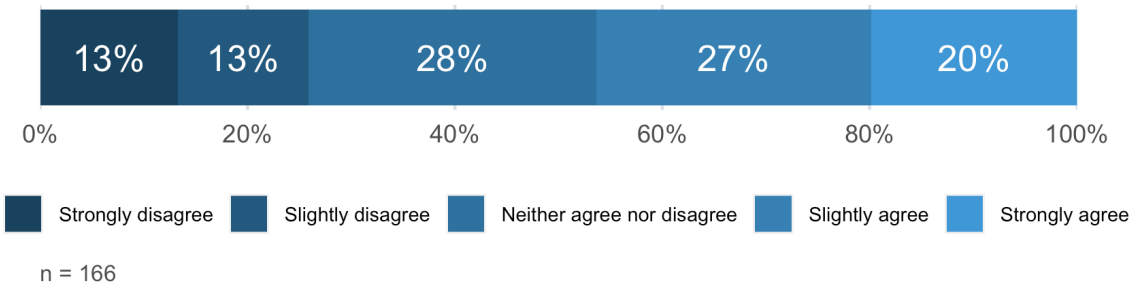
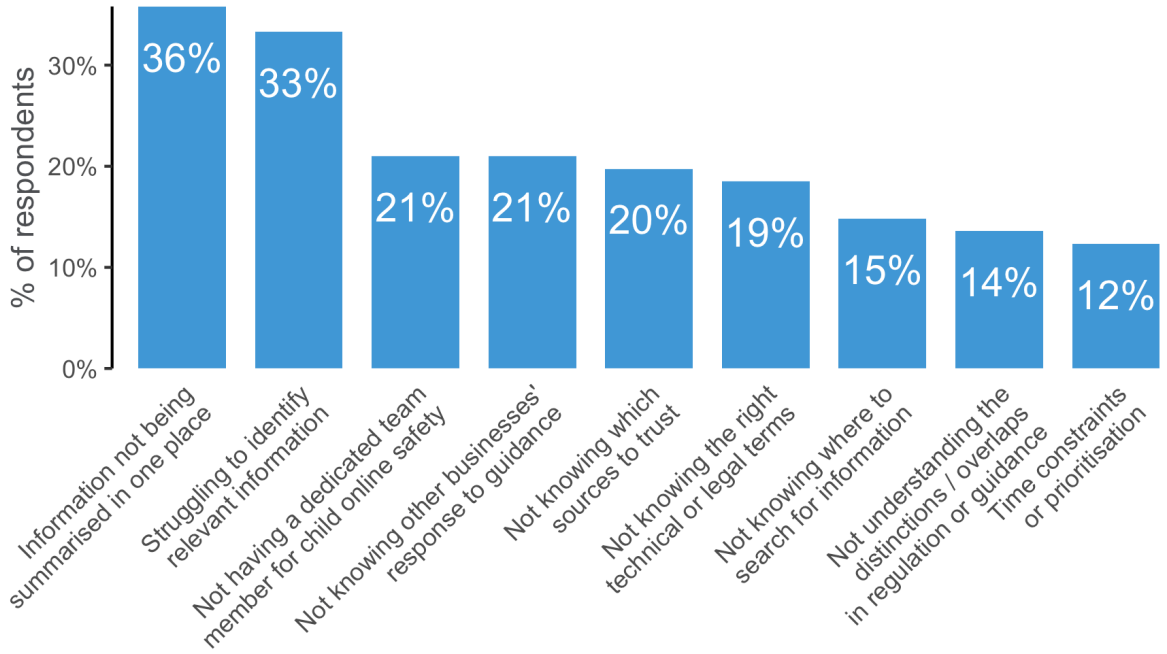


Figure 1.9. Level of agreement with the statement "In general, our business would search the internet for a summary, rather than reading official guidance in full."

Somewhat more respondents from large firms (31 per cent) disagreed with the statement than respondents from medium-sized (24 per cent) and small firms (22 per cent) – as may be expected of larger companies that may have greater capacity to read full guidance – though the differences are small and may not be representative, given the relatively small sample size.

What are the barriers to finding information?

We asked those survey respondents who said they had personally engaged in information-seeking to select factors that had acted as barriers to their finding information. The two most important factors were information not being summarised in one place and struggling to identify relevant information, with 36 per cent and 33 per cent of respondents having selected these options, respectively. Conversely, time constraints or prioritisation was the least common factor, with 12 per cent of respondents selecting it. This suggests that accessibility of relevant information – rather than firms' capacity limitations – are the main barriers to finding information on child online safety.



n = 81
Excluded: Answered 'No' to Have you personally sought out information or guidance for your business on child online safety in the last 12 months?

Figure 1.10: Factor selected as barriers to finding information when thinking about one's recent experiences seeking out information for their business[7]

The top two barriers from Figure 1.10 varied in importance by the type of service respondents' firms offer. Respondents who worked at firms that offer content-hosting services were somewhat more likely to select 'information not being summarised in one place' as a barrier than respondents from firms offering other kinds of services: 47 per cent of them selected this option, as opposed to 34 per cent of respondents from firms that offer interactive or content-sharing services and 31 per cent of respondents from firms that offer commerce-related services (see Table 1.6). However, struggling to find relevant information showed little variation by type of service, with 38 per cent to 40 per cent of respondents in each service category having ticked this option (see Table 1.7).

Table 1.6. Percentage of respondents who indicated that information not being summarised in one place is a factor that currently acts as a barrier to finding information in their business[8]

Type of services offered by the firm	Yes (%)	Respondents
Content hosting	47%	16 out of 34
Interactive/Content-sharing	34%	17 out of 50
Selling	31%	11 out of 36

[7] Respondents could tick all that apply.
[8] Note that some respondents fall into multiple service-type categories.

Table 1.7. Percentage of respondents that answered 'yes' to struggling to identify what information is relevant to their particular business as a factor that currently acts as a barrier to finding information[7]

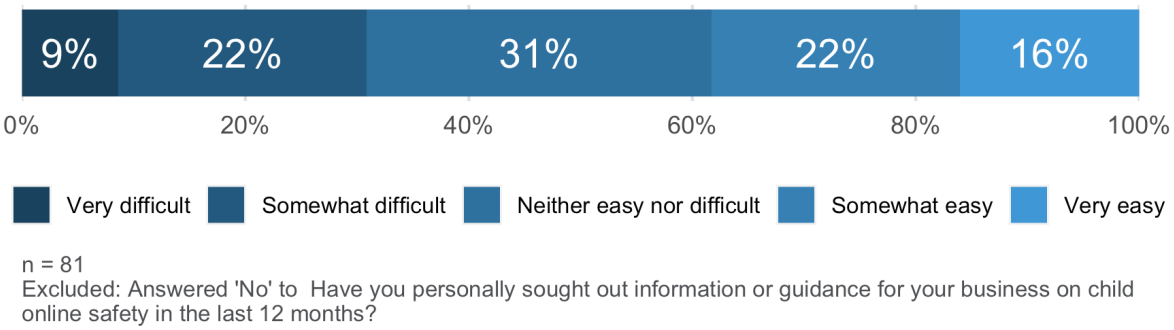
Type of services offered by the firm	Yes (%)	Respondents
Content hosting	38%	13 out of 34
Interactive/Content-sharing	40%	20 out of 50
Selling	38%	10 out of 36

The sheer scale of information available around child safety online was highlighted in the interviews as a recurring barrier when searching for guidance. One interviewee stated that their own attempts to conduct online searches for child online safety previously had generated hundreds of thousands of results. Furthermore, the results would include a variety of topics ranging from gambling to pornography and may also have outline guidance relevant to different countries. This information overload was suggested to be overwhelming to individuals trying to search for relevant guidance and could be enough to stop further engagement with their search.

> *"It's just an enormous, a really broad topic, and if I just went on [a search engine] right now and I said, 'oh what's the best resource for child online safety', I would have like 500,000 results at least. Some of them would be UK based, some of them would be US based, some of them would be around pornography and some of them might be around gambling. This is my point of entry. I would have to invest quite a lot of time in just at least skimming a lot of things and saying, 'okay, this is a good resource for me to start'. So even just finding, deciding out of many links online, which, where do you start it.."* - Participant 1

How difficult is it for firms to find relevant information?

When asked how easy it was to find the information or guidance people were looking for, respondents reported a range of experiences, with 38 per cent saying it was somewhat or very easy while 29 per cent found it somewhat or very difficult (see Figure 1.11).



n = 81
Excluded: Answered 'No' to Have you personally sought out information or guidance for your business on child online safety in the last 12 months?

Figure 1.11: Responses to the question "How easy was it for you to find the information or guidance you were looking for on child online safety?"

The interviewees expressed some concern around knowing what a good resource is and worries around spending time reading and digesting information before later finding that it was incorrect or out of date. One interviewee expressed this viewpoint in relation to the government's own published guidance. They felt that the guidance is often too long and would take too much time to learn. They were also unsure which information is actually relevant to them and expressed concern over how up-to-date any information is and how often it is updated to reflect new guidance. Instead, they preferred to engage with experts within the industry through conversations and workshops, who can provide workable summaries and advise on what guidance they need to comply with.

> *"Typically, if I want to find out about GDPR and I go to a government website, there's going to be 36 pages to read before I kind of figure out how does this affect me and what do I need to do? So whereas if I've got somebody in the industry, they've gone through it and they can tell me 'okay, this is a good resource, this is a bad resource, this is how we're doing it. Think about this, think about that', and so I can kind of kick-start my understanding of the problem a lot better than going to an official source"* - Participant 1

Interviewees expressed that it was more beneficial for them to reach out to their network of contacts within the industry as a first step when searching for guidance. They prefered to have conversations with experts at the initial information gathering stages, which allowed them to frame the information in the correct way and know instantly whether it's relevant to them and their line of work. Once a background was established, they felt more confident to continue with their own research or reach out to further specialists for support.

Guidance available online may also lack the tailoring needed for specific organisations. It was noted by interviewees that searching for guidance around child safety from a parent's perspective is likely to have different priorities to that of a business. Parenting advice around online safety was suggested to be more around upskilling parents about online dangers and adding in parental locks on websites. Business priorities were linked more to ensuring children and young people do not come into harm from visiting their website or game; examples given included seeing unsuitable content or from engaging in online gambling. Due to the intricacies of different organisations, it may be that a lot of online resources do not

provide enough specific information and therefore not the most appropriate means of guidance to use.

2.3 Usefulness of information and resources

What new sources of information would be most helpful?

We asked survey respondents to imagine that there was a new website dedicated to helping SMEs with child online safety and asked them to select up to three kinds of resources that would be most helpful to them. One half of all respondents (50 per cent) reported that signposting to all key resources on a topic (e.g. published on GOV.UK and by subject matter experts, such as the NSPCC) would be helpful. This was followed by advice pages which help to interpret formal guidance (34 per cent) and in-depth guides on legal requirements for businesses (31 per cent).

As shown in Figure 1.12 below, all of the top seven kinds of resources identified by respondents as potentially helpful can be thought of as high-quality and easily navigable text-based resources. Conversely, the four resources identified as the least helpful are either interactive services (surveys, benchmarking tools, user forums) or more technologically demanding resources (such as videos).

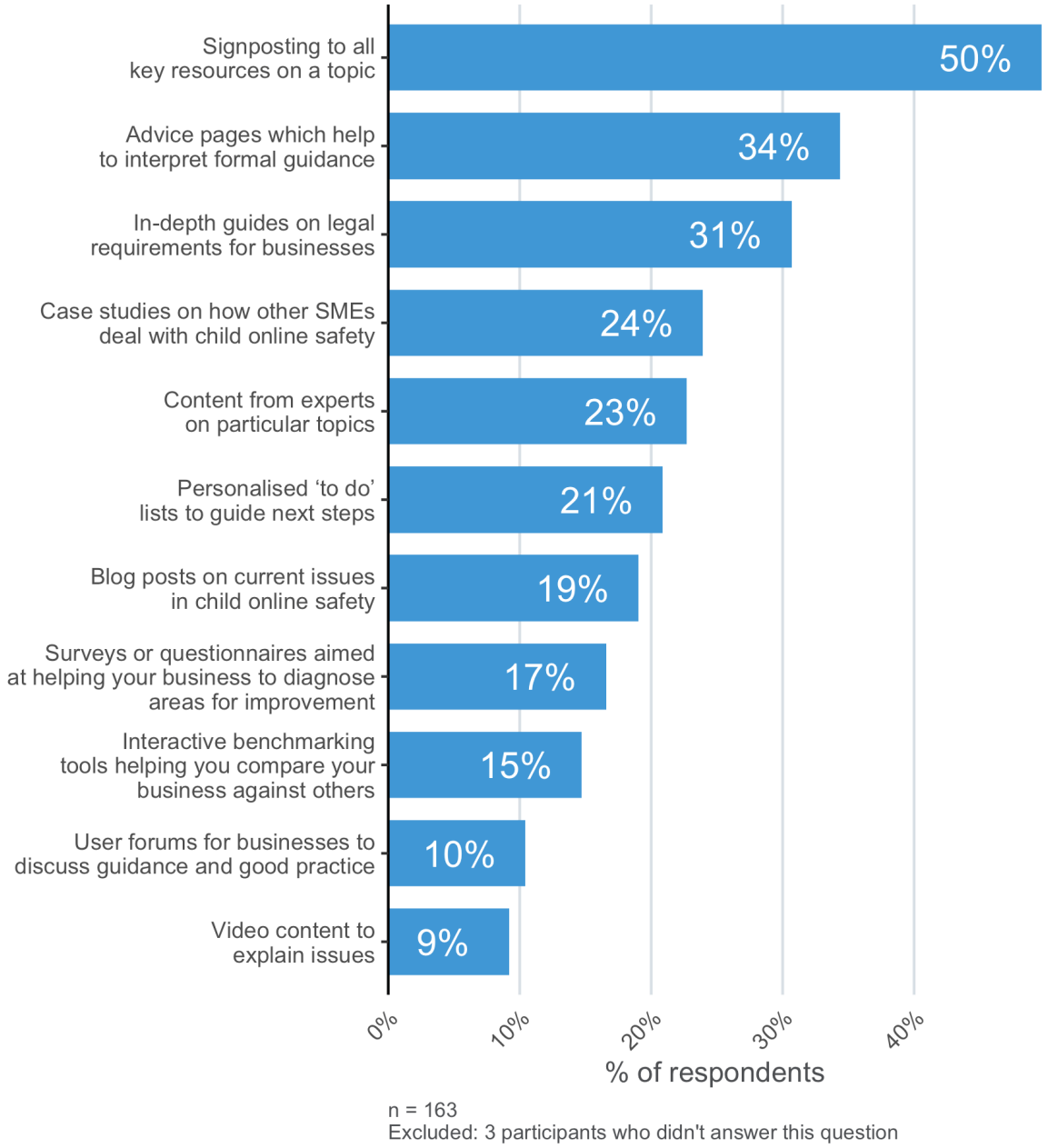


Figure 1.12. Percentage of respondents that answered 'yes' in response to: "Imagine a new website dedicated to helping SMEs with child online safety. Which of the following kinds of resources do you think would make the website most helpful?"[9]

When split by the type of service the respondents' business offers, a few differences stood out: Respondents whose businesses offer content-hosting services would find effective signposting especially helpful (61% vs 48% and 54% for businesses offering commerce-related and interactive/content-sharing services, respectively); the same is true for in-depth guidance on legal requirements (45% vs 23% and 29%) and case studies on how other firms deal with child online safety (33% vs 17% and 24%). See Figure 1.13 below.

[9] Respondents could select up to three options.

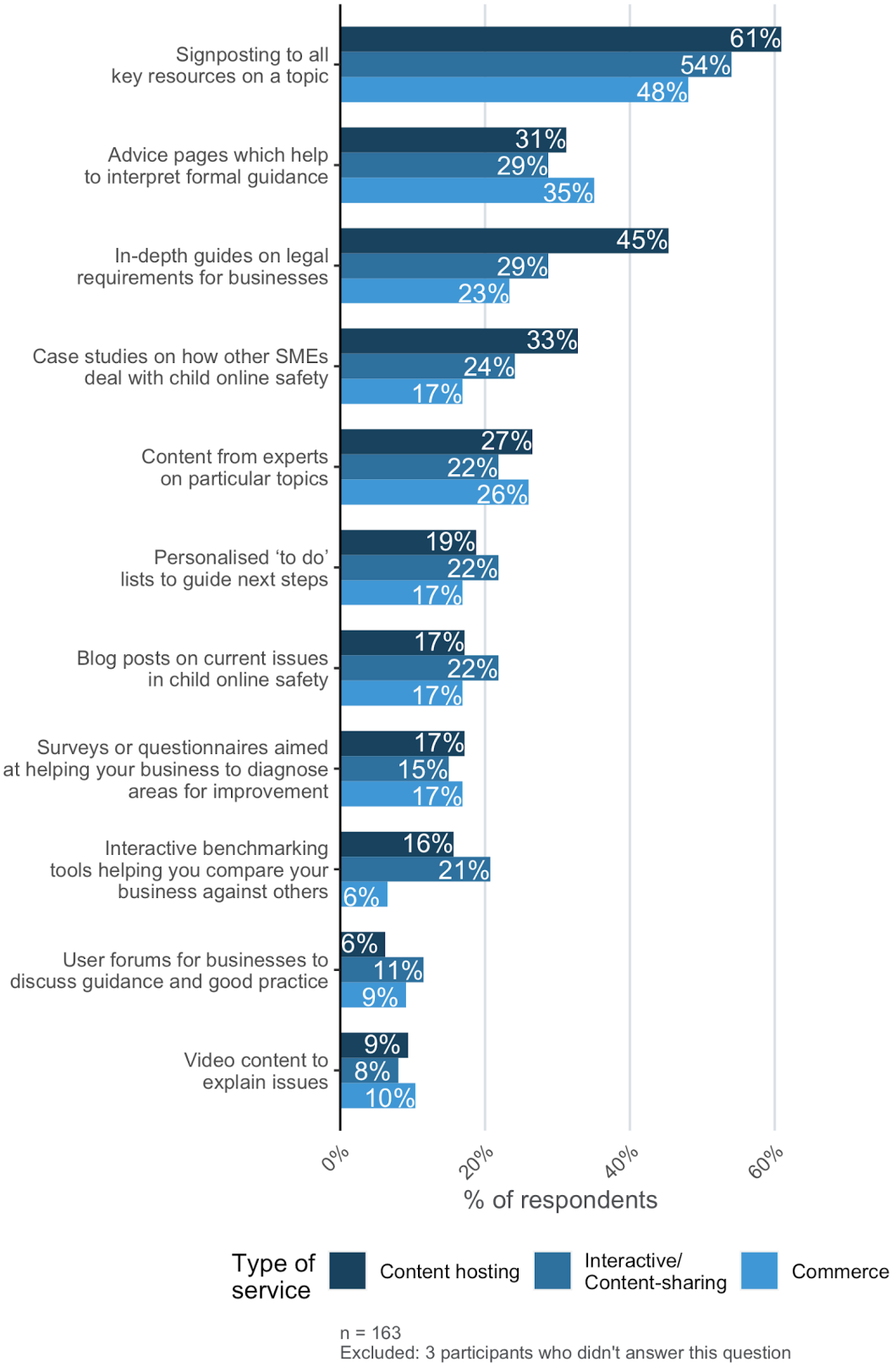


Figure 1.13. What kinds of resources respondents would find helpful if a new website dedicated to child online safety was set up, split by the type of service offered by respondents' businesses.

What sources of information do SMEs trust?

We asked our survey respondents to rate how much they trust information about child online safety coming from different sources. The most trusted sources of information about child online safety were those found on official government websites, with 40 per cent of respondents stating they trust them 'a lot'. This was followed by formal external sources (such as legal advisors or accountants), which 22 per cent of respondents trust 'a lot'. Information on non-government websites and informal external sources is trusted the least, with only 16 per cent of respondents stating they trust them 'a lot'. See Figure 1.14 for a detailed breakdown.

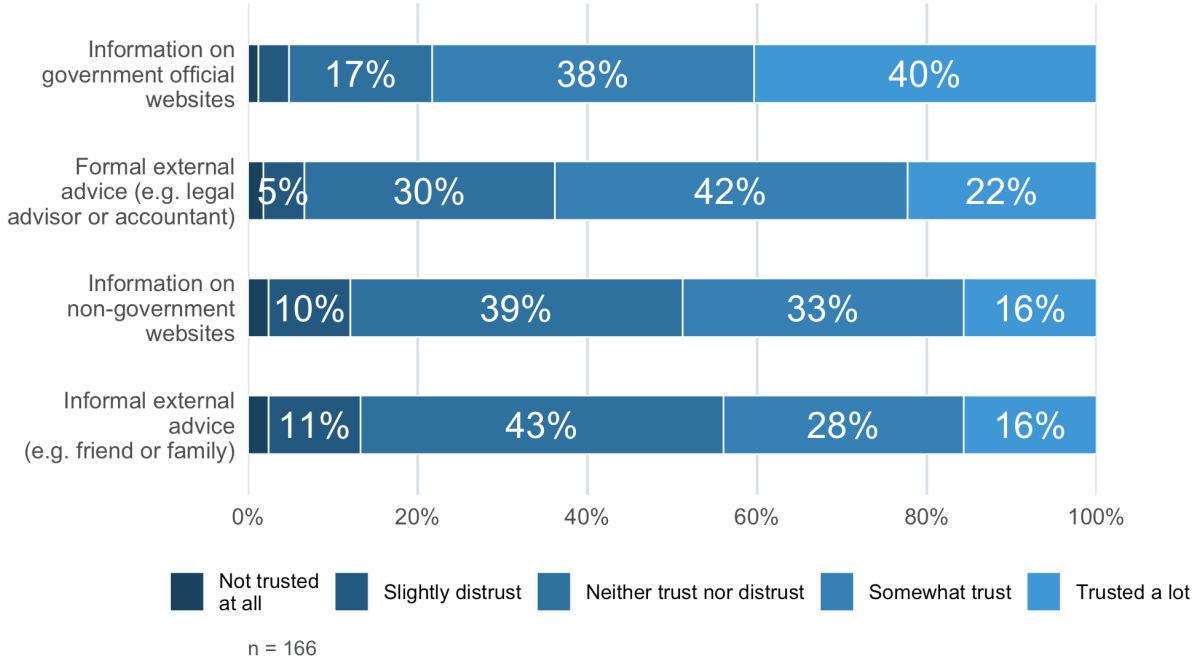


Figure 1.14: Reported levels of trust to different types of sources if respondents were searching for information on child online safety?

Specific sources of information which survey respondents stated that they trusted were NSPCC, BBC Bitsize, Department for Education and local authority safeguarding teams, and the safety technology company SuperAwesome.

Across the two interviewees, it was clear that the trustworthiness of any information and its source was important when choosing to apply the information to their own practice. The key factors used when assessing the trustworthiness included the organisation the guidance had come from, whether it was an accredited source and the date it was published. They may also look to see the sources' stance on other data processes, such as how they worked with GDPR.

> *"It's provenance, who it's coming from, what organisation, is it technically competent, is it safe, does it adhere to GDPR, does it adhere to young people's guidelines in regards to making sure that it's correct from an education perspective? Yes, we would*

> *again, look at that organisation, do the appropriate research around that in regards to engaging with key partners who are responsible for the delivery of that."* - Participant 2

Throughout the interviews, it was made clear that a key source of guidance came from other organisations within the digital sector. Interviewees reported that sharing of guidance and best practise around child safety is of huge importance to the digital sector, which is reflected in the lack of competitiveness around knowledge sharing. Interviewees outlined conversations they had with different organisations and the frequent response was to be put in contact with someone else who may know the answer, if they could not already help. They also noted councils and research groups set up as forums for wider discussions, which aimed to bring experts together to collaborate on best practices around player safety, although it was noted that this had been less focused on young people specifically.

> *"I think people are extremely willing to share. People are not protective, thinking that this is a competitive edge, like, 'oh no we do safety better than you and therefore we're not going to share our details with you…' what I've found is that there is appetite to share."* - Participant 1

There was concern expressed by interviewees that some organisations searched for information once, made any necessary updates and then considered their responsibilities fulfilled. They would then be unlikely to keep searching or keeping up to date with new guidance. Interviewees suggested this practice, along with the general concern around being up to date could be combated by ensuring that the design of any new resources, such as a website, includes regular updates and also framed the process as an ongoing education.

Appendix: Full list of survey questions

Does your business offer digital services, either online or via an app?

- Yes
- No

['Yes' required as an eligibility criterion]

Does your website allow access to people aged under 18?

- Yes
- No

What is the name of the company that you work for? (Please leave blank if you do not wish to disclose)

In what sector does you business operate?

- Online publishing or news
- Gaming
- Finance or insurance
- Telecoms
- IT services
- Accommodation and hospitality
- Agriculture or manufacturing
- Wholesale
- Retail
- Real estate
- Professional services (e.g. legal, accounting, consulting, advertising, scientific)
- Health
- Education
- Arts and recreation
- Charity or not-for-profit
- Other online service/app (add details in next question)
- Other (Please specify)

What online or app-based service(s) does your business offer to users? (tick all that apply)

- ❏ Retail (buying of goods or services from a single seller)
- ❏ Online marketplace (where there are multiple third party sellers)
- ❏ Social networking
- ❏ Private messaging or internet-based calls
- ❏ Public chat / forums
- ❏ Content sharing (pictures, links)
- ❏ Content sharing (videos)
- ❏ Content streaming services (e.g. video, music or gaming)
- ❏ Gaming
- ❏ News / blogs / editorials
- ❏ Educational website
- ❏ Personal finance
- ❏ Other

Approximately, how many employees does the business currently have across all sites in the UK?

- 0-5

- 6-10
- 11-50
- 51-100
- 101-250
- 250 or more

To which part of the business does your role most closely align?

- Manager, Director, Senior Official
- Technical development (e.g. software creation)
- Creative (e.g design), or product development
- IT
- Finance
- HR
- Administrative / secretarial
- Legal / compliance
- Sales
- Customer Service
- Other (Please specify)

How **confident** are you in the ability of your business to find information or guidance on child online safety?
Please answer on a scale from 1 to 5, where 1 means not confident at all and 5 means very confident.

Have you personally sought out information or guidance for your business on child online safety in the last 12 months?

- Yes
- No

To what extent do you agree or disagree with the following statements. Please give a rating for each statement
(Please answer the following questions thinking about the context and needs of your business)

- It is clear in our business who would be responsible for finding and implementing new guidance on an area online safety (e.g. relating to user privacy, or child safety from online abuse).
- In general, our business would search the internet for a summary, rather than reading official guidance in full.
- In general, the responsibility for implementing new guidance on online safety would be spread across multiple people in our business.

[Strongly disagree, Slightly disagree, Neither agree nor disagree, Slightly agree, Strongly agree]

What factors might prompt your business to seek out information or guidance on child online safety? Please select up to three.

- ❏ Changes to government legislation
- ❏ Knowledge of other SMEs practices regarding child online safety
- ❏ Internal knowledge gaps in child online safety
- ❏ Internal business change (i.e. leadership team, business model)
- ❏ Press coverage
- ❏ Internal advice (i.e. managers, colleagues)
- ❏ Informal external advice (i.e. family, friends)
- ❏ Formal external advice (i.e. professionals such as legal advisors or accountants)

- ❏ Customer complaint
- ❏ Other

If you were searching for information on child online safety, how much would you trust the following sources of information on guidance on child online safety?

- Formal advice from someone external to your business (e.g. legal advisor, or accountant)
- Informal advice from someone external to your business (e.g. friend, or family)
- Information on government official websites
- Information on non-government websites

[Not trusted at all, Slightly distrust, Neither trust nor distrust, Somewhat trust, Trusted a lot]

Are there any other sources of information on guidance on child online safety that you trust? *[free text]*

On which of the following areas of child online safety have you sought information or guidance in the past 12 months? †

- Privacy and data protection
- Bullying and harassment among service users
- Sharing of harmful content. e.g. violent content
- Age-appropriate advertising
- Child sexual abuse and exploitation

[Yes, No, Don't know]

In addition to the areas listed above, have you sought information or guidance on any other areas of child safety online? If yes, please list them below † *[free text]*

Given your answers to the previous two questions, what did the guidance you searched for relate to? † *[free text]*

How easy was it for you to find the information or guidance you were looking for on child online safety? †

- Very difficult
- Somewhat difficult
- Neither easy nor difficult
- Somewhat easy
- Very easy

[† These questions were only asked if the respondent answered 'Yes' to the question "Have you personally sought out information or guidance for your business on child online safety in the last 12 months?"]

Thinking about your recent experiences of seeking out information for your business, which of the following factors currently act as barriers to finding information? † *(Please tick all that apply)*

- ❏ Not knowing which online information sources to trust
- ❏ Struggling to identify what information is relevant to my particular business
- ❏ Information not being summarised in one place
- ❏ Not having a dedicated team member responsible for child online safety, or users' online safety more generally
- ❏ Not knowing how other businesses have responded to guidance
- ❏ Not knowing where to start the search for information
- ❏ Not understanding the distinctions and/or overlaps in relevant information, regulation or guidance
- ❏ Not knowing the right technical terms or legal language

- ❏ Not finding time, or struggling to prioritise these responsibilities over other business activities

Imagine a new website dedicated to helping SMEs with child online safety. Which of the following kinds of resources do you think would make the website most helpful? *Please select up to three.*

- ❏ Advice pages which help to interpret formal guidance
- ❏ Signposting to all key resources on a topic (e.g. published on GOV.UK and by subject matter experts such as the NSPCC)
- ❏ Case studies on how other SMEs deal with child online safety
- ❏ Blog posts on current issues in child online safety
- ❏ Content from experts on particular topics
- ❏ In-depth guides on legal requirements for businesses
- ❏ Interactive benchmarking tools helping you compare your business against others
- ❏ Personalised ‘to do’ lists to guide next steps
- ❏ Surveys or questionnaires aimed at helping your business to diagnose areas for improvement
- ❏ User forums for businesses to discuss guidance and good practice
- ❏ Video content to explain issues

Can you give any examples of online information/guidance service that you have found really useful? Please provide links if possible

Please add any other comments you might have about the questions we have asked in this survey.

Chapter 2: Rapid evidence review

The following sections summarise the findings of the evidence review under each of the three research questions:

1. What triggers businesses to begin seeking out information or guidance?
2. How and where do businesses search for relevant information?
3. What factors influence whether and how businesses translate information into practice?

Summary boxes at the start of each section pull out key points to note when designing the One-Stop Shop. Some of these insights are relevant to the design of the One-Stop Shop service itself; others are more relevant for wider implementation decisions (e.g. in what places to signpost toward the One-Stop Shop).

Note that this rapid evidence review has taken a focussed and time-limited approach to finding research of most relevance to the first three research questions in Table 2 of the main report. It is therefore not intended to be a comprehensive nor exhaustive summary of the available literature, but it should capture most key findings.

Research Question 1: What triggers businesses to begin seeking out information or guidance?

Key points for designing the One-Stop Shop

- New legislation and guidance is often a trigger for businesses to review practices in that area, especially when there is a time constraint on compliance.
- Businesses are influenced by other businesses and professional contacts as well as informal sources of advice, such as friends and family.
- Small businesses may be receptive to communications that draw attention to their potential knowledge gaps, and hence trigger them to seek advice on this topic.
- Initial communications to businesses are likely to get traction if: the message content is *easy* to understand and act upon; the required action is presented as relevant and *attractive*; care is taken to choose the correct messenger and leverage *social* comparisons; or the message is sent at a *timely* moment.

While it is safe to assume that businesses providing online services recognise that children are a vulnerable user group, they may not be aware of their specific responsibilities in this space. Recent research suggests that business managers often recognise their own responsibilities as a response to external cues (e.g. competitor practices).[10]

[10] For example, see HM Government. (2019). Business productivity review.

These cues can take many forms. For example, the introduction of new legislation may prompt businesses to seek out information about compliance and sanctions. Similarly, changes in a firm's leadership, business model, or particular points in a business or financial cycle, may also trigger a search for external advice.[11] Press coverage on a particular issue (e.g. a data breach), additionally, can lead businesses to review their own security protocols, or a customer complaint may trigger a fact-finding exercise. When surveyed, over two-thirds of SMEs agree that crisis events have, at least to some extent, led to a change in the way they do things.[12]

Social influences

Businesses tend to be influenced by the actions of those around them, from competitors to professional contacts, and even informally by friends and family (particularly in the case of smaller businesses).[13] This is important on two levels. Firstly, businesses tend to *underestimate* their competitors, meaning that drawing greater attention to other businesses' good practices could act as a strong trigger to mobilise more businesses to change.[14] [15] Secondly, even informal influences can act as a "stepping stone" that encourages them to seek more formal advice.[16]

Recognising needs and knowledge gaps

SMEs which are keenly aware of their own knowledge gaps in particular areas are more likely to seek external support.[17] New businesses' strong focus on growth means that they are likely to pay particularly close attention to their perceived needs, and hence may benefit most from interventions that help them to recognise their needs and knowledge gaps.[18] Across business sizes and types, flagging potential knowledge gaps around child online safety, with specific referrals to expert advice that will address these gaps, may be an effective strategy to trigger information seeking.

Effective initial communications

Direct communications to businesses can be effective at drawing their attention to an issue and triggering them to take immediate action (e.g. follow a link to a website for more

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[11] Wilson, S., Sonderegger, S., & Buzzeo, J. (2016). Understanding the behavioural drivers of organisational decision-making: Rapid evidence assessment. HM Government: London, UK.
[12] Saunders, M. N. K., Gray, D. E., & Goregaokar, H. (2014). SME innovation and learning: The role of networks and crisis events. European, Journal of Training and Development, 38(1/2), 136–149.
[13] HM Government. (2016). ORGANISER: A behavioural approach for influencing organisations.
[14] Behavioural Insights Team research for BEIS on encouraging businesses to invest in innovation (unpublished).
[15] Conley, T. G., & Udry, C. R. (2010). Learning about a new technology: Pineapple in Ghana. American Economic Review, 100(1), 35–69; Syverson, C. (2011). What determines productivity? Journal of Economic Literature, 49(2), 326–365.
[16] Mole, K., North, D., & Baldock, R. (2017). Which SMEs seek external support? Business characteristics, management behaviour and external influences in a contingency approach. *Environment and Planning C: Politics and Space*, *35*(3), 476-499.
[17] Mole, K., North, D., & Baldock, R. (2017). Which SMEs seek external support? Business characteristics, management behaviour and external influences in a contingency approach. *Environment and Planning C: Politics and Space*, *35*(3), 476-499.
[18] Garnsey, E., Stam, E., & Heffernan, P. (2006). New firm growth: Exploring processes and paths. *Industry and Innovation*, *13*(1), 1-20.

information). BIT's Boosting Businesses report summarises a number of relevant techniques for effective business communications.[19] These are structured around BIT's evidence-based EAST framework for driving behaviour change (see below).

Table 2.1. BIT's EAST framework as applied to business communications

Principle	Key insights
Make it ***Easy***	• Simplify the message by removing complexity and jargon. Businesses do not resonate with the use of high-level terms used by policymakers such as 'innovation'.[20] • Provide straightforward, specific next steps.[21] • Reduce friction involved in taking the first step, for example by automatically checking eligibility beforehand or auto-filling forms that businesses are directed to.[22]
Make it ***Attractive***	• Tell businesses that the communication is specifically relevant to them.[23] • Send the message to the decision-maker, which will depend on the content of the message. For example, content about user-friendly design may be best sent to the Head of Product.[24] • A formal tone and official appearance can sometimes be effective in getting businesses' attention, particularly where the aim is to increase voluntary compliance.[25]
Make it ***Social***	• Tell businesses that other businesses are performing the desired behaviour, for example by drawing attention to others that are better or taking steps to improve. • Highlight desirable social norms, e.g. "the majority of businesses in your area file their taxes online", can boost more businesses to take action.[26] However, be careful of drawing attention to the prevalence of undesirable norms.[27] • Businesses are more likely to take advice from people they consider to be trusted and experienced, such as accountants or other business

[19] Behavioural Insights Team. (2019). Boosting businesses: applying behavioural insights to business policy.
[20] Behavioural Insights Team research for BEIS on encouraging businesses to invest in innovation (unpublished).
[21] Gobet, F., Lane, P., Croker, S., Cheng, P., Jones, G., Oliver, I., & Pine, J. (2001). Chunking mechanisms in human learning. TRENDS in Cognitive Sciences, 5(6), 236–243.
[22] Bettinger, E. P., Long, B. T., Oreopoulos, P., & Sanbonmatsu, L. (2012). The role of application assistance and information in college decisions: Results from the H&R Block FAFSA experiment. Quarterly Journal of Economics, 127(3), 1205–1242.
[23] Behavioural Insights Team. (2015). 'You have been selected': Driving uptake of government schemes.
[24] HM Government. (2016). ORGANISER: A behavioural approach for influencing organisations.
[25] See Box 6 of Boosting businesses: applying behavioural insights to business policy.
[26] See Box 7 of Boosting businesses: applying behavioural insights to business policy.
[27] There may be unintended consequences. For example, telling households about average household energy usage in their area can *increase* energy consumption among households that are already below average. Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2007). The constructive, destructive, and reconstructive power of social norms. Psychological Science, 18(5), 429–434.

	owners.[28] [29] (See evidence under the research questions 2 and 3 for more evidence on the impact of messengers.)
Make it ***Timely***	• Send prompts and reminders at relevant moments, when businesses are most susceptible to change, such as when registering as a new company, changing a director, or adjusting to regulatory change.[30]

Research Question 2: How and where do businesses search for relevant information?

Key points for designing the One-Stop Shop

- Information search and decision-making in businesses may be driven at a team level within organisations, thereby complicating the identification of the most suitable recipient of interventions.
- Businesses consult a variety of external sources, including consultants, accountants and trade organisations, but also use GOV.UK and simple internet searches.
- We did not find evidence on businesses' search patterns or success factors for finding suitable information.
- There is also a lack of evidence on the forms of online information that are most helpful to businesses, and the advantages of one-stop shops relative to content distributed across several sites.

Once businesses are triggered to make a change to their practices, or identify a need for change, they need to determine what exactly it is that they need or want to do. This section considers where businesses seek such information, including what kinds of sources they generally consult. We found that evidence on engagement with one-stop shops or similar information hubs is limited, and so evidence presented here is generally in the context of situations where such a centralised resource does not exist.

How do businesses search for information to improve their knowledge?

As noted under Research Question 1, it is external (rather than internal) sources that often raise a business' awareness of their knowledge gaps. The number of SME employers seeking external information or advice has, however, fallen over the last decade. In 2018, around a quarter of small businesses had sought external advice or information beyond a 'casual conversation' in the last 12 months, down from nearly half in 2010.[31] Businesses most commonly seek strategic advice on areas such as business growth (40 per cent of those seeking advice), productivity (18 per cent), marketing (17 per cent) and finances (16

[28] BenYishay, A., & Mobarak, A. M. (2018). Social learning and incentives for experimentation and communication. Review of Economic Studies, 86(3), 976–1009.
[29] Behavioural Insights Team research for BEIS on business advice (forthcoming).
[30] Wilson, S., Sonderegger, S., & Buzzeo, J. (2016). Understanding the behavioural drivers of organisational decision-making: Rapid evidence assessment. HM Government: London, UK.
[31] Department for Business, Energy & Industrial Strategy. (2019). Small Business Survey 2018: businesses with employees.

per cent), with fewer seeking advice on regulations (9 per cent) or e-commerce/technology (8 per cent). Many more businesses seek information, rather than advice, on regulations (15 per cent).

Businesses look to a range of external sources to inform themselves, as summarised in Figure 2.1. The 2018 Small Business Survey suggests that experts such as consultants, accountants and lawyers are the most commonly used sources of external advice and information, but GOV.UK is also used and around one in ten SMEs start searching for information using an online search.

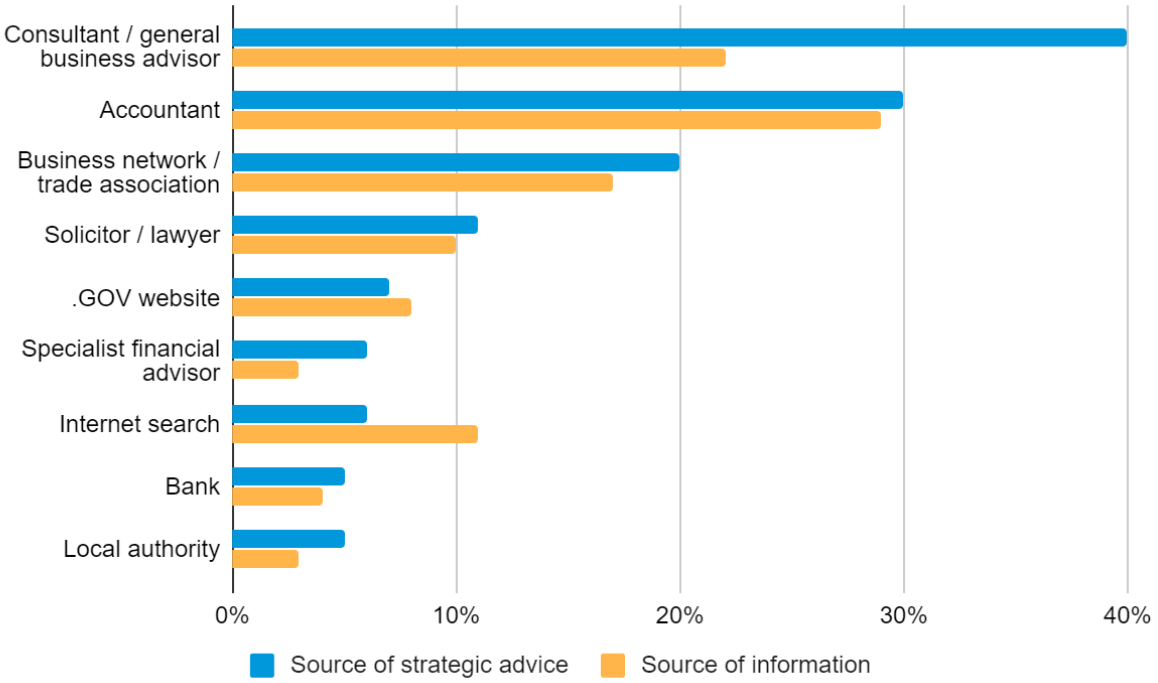

Figure 2.1. Sources of strategic advice and information used by SME employers, among those who used strategic advice or accessed information, 2018[32]

Within these broad sources of external advice there are clearly multiple subcategories. For example, at the level of government / public body there is relevant information for businesses on child online safety at the national level (e.g. from DCMS, ICO), European level (e.g. European Commission), and global public body levels (e.g. OECD). We did not find research exploring information sources at a more granular level.

Team-level decision making

There are key practical and structural differences that separate how a business might seek to improve their knowledge as compared to an individual person. For one, decision making within businesses - such as to implement state-of-the-art child online safety technologies - is more formalised, and typically driven by teams of people with relevant experience. This has

[32] Source: Department for Business, Energy & Industrial Strategy. (2019). Small Business Survey 2018: businesses with employees.

implications for information seeking, as efforts may be diffused, uncoordinated and/or lack individual-level accountability or responsibility.[33] This diffusion of responsibility may be particularly relevant when topics span multiple team members (e.g. the presentation of a privacy notice requires input of design and legal specialists), and in smaller businesses where formal team structures and accountability are less well established.

Effectiveness of different modes of business advice

Studies assessing business support programmes intended to drive growth and productivity suggest that the most impactful forms of advice are generally 'hands-on' approaches involving ongoing, trusted relationships with advisors.[34] Still, surveys suggest that use of more 'light touch' online advice sources such as GOV.UK can still lead to changes within businesses. For example, a 2014 government evaluation finds that a quarter (26 per cent) of start-ups and a third of established businesses (37 per cent) that had used GOV.UK in the past year report having taken action to improve their business after using the site.[35] Among this group, 20 per cent had improved compliance with legislation;12 per cent introduced new products, services or processes; 10 per cent accessed finance or grants; and 9 per cent introduced improvements to operations of the businesses. This suggests that a significant fraction of these searches were prompted by new legislation (a key external trigger) while others were more likely to be proactive or growth-oriented.

We did not find evidence on the relative effectiveness of different types of online information provision, for example one-stop shops relative to distributed advice pages, or the relative effectiveness of different forms of online content (e.g. case studies vs detailed advice pages or video/audio content).

Remaining evidence gaps

Our rapid evidence review found that businesses may seek advice from multiple sources but identified little evidence around businesses' actual search patterns. We neither found evidence on what makes it easier for businesses to find information, nor what forms of online information provision are most effective, although there are relevant lessons from wider literature looking at individual-level online behaviours and decision making.[36]

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[33] Beyer, F., Sidarus, N., Bonicalzi, S., & Haggard, P. (2017). Beyond self-serving bias: diffusion of responsibility reduces sense of agency and outcome monitoring. Social cognitive and affective neuroscience, 12(1), 138-145.

[34] What Works Centre for Local Economic Growth. (2016). Evidence Review 2: Business Advice.

[35] Department for Business, Innovation & Skills. (2014). Business Support Helpline and GOV.UK: evaluation. BIS research paper 193.

[36] See, for example, Behavioural Insights Team (2019). Improving consumer understanding of contractual terms and privacy policies: evidence-based actions for businesses.

Research Question 3: What factors influence whether and how businesses translate information into practice?

Key points for designing the One-Stop Shop

- Build tools that help businesses to easily identify where their practices excel or fall short. This can ease the overall burden - practical and cognitive - an SME might face in ensuring they comply with child online safety guidance and legislation.
- Provide bespoke and tailored advice that helps businesses to address their specific shortfalls, and gives targeted actions to take. Offer businesses *tangible* actions to take.
- Solidify understanding by using standard terminology. Where several interchangeable terms are used it can cause confusion and mean that businesses miss or overlook certain information depending on how they search for it.
- Businesses are particularly receptive to *who* delivers information (e.g. peers), and *when* (e.g. at start-up).

Information coming from an untrusted source, provided at the wrong time or in the wrong format may not only be ineffective but even backfire.[37] Furthermore, there are many instances when people prefer to avoid potentially useful information, especially when it makes you feel bad, leads to anxiety or conflicts with existing beliefs.[38] Even if advice is provided in an optimal way, there is often a gap between our intentions and actions and businesses may need help overcoming it.[39] Finally, willingness to follow a piece of advice can be affected by other psychological factors, such as the perceived complexity of the task, as decision-makers may underestimate the value of advice on easy tasks.[40] The following approaches have been shown to increase the likelihood of translating information into action in a business context.

Use language that is clear and resonates with businesses

Business can struggle with understanding and operationalising abstract goals and concepts. For example, SMEs in the UK don't normally set their priorities based on 'productivity' and may be unclear about what it means in practice, so using this word may not connect or urge them to act (even if it is a government priority).[41] In the context of child online safety, there is a similar risk that the phrase "child online safety" does not immediately connect with business' priorities, or becomes confused with other sources referring to similar issues under the banners of 'safeguarding', 'digital child safety', and 'child online protection'. Although

[37] See Box 1 of Boosting businesses: applying behavioural insights to business policy.
[38] Golman, R., Hagmann, D., & Loewenstein, G. (2017). Information avoidance. Journal of Economic Literature, 55(1), 96-135.
[39] Sheeran, P., & Webb, T. L. (2016). The intention–behavior gap. Social and personality psychology compass, 10(9), 503-518.
[40] Gino, F., & Moore, D. A. (2007). Effects of task difficulty on use of advice. Journal of Behavioral Decision Making, 20(1), 21-35.
[41] Be the Business. (2020). Tuning into Productivity: When they say productivity, what do you hear?. SME Survey Snapshot; Behavioural Insights Team research for BEIS on encouraging businesses to invest in innovation (forthcoming).

used interchangeably, businesses may miss or overlook particularly relevant sources of information if messengers do not appreciate how different terminology will be received. This further underlines the value of establishing a single repository of information that serves businesses with comprehensive guidance written in clear and consent language.

Provide targeted and personalised advice

People have limited mental resources available for processing information and making decisions. Organisational research indicates that when management is already under strain from the amount of difficult decisions to make, they respond worse to emerging strategic management issues.[42] Businesses are therefore less likely to stay engaged when they need to navigate through large amounts of information and figure out what applies to them. This underlies the potential of tools such as the National Cyber Security Centre's website checker, which automatically diagnoses shortfalls in businesses websites and identifies priority actions to take.

Help benchmark and set priorities

Businesses are more likely to take an action if they know their competitors or peers are already doing it.[43] However, they may not have access to this information or have resources to conduct the analysis themselves. Benchmarking tools could help to overcome this barrier and use comparative information to motivate improvements in certain areas. For example, Be the Business developed an assessment tool for businesses to benchmark themselves against others in the UK and get tips on how they can improve and increase their productivity.

Relatedly, recent research into the mindsets of business leaders found that extremes of confidence among managers may hinder the implementation of potential changes. While business leaders are generally over-confident in areas such as productivity relative to rivals - and hence less willing to translate guidance into practice - they are also likely to focus on issues within their comfort zone and have self-doubt about making changes in areas outside their primary areas of expertise.[44] This further emphasises the importance of tools such as benchmarking to signal relative business performance, identification of business 'blind spots', and the need to present information in an accessible and supportive way. This research also suggests that businesses would naturally benefit from exposure to 'best in class' practices (or perhaps 'better in class' practices, for those needing more achievable goals).

Make the message and benefits salient

Making it clear and salient *why* businesses need to perform an action makes it more likely that decision-makers pay attention to this information and implement it.[45] Making sure

[42] Laamanen, T., Maula, M., Kajanto, M., & Kunnas, P. (2018). The role of cognitive load in effective strategic issue management. Long Range Planning, 51(4), 625-639.
[43] Conley, T. G., & Udry, C. R. (2010). Learning about a new technology: Pineapple in Ghana. American Economic Review, 100(1), 35–69; Syverson, C. (2011). What determines productivity? Journal of Economic Literature, 49(2), 326–365.
[44] Be the Business. (2019). Raising UK competitiveness: Inside the mindsets of leaders of firms.
[45] Hanna, R., Mullainathan, S., & Schwartzstein, J. (2014). Learning through noticing: Theory and evidence from a field experiment. The Quarterly Journal of Economics, 129(3), 1311-1353.

information is available may not be sufficient to ensure businesses engage with it.[46] Salience - that is actively drawing attention to standout features - is an additional "layer" of effective information provision that can attract attention.[47] The techniques to 'make it attractive' in Table 2.1 as well as the full Boosting Business report[48] suggest several ways of doing this.

Offer specific and actionable next steps

Having the relevant information on what to do may not be sufficient for people to act on it.[49] This is especially true for generic and high-level recommendations such as "review", "increase awareness of", or "make a plan", which are likely to be difficult for businesses to interpret and implement. Providing specific next steps on *how* businesses can affect change will make it easier for businesses to act.[50] In addition, encouraging people to plan exactly *when* and *how* they will perform an action, and to commit to specific dates to act, can increase the likelihood of following through.[51] Simple checklists can also be highly effective to prompt and guide people to take necessary steps toward a goal.[52]

Find the right messenger

Business research shows that the willingness to take an action or follow advice depends on how decision-makers perceive the source of the message.[53] Little is known about who the best messengers are in different contexts, however sources which are perceived as expert and trustworthy (such as respected business owners) are likely to be more effective.[54] Long-running surveys on trust, such as those by Edelman[55] and Ipsos MORI[56] suggest, for example, that NGOs may be more trusted than the government, and that doctors and scientists are the most trusted professions.

Structured peer networks could represent a further useful conduit through which to communicate state-of-the-art practice, and affect behavioural change. Evidence shows that businesses are more likely to adopt new formal policies and procedures if they are part of

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[46] Karlan, D., Knight, R. and Udry, C. R. (2015). Consulting and capital experiments with microenterprise tailors in Ghana. Journal of Economic Behavior and Organization 118, 281– 302

[47] 3 Taylor, S. and Thompson, S. (1982). Stalking the Elusive Vividness Effect. Psychological Review, 89, 155–181.

[48] Behavioural Insights Team. (2019). Boosting businesses: applying behavioural insights to business policy.

[49] O'Donoghue, T., & Rabin, M. (1999). Doing it now or later. American Economic Review, 89(1), 103-124.

[50] Behavioural Insights Team. (2019). Boosting businesses: applying behavioural insights to business policy.

[51] Gollwitzer, P. (1999). Implementation intentions: Strong effects of simple plans. American Psychologist 54(7), 493-503.

[52] Gawande, A. (2010). The Checklist Manifesto. Penguin Books.

[53] Bartholomew, S. and Smith, A. D. (2006). Improving Survey Response Rates from Chief Executive Officers in Small Firms: The Importance of Social Networks. Entrepreneurship Theory and Practice 30(1), 83-96; The Behavioural Insights Team. (2018). Increasing private-sector innovation: evidence review (forthcoming).

[54] Jack, K. (2013). Market inefficiencies and the adoption of agricultural technologies in developing countries; BenYishay, A., & Mobarak, A. M. (2018). Social learning and incentives for experimentation and communication. Review of Economic Studies, 86(3), 976–1009.

[55] Edelman. (2020). 2020 Trust Barometer UK Results.

[56] Ipsos MORI. (2017). Trust in Professions: Long-term trends.

such networks.[57] An illustrative example of how this could be applied to the One-Stop Shop would be to set up knowledge transfer partnerships by pairing smaller businesses needing practical support to larger businesses that have successfully adopted new policies and practices.

Harness moments of change

Businesses are generally more receptive to advice and likely to implement changes when they are already experiencing some disruption or change.[58] Take-up of advice can be higher if it is provided when a business has a) has recently started or been incorporated; b) experienced an adverse shock; c) seen a change in leadership; d) approached the end of a financial year.[59]

[57] Wu, N., Bacon, N., & Hoque, K. (2014). The adoption of high performance work practices in small businesses: The influence of markets, business characteristics and HR expertise. International Journal of Human Resource Management, 25(8), 1149–1169.
[58] Kantar Public (2019). Business Basics: Attitudes to Adoption. Understanding the barriers and enablers to the adoption of best practice technologies and management practices by SMEs.
[59] Department for Business, Energy and Industrial Strategy. (2019). Business Basics: Nudging firms to improve productivity: A rapid literature review of behavioural factors and best-practice business prompts.

Chapter 3: Website audits

To get first-hand experience of the most effective aspects and functionality of existing resources, we conducted a behavioural audit of five one-stop shop-style websites. This involved assessing the information provision and navigability of websites which currently bring together multiple sources of information in the style of a one-stop shop.

Methodology

We chose three business-facing websites (Be the Business,[60] GREAT.gov.uk,[61] and GOV.UK EU Exit Transition pages[62]) and two websites on child online safety that are primarily directed at individuals, such as parents or teachers, rather than businesses (the EU's Better Internet for Kids[63] and the UK Safer Internet Centre[64]). With this mix, we aimed to capture effective ways of presenting information to the target audience (businesses, irrespective of the topic area), as well as how to best present information on the topic area (child online safety, irrespective of the target audience). Clearly, the motivation for the project is that there is not currently a one-stop shop on child online safety directed at businesses.

Audit procedure

We split the review into two parts, both conducted in April 2020. The first and primary task was to simulate the behaviour of a real user. We adopted a persona with a particular need for seeking help on the website (e.g. *"I am an employer of 8 people looking for advice that would help keep my business solvent during the coronavirus crisis"*). We attempted to find relevant guidance on the website and took notes on how long it took, whether the information found was comprehensive, and whether we found actionable advice on what to do next.

BIT researchers performed this task with a focus on how the websites overcome behavioural barriers via their content and key design features. While this allowed us to apply our expertise in behavioural science to the task, its results were not necessarily representative of a typical website user. As a result, we recommend complementing this task's findings with other data for a more complete assessment (e.g. usage statistics and interviews with content managers).

For the second task, we commented on specific aspects of website design, again from the perspective of a user seeking information. We took detailed notes on the following features:

- What does the home page look like? List all the things that can be easily accessed from that page.
- What are primary navigation tools?

[60] https://www.bethebusiness.com/
[61] https://www.great.gov.uk/
[62] https://www.gov.uk/transition
[63] https://www.betterinternetforkids.eu/
[64] https://www.saferinternet.org.uk/

- How is the website visually designed? What are the most salient aspects and why are they salient (i.e. what that stands out or grabs attention)?
- What interactive elements are available? How do these help?

The rationale for this second task was to enrich the findings from the first task with observations about specific content and design elements that supported use of each website.

Findings

We observed several general trends for all the websites we investigated. In the first task, where we simulated a real user's behaviour:

- most of the websites contained enough information needed for our simulated users to complete their goals.
- we found the information we were looking for quite quickly (usually in less than five minutes of searching).
- most websites contained actionable advice and comprehensive information, but the quality of these aspects varied significantly across sites.

In the second task, where we exampled specific elements of the website design, we found that:

- the sites generally linked to a diverse set of materials (e.g. case studies, videos, news sections, and external resources).
- ease-of-use varied across the sites, with the content of some websites being quite difficult to parse and navigate.
- the business-focused sites did not generally contain interactive elements.

More detailed findings and ideas are organised below under three themes:

1. How to facilitate engagement from the home page;
2. How to effectively serve a diverse audience; and
3. How to transform information into action.

The subsections summarise our experiences and highlight aspects of the websites that could inform the design of the One-Stop Shop.

How to facilitate engagement from the home page

The homepage of a website is critical to capture attention and engage users with the topic. Homepages which did not immediately speak to the user's needs or overwhelmed the user led to information overload and disengagement. We found that the visual design and features which 'take the user by the hand' were crucial to avoid these pitfalls.

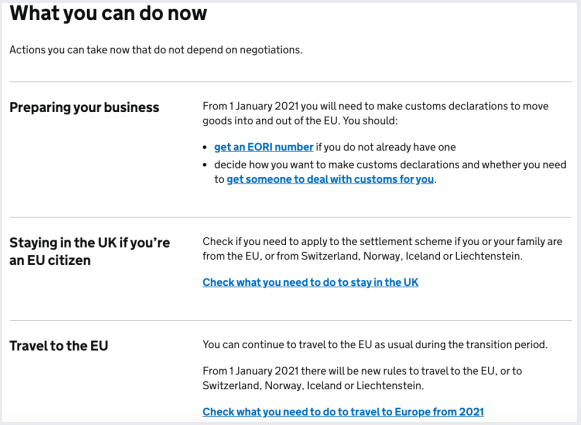
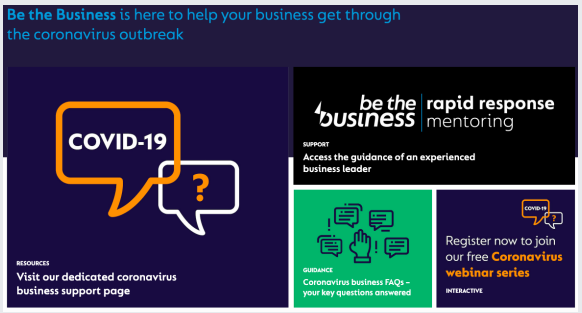
In terms of visual design, we found that simple designs that use colour sparingly and choose just a small number of features to highlight on the homepage can be highly effective. It is helpful for the most useful elements to stand out by using distinct "cards", big fonts and colour, but users quickly found that too much information upfront can be overwhelming. We found that saferinternet.org.uk presented a range of useful resources, with cards dedicated

to different topics and a range of signposting to partner organisations, but it felt daunting. We found that we first had to make sense of the layout, then which parts were relevant to us.

There is a balance to be found between showing too much and too little on the homepage. Relevant information should not be hidden behind too many clicks but the homepage should be kept manageable to grasp within a few moments.

New users may benefit from an introductory tour, “wizard” or “walkthrough” of how to use the site effectively. For example, this could take the form of a pop-up intro video, or a call to action on the homepage (e.g. “First time on the site? Take a tour.”) that gives users an overview of the type of tools and resources available and gives cues on how the site visually lays out the information.

Table 3.1. Suggestions for designing the One-Stop Shop on child online safety (1/3)

Recommendation	Example
Pick a maximum of 3-4 core themes as the primary focus of the homepage, based on their importance and/or being a good starting point.	
Keep the design of the homepage simple and limit the use colour, big fonts and salient visuals only to the core themes.	
Ideas that reviewed websites did not use, but that could facilitate engagement ● Consider website tours or walkthroughs for first-time users.	

How to effectively serve a diverse audience

The websites reviewed tended to use navigation bars and search tools to help users find what they were looking for, however these were not always designed effectively. A range of navigation tools would help people with different preferences for navigating and organising content - e.g. via search queries, browsing menus, or being guided on where to start.

Acting as users with a specific information need, we generally found a lack of tailoring of content and/or interactivity. We recommend reducing the associated effort required from the user or, going further, to make proactive efforts to personalise and serve only the most relevant content. Our review of sites offering a broad range of resources found many of them to be quite passive in this respect.

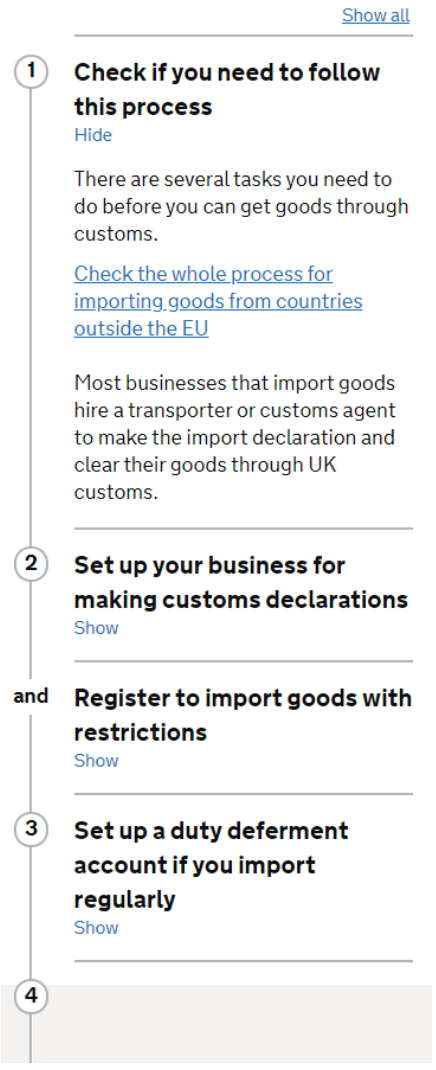
Navigation bars

From our review, the use of navigation bars seems very popular but not always effective in guiding us to the information we were looking for. How navigation bars organise the content featured throughout the website is key to guide users as to where to look and how to use the site.

We recommend using these navigation tools to tailor information to businesses according to different parameters (e.g. depending on business size, requirements etc.). For example, while new pages on the Be the Business website provided information on what coronavirus support measures are relevant for businesses of different types and sizes, there were no tools to help navigate this content based on the parameters noted above.

Taking a slightly different approach, some of the most effective pages on the GOV.UK EU Exit Transition pages used interactive navigation sidebars to organise bigger pieces of guidance, as shown to the right for the pages on customs declarations.[65] This was hugely helpful to:

1. Help users to navigate through a multi-staged journey, and skip to the most relevant parts.
2. Give users an upfront appreciation of all the tasks that are required, which helps to manage expectations and allow people to plan their time.
3. Breaks down a long and complicated process into manageable chunks, hence reducing cognitive overload and requirements on working memory.
4. Continually show users progress, which should be motivating once early stages have been read and acted upon.



As a navigation tool, it and others like it could be improved even further by allowing users to bookmark content for future reference, or even email it to oneself or a colleague for future reference.

Search tools

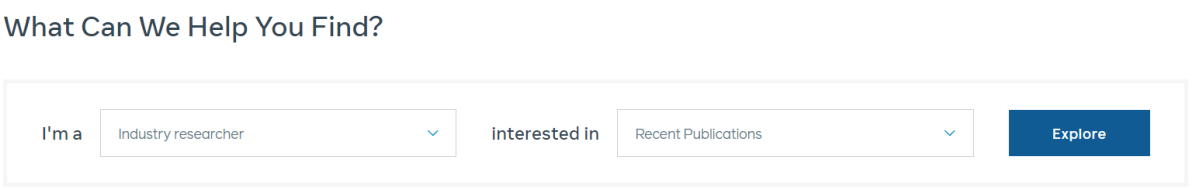
Search tools should be structured so that users can easily pinpoint what they are looking for, particularly

[65] https://www.gov.uk/guidance/customs-declarations-for-goods-brought-into-the-eu

when dealing with dense, complex, multifaceted sources of information.

Some sites, such as the EU's Better Internet for Kids, would have benefited from the option to filter for specific results, e.g. by publication date or content type (text, video, quiz, etc.).

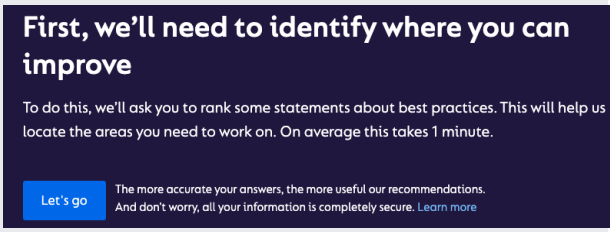
Rather than relying on users to know how to construct complex search terms[66] or know which terms or tags content is labelled with, we recommend search bars be expanded to help the user piece together a search string, for example: "I'm a [sole trader/SME/parent/etc.] looking for [legal/practical/etc.] guidance about [cyberbullying/data protection/etc.]". The Facebook Research website demonstrates this type of targeted search engine.[67]



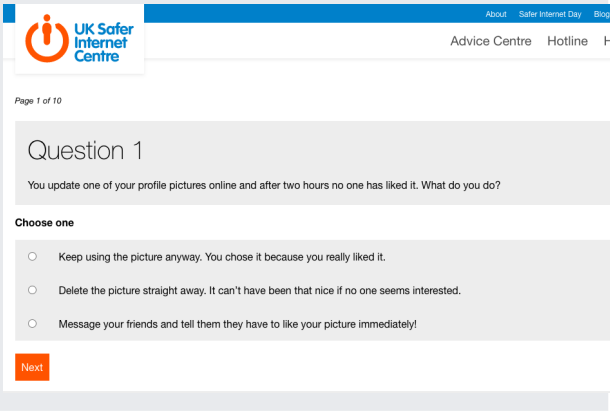
Personalisation and interactivity

Sites were rarely interactive beyond simple navigation menus and search boxes. Various tools could have helped personalise the content on particular pages. For example, simple triaging questions on the homepage - most often along the lines of "what type of user are you?" - could filter out irrelevant resources and prioritise content. Pages could also rearrange their content and/or adjust the complexity of the information provided for different user groups (e.g. parent/teacher/legal professional/etc).

Table 3.2 .Suggestions for designing the One-Stop Shop on child online safety (2/3)

Recommendation	Example
Introduce navigation tools that clearly demarcate and arrange content for different types of user (e.g. business sizes) to reduce the search burden on users	
Include search filters and/or new search tools help users to better pinpoint relevant content	

[66] Refine web searches - Google Search Help
[67] https://research.fb.com/

Build in interactivity and personalisation that helps users find what they need quickly (and strips out everything else) and captures attention by demonstrating that content is relevant	

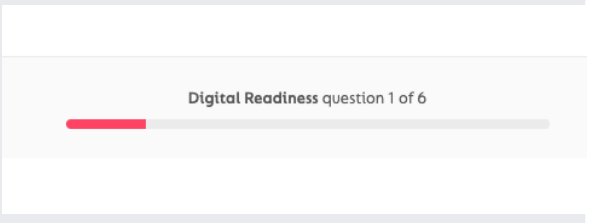
How to transform information into action

The earlier image of the GOV.UK Transition progress bar is particularly effective because the titles of all stages are clear calls to action, i.e. it was unambiguous what would be achieved by completing that step. More generally, we found that the GOV.UK Transition pages were very good at offering specific next steps such as links to the required forms or lists of authorised service providers to contact. These links included signposts to other sections of GOV.UK or external support agencies (e.g. British Chambers of Commerce), which helped to ensure that the user could always follow through to progress or learn more about a particular query. With a little introduction and surrounding text, outbound signposting felt natural and helped cover off topics outside the scope of the current site.

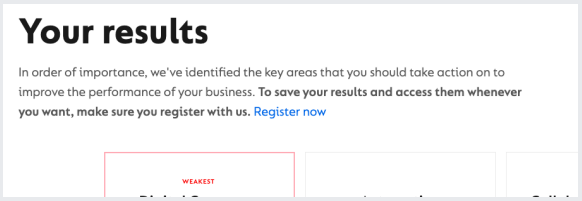
In some instances of our review, however, information on the websites rather stood on its own or the guidance did not offer specific, actionable takeaways for businesses in different circumstances. Ideally, *all* pages, including general advice and case studies, should conclude with takeaways for what readers must or could do in their own business.

We found the interactive user journey on Be the Business to be highly effective at funneling users through a process of identifying and prioritising issues, and orienting toward specific actions via how-to guides and case studies. The process took us through steps to a) diagnose where shortcomings are; b) prioritising where to focus remedial action; c) evaluate options; and d) take actionable steps to begin addressing issues. While mapping an entire "journey" as closely as this runs the risk of being inflexible or intimidating casual browsers of the site, it certainly minimised the risk of leaving users without actionable steps to consider.

Table 3.3. Suggestions for designing the One-Stop Shop on child online safety (3/3)

Recommendation	Example
It may be effective to take users on a journey that lets them explore and action all relevant aspects of Child Online Safety in a pre-set order. If using this approach, make the journey and required actions visible through progress bars and checklists.	

More complex sites housing a range of advice and guidance will benefit from allowing users to bookmark or save the results of their searches for later referencing.



Chapter 4: Online experiment

1. Methodology and experiment set-up

1.1 Methodology of online experiments

Background to Randomised controlled trial

Having developed two prototypes of the One-Stop Shop (see Chapter 3 of the main report for details), we wanted to test how the two designs would perform at helping users find relevant information about child online safety regulations. We therefore set up a randomised controlled trial (RCT) – also known as an 'A/B test' or simply an 'experiment' – to collect a range of quantitative data about users' interaction with the platforms.

In an RCT, participants are randomly assigned to one of multiple trial arms where they experience only one version of a given service (in this case, one version of the website). Due to the fact that the assignment is random, we can say, with a high level of confidence, that any systematic differences between the trial arms are due to differences between the website versions themselves, rather than other differences (such as individual differences between participants). An RCT can thus provide much more conclusive data than, for instance, qualitative observations or interviews.

Why an online lab experiment was chosen

Instead of testing the prototypes in the real world, on an actual GOV.UK website, we opted to run an online lab experiment, for the following reasons:

1) An online experiment gave us the opportunity to measure a range of outcome variables, from testing users' understanding of the provided information to survey measures, including users' subjective opinions about the provided information and the platform itself. We wouldn't be able to easily capture these metrics for an unbiased sample of users on a live website.
2) A lab environment allowed us to track users' activity on the website more closely than would have been possible on a real website.
3) The content of a live One-Stop Shop website will have to be approved by the relevant stakeholders (such as the Information Commissioner's Office) before going live, which could incur delays.
4) Involving GOV.UK developers – who need to comply with technical standards such as the GOV.UK accessibility requirements – could cause further delays.
5) It may not be possible to run an A/B test directly on the GOV.UK website, due to the risks associated with sharing different versions of advice pages with different people.

The downside of running a lab experiment is that there may be various ways in which users' interaction with the websites systematically varies from how they would interact with them in the real world. We tried to minimise this risk with the following design choices:

1) **Closely replicating the look and feel of the GOV.UK design system**, to make participants feel like they are interacting with a real website.
2) **Making the task as similar as possible to a real user need**. In the two tasks (see section 1.2 below), we asked participants to imagine that they work for one of two hypothetical companies that offer online services to children and that they have been asked to find out which regulations are relevant to that particular company. The specific questions participants had to answer were displayed on the side of the screen alongside the One-Stop Shop website and could be answered at any point, without the need for memorisation, mimicking how an employee may take notes on the information they find on the website.
3) **Increasing the stakes by offering incentives**. One of the biggest differences between our experiment and a real-life scenario is that our participants did not actually work for the named companies and did not face any consequences for answering incorrectly. In order to increase the stakes and therefore participants' motivation to do well in the task, we offered additional incentives in the form of Amazon voucher money for every correctly-answered question.

1.2 Experimental design

Implementation

The experiment was fully built and run on Predictiv, BIT's in-house online experimentation platform. Participants are recruited from a large international panel and are paid a fee for completing each experiment.

The experiment ran from 19 to 22 February 2021. We recruited a sample of 1003 adults, representative of the UK population on age, sex, household income, and (high-level) location.

Participant journey

Participants were recruited from the general public via the Predictiv research panel. Upon entering the platform, they went through a series of steps:

1) **Randomisation:** Participants were randomly allocated to see one of the two website versions. They were also randomised separately to determine which task they would do first: either a task on data protection (for a fictional company called "Boy Racer") or a task on age-appropriate content (for a fictional company called "Game Chat"). Each participant did both tasks in succession; only the order was randomised.
2) **Introduction page:** Participants were told what the experiment would entail, how long it would take, and that they would be able to earn up to £2.00 in addition to a fixed base payment if they answered the task-related questions correctly.
3) **Task 1 setting page:** Here, the task-specific scenario was introduced. For instance, in the "Boy Racer" task, participants were told: "Imagine you work for a company

called Boy Racer. Boy Racer is a video game where people race cars. The game is available for download on mobile phones for £0.99. The game is aimed at teenagers and adults. Your task is to find information on data protection that is relevant for Boy Racer."

4) **Main task page (Task 1):** Participants were shown a fully-functional prototype of the One-Stop Shop (Version A or Version B, based on the random assignment) together with the set of 5 questions that they had to answer before leaving the task. They could spend as much time as they wanted viewing the website and interacting with it.
5) **Estimates of performance in Task 1:** After the task, participants were asked to judge how many of the 5 task-related questions they thought they had answered correctly.
6) **Task 2:** Participants were taken through steps 3-5 again, doing the other task (relating to either Game Chat or Boy Racer). This involved answering a different set of 5 questions while interacting with the same website (either Version A or Version B, as determined in Step 1), and again answering an estimation question after finishing the task.
7) **Additional questions about the website and the task:** Participants were then asked some additional questions about how they felt about the website and the task (see the next section for a detailed list of outcome measures).
8) **Demographic questions:** Participants were asked several demographic questions capturing their characteristics, which were then used as covariates in our statistical analysis.
9) **Debrief and closing screen:** Once participants completed the above steps, they were thanked for taking part and the experiment ended. They were provided with links to official websites on age-appropriate design and content published by the Information Commissioner's Office and the UK Council on Child Internet Safety. They were also provided with Amazon voucher codes according to their performance in the understanding tasks.

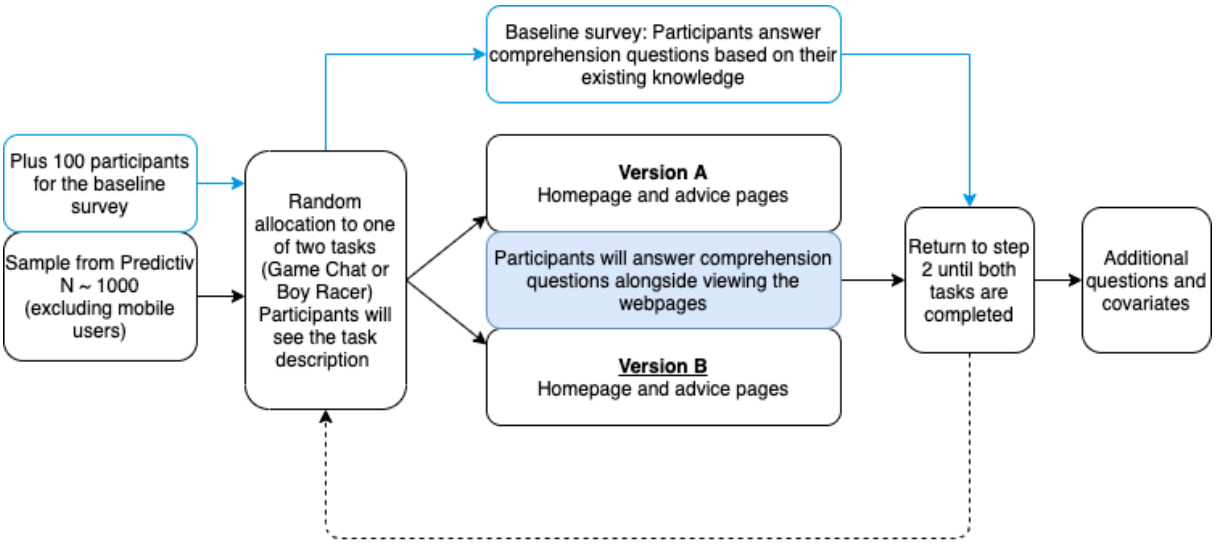


Figure 4.1. Overview of the participant journey

In addition to the trial participants, we recruited a small number of participants to answer a 'baseline survey' (shown by the blue flow at the top of Figure 4.1). These participants were asked the same set of 10 understanding questions as the participants in the main trial but without being shown any version of the website. See Section 1.4 below for further details on the baseline survey.

Outcome measures and covariates

Table 4.1 provides an overview of the outcome variables used in this trial. This reflects our pre-experiment distinction between primary, secondary and exploratory outcome variables.

In our analysis, we apply multiple-comparisons corrections separately on primary and secondary outcome variables. The analysis of the primary outcome variable was corrected for two comparisons (as there were two trial arms plus the baseline survey) using the Benjamini-Hochberg procedure. The analysis of the secondary outcomes were corrected for five comparisons (as there are five variables). Exploratory outcomes are reported uncorrected.

Table 4.1. Summary of outcome variables

PRIMARY	
Measure	**Definition**
Understanding of task-specific questions	Sum of correct answers to the 10 task-specific understanding questions. See subsection "Full breakdown of answers" in Section 2.1 for the full list of questions used to test understanding.
SECONDARY	
Measure	**Definition**
Estimate of task performance	Participant response to the question: *"How many of the 5 questions in this section do you think you got right?"* [Numerical input 0-5]. This question was asked twice, once after each task, and the answers were summed and converted to a percentage (calculated out of 10).
Trust in the information on the website	Participant response to the question: *"Imagine a business is looking for trustworthy information about child online safety. How would you rate the information on the website you have just seen?"* [11-point scale: 0 - Distrust completely, 10 - Trust completely].
Understanding of task-specific questions answerable on the Version B homepage	Sum of correct answers to the 6 questions which could be answered correctly based on information contained on the homepage of Version B.
Understanding of	Sum of correct answers to the 4 questions which could not be correctly

task-specific questions *not* answerable on the Version B homepage	answered using information on the homepage of version B, i.e. those which required clicking through to the relevant advice pages.
Total time spent doing both tasks	Recorded in seconds on the Predictiv platform.
EXPLORATORY	
Measure	**Definition**
Understanding by topic	Sum of correct answers to task-specific understanding questions split into 2 groups: 1. Data protection and age verification 2. How to protect children from seeing harmful content
Time spent on the relevant website pages	Recorded in seconds on the Predictiv platform.
Calibration of understanding	Using the understanding and estimate of task performance measures, calibration is defined as: Calibration = % estimated - % correct answers The score ranges from -1 to 1 where -1 means being completely under-confident 1 means being completely over-confident 0 means being perfectly calibrated
Confidence in the information provided	Participant response to the question: *"Imagine you work in a digital services company. How confident would you be in being able to find information or guidance on child online safety from this webpage?"* [11-point scale: 0 - Not at all confident, 10 - Extremely confident]
Confidence to take action	Participant response to the question: *"Imagine you work in a digital services company. How confident would you feel to take action based on this information?"* [11-point scale: 0 - Not at all confident, 10 - Extremely confident]
Net promoter score	Participant response to the question: *"How likely are you to recommend the site to businesses looking for information on child online safety?"* [11-point scale: 0 - Not at all likely, 10 - Extremely likely]
Number of clicks	Number of clicks on links on the webpages, including links going to the advice pages and back to the homepage.

In addition, we collected the following covariates.

Table 4.2. Overview of covariates

Measure	Question	Values and coding*
Sex	"What is your gender?"	Male → 0 Female → 1

		Other → 2
Age	“What is your age?”	18-24 → 0 25-54 → 1 55+ → 2
Household income	“What is your current annual household income before taxes?”	< £27,999 → 0 >= 28,000 → 1
Location	“In which region do you live?“	London → 0 North East; North West; Yorkshire & Humber → 1 East of England; South East; South West → 2 East Midlands; West Midlands → 3 Wales, Scotland, N. Ireland → 4
Education level	“What is the highest education level that you have achieved?”	No degree → 0 Some degree → 1
Geography	“Which of the following best describes the area you live in?"	Urban → 0 Suburban → 1 Rural → 2
Ethnicity	“Which of the following groups best represents your racial or ethnic background?”	White, British origin; White, Irish origin; Another White background → 0 Indian; Pakistani; Bangladeshi; Another Asian background; Chinese; Black Caribbean; Black African; Another Black background; Arabic or Middle Eastern; White and Black Caribbean; White and Black African; White and Asian; Another mixed ethnic background; Other ethnic background; Prefer not to answer → 1
Employment status	“What is your employment status?”	Employed full-time; Employed part-time; Self-employed full-time; Self-employed part-time; Active military; Currently on furlough → 0 Temporarily unemployed → 1 Inactive military/Veteran; Full-time homemaker; Retired; Student; Disabled; Prefer not to say → 2
SME status	“Approximately how many people are employed at your company?”	None; 1 - 5; 6 - 10 → 0 11 - 20; 21 - 50 → 1 51 - 250 → 2 251 - 500; 501- 1000; More than 1000 → 3
Online Service	“Does your business offer digital services, either online or via an app?”	No → 0 Yes → 1 I don’t know → 2
Child online access	“Does your website allow access to people aged under 18?”	No → 0 Yes → 1 I don’t know → 2
Child online	“Is child online safety a	No → 0

safety	concern for your business?"	Yes → 1 I don't know → 2
Previous knowledge on GDPR/privacy regulation	"How would you rate your existing knowledge of GDPR and/or general regulation around privacy? "	Not at all knowledgeable → 0 Slightly knowledgeable → 1 Moderately knowledgeable → 2 Very knowledgeable → 3 Extremely knowledgeable → 4
Previous knowledge about child online safety	"How would you rate your existing knowledge of existing child online safety regulations? This includes, for example, regulation relating to online abuse and children's privacy."	Not at all knowledgeable → 0 Slightly knowledgeable → 1 Moderately knowledgeable → 2 Very knowledgeable → 3 Extremely knowledgeable → 4
Job role relevant to the tasks	"To which part of the business does your role most closely align?"	Manager, Director, Senior Official; Technical development (e.g. software creation); Creative (e.g design), or product development; IT; Finance; HR; Sales; Customer Service; Other (Please specify) → 0 Administrative / secretarial Technical development (e.g. software creation); Legal / compliance → 1
Business sector	"In what sector does your business operate?"	Categorised into: Producing goods and services → 0 Wholesale and retail → 1 Public service, non-profit and the knowledge economy → 2 Other → 3
* All covariates were coded as categorical variables, being coded as a series of dummy variables for the purposes of analysis.		

1.3 Sample recruitment and demographics

Sample descriptives

We recruited participants from the general UK population, with quotas set up to match the UK population in terms of sex (50% males, 50% females), age group (11% 18-24-year-olds, 51% 25-54-year-olds, 38% over-54-year-olds), household income category (50% below £30,000, 50% above £30,000) and location (23% North of England, 32% South & East or England, 16% the Midlands, 13% London, 16% Scotland, Wales & Northern Ireland). Slight deviations from these quotas in the final sample are due to attrition (i.e. participants dropping out of the experiment).

As shown in Table 4.3, participant characteristics were similarly distributed in the two trial arms and the baseline survey. The small observed imbalances are not a threat to the validity

of our results since all our regression models were fully covariate-adjusted.

Table 4.3. Participant characteristics

	Final sample (%) (n=1003)	Version A (%) (n=482)	Version B (%) (n=521)	Baseline survey (n=127)
Sex				
Male (n=467)	47	45	4	47
Female (n=533)	53	55	52	53
Other (n=3)	<1	1	0	0
Age				
18-24 (n=116)	12	13	10	8
25-54 (n=576)	57	59	56	57
55+ (n=311)	31	28	34	35
Household Income				
Less than £30,000 (n=500)	50	48	52	51
More than £30,000 (n=503)	50	52	48	49
Location				
London (n=129)	13	15	11	11
North (n=235)	23	20	27	24
South & East (n=300)	30	32	38	35
Midlands (n=183)	18	18	18	15
Wales, Scotland & N.Ireland (n=156)	16	14	17	14
Education Level				
No degree (n=730)	73	72	74	59
Degree (n=271)	27	28	26	39
Prefer not to say (n=2)	<1	0	0	2
Geography				
Urban (n=288)	29	29	29	26
Suburban (n=483)	48	49	47	50
Rural (n=232)	23	22	24	24
Ethnicity				

White (n=876)	87	85	89	86
Racial minority (n=127)	13	15	11	14
Employment status				
Employed (including furlough) (n=653)	65	70	61	65
Temporarily unemployed (n=66)	7	5	8	5
Economically inactive/other (n=284)	28	26	31	30
Previous knowledge of GDPR/privacy regulation				
Not at all knowledgeable (n=188)	19	16	21	23
Slightly knowledgeable (n=277)	28	29	26	26
Moderately knowledgeable (n=285)	28	27	30	31
Very knowledgeable (n=161)	16	16	16	13
Extremely knowledgeable (n=92)	9	12	7	8
Previous knowledge about child online safety				
Not at all knowledgeable (n=269)	27	24	30	31
Slightly knowledgeable (n=255)	25	27	24	27
Moderately knowledgeable (n=259)	26	25	26	28
Very knowledgeable (n=126)	13	13	12	9
Extremely knowledgeable (n=94)	9	11	8	5
The following covariates are for participants who are employed only (N=653)				
Not applicable (n=351)	35%	30%	39%	35
SME status				
Small (0 - 50 employees) (n=219)	22	26	18	24
Medium (51 - 250 employees) (n=133)	13	14	12	11
Large (More than 251 employees) (n=300)	30	30	30	30
Business provides an online service				
No (n=305)	30	33	28	32
Yes (n=287)	29	30	27	28

Unsure (n=60)	6	7	5	6
Child Online Safety is a concern (for businesses who provide an online service, n = 287)				
No (n=402)	40	42	38	45
Yes (n=184)	18	20	17	17
I don't know (n=66)	7	8	6	3
Job role relevant to task				
No (n=524)	52	57	48	49
Yes (n=128)	13	13	12	17
Business sector				
Producing goods and services (n=224)	22	24	21	24
Wholesale and retail (n=103)	10	10	10	9
Public service, non-profit and the knowledge economy (n=210)	21	22	20	23
Other (n=114)	11	13	10	9
Have a website that children can access (for businesses who provide an online service, n = 287)				
Not applicable (n=716)	71	70	73	72
No (n=83)	8	9	8	6
Yes (n=167)	17	17	16	17
I don't know (n=37)	4	4	3	4

Attrition (participants dropping out)

In total, 1,746 participants entered the experiment. 55 of these did not make it past our pre-task covariate questions, and 309 failed our attention check and were therefore screened out. After seeing the website 18 per cent (225/1228) of the registered sample dropped out. This drop-out rate was not unexpected considering the task required a high level of attention and the experiment took, on average 13 minutes to complete. There were 1,003 participants who answered all the questions and finished the experiment. Our analysis is based on this sample of 1,003 'completes'.

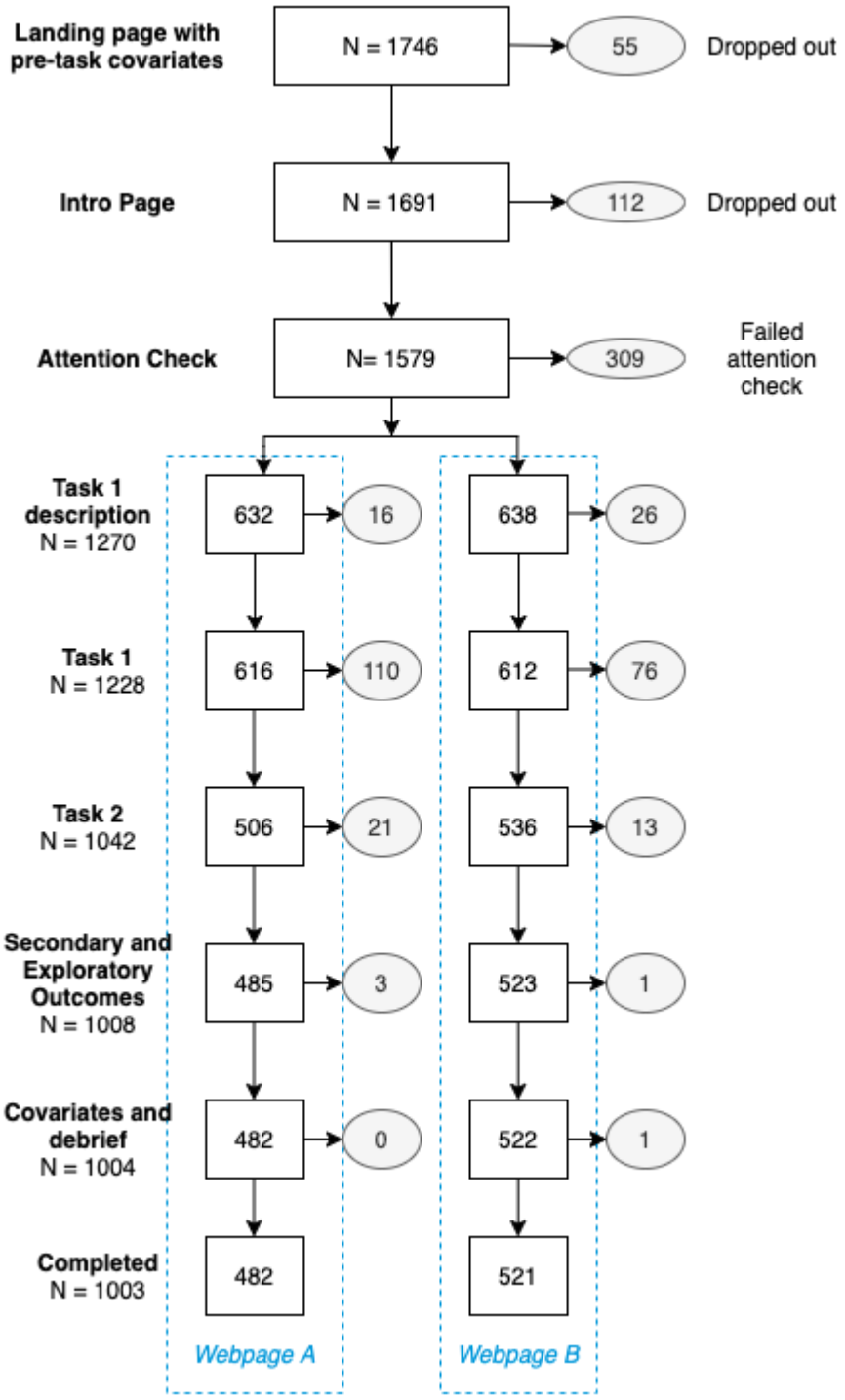


Figure 4.2. A consort flow diagram to show how participants dropped out of the trial at each stage.

We next tested whether the rate of attrition was different across the two trial arms. To do this, we ran a linear probability model of the form:

$$P(completed \mid seen\ webpage)_i = \alpha + \beta_1 WebsiteB_i + \varepsilon_i.$$

This variable counts ‘completes’ as those who reached the last page, but restricts the sample to those who were exposed to the first webpage. Dropouts prior to seeing one of the webpages could not have been caused by them.

Table 4.4. Check of differential attrition

	Coefficient	Std.error	p-value
Intercept	0.782	0.016	
Website Version B	0.069	0.022	0.002**

Overall, more participants completed the trial using website Version B ($p < 0.01$). Due to this differential attrition, there is a risk that our results are (partially) driven by low-performing participants selectively dropping out. In Section 2.5, we report the results of sensitivity analyses that we performed to test how different the drop-outs would have had to be from the completes in order to invalidate our results.

1.4 Baseline survey

After collecting the main trial data, we separately ran a ‘baseline survey’ where we asked 127 new participants the set of 10 understanding questions used in the trial but without showing them either version of the website. This was done to gauge the general difficulty of the questions and to assess how much the trial participants’ understanding improved by interacting with the website when compared to baseline knowledge among the general population.

The set of questions in the baseline survey was introduced with the following instructions: “Based on your best guess or existing knowledge, please answer the following questions on [data protection and age verification / how to protect children from seeing harmful content] that is relevant for [Boy Racer / Game Chat].” The questions themselves were also altered slightly, starting with “Based on current government guidance [...]” instead of “Based on the guidance on the website [...]”. Finally, due to the lower effort and time requirements associated with completing the baseline survey, participants were offered lower incentives: £0.10 per correct answer instead of £0.20.

2. Results

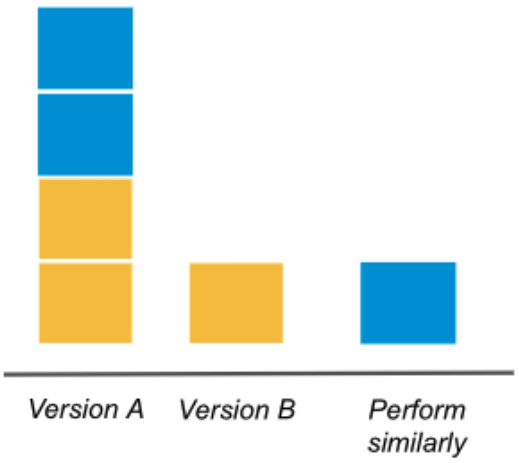
In this section, we sequentially document the results of the experiment described above. We first discuss understanding of material, including overall understanding across both tasks, understanding split by questions which were answerable on the homepage of B and understanding by topic. We then provide the full breakdown of answers to the 10 understanding questions, followed by sections on participants' beliefs about their task performance (Section 2.2), their engagement with the two versions of the website (Section 2.3), and their opinions of the website they saw (Section 2.4). Finally, we present findings from our sensitivity analysis of the consequences of the differential drop-out rates (Section 2.5).

2.1 Understanding of task-specific questions

First we present descriptive statistics for our primary outcome variable, understanding across both tasks. This is a combined score across both tasks, consisting of 10 questions (5 questions per task). One set of questions tested understanding on data protection (Boy Racer task), the other tested appropriate content (Game Chat task).

Forecasts: Prior to analysing the results, we elicited predictions from project team members in both BIT and DCMS. Overall, two-thirds of people working on this project predicted version A to be the best performer in terms of understanding score across both tasks. DCMS predicted a larger difference between arms than BIT.

Which website (if any) do you think will perform best in terms of total understanding (across both tasks)?



How much higher do you expect understanding scores on this website to be?

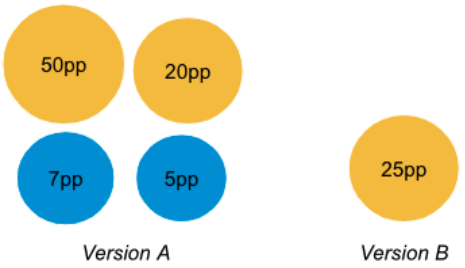


Figure 4.3. Results from the forecasting exercise for the overall understanding outcome. DCMS represented by yellow. BIT represented by blue.

Overall understanding

Mean understanding across both tasks is 67 per cent (sd = 26%). Both homepages significantly improved baseline understanding of these topics, increasing by about 10 percentage points (equivalent to one correct answer). These descriptive statistics are shown in Table 4.5.

Table 4.5. Descriptive Statistics of Primary Variable: Understanding across both tasks

	Mean	SD
Baseline	57%	22%
Version A (topic-based landing page) N=482	68%	27%
Version B (landing page with "must do" information) N=521	66%	25%

Table 4.6 below summarises the results of the linear regression model (equation 1), including the baseline survey and all covariates (Cov).

Equation 1:

$$Understanding_i = \alpha + \beta_1 Website_i + \beta_2 Baseline + \beta_3 TaskOrder_i + \beta_4 Cov + \varepsilon_i$$

The baseline survey consisted of all our understanding questions without providing any information. It was completed by 127 participants, bringing the total number of observations in this regression to 1130. As expected, participants who had seen either version of the website significantly outperformed the participants who did not see any information. Overall, participants who saw Version B had lower understanding scores across all 10 items; this result was significant at the 10% level, and is shown in Figure 4.4. Considering we had one primary outcome variable and three “arms” (including the baseline survey), we corrected for two multiple comparisons.

Table 4.6. Regression table for the primary outcome: understanding across both tasks. Coefficients show change in understanding score; 0.03 means 3 percentage point increase. Corrected for multiple comparisons.

	Constant	Website Version B	Baseline
Coefficient (Robust standard errors)	0.51 (0.05)	-0.03+ (0.016)	-0.13** (0.02)
Covariates	Yes		

Adjusted R^2	0.15
Observations	1130

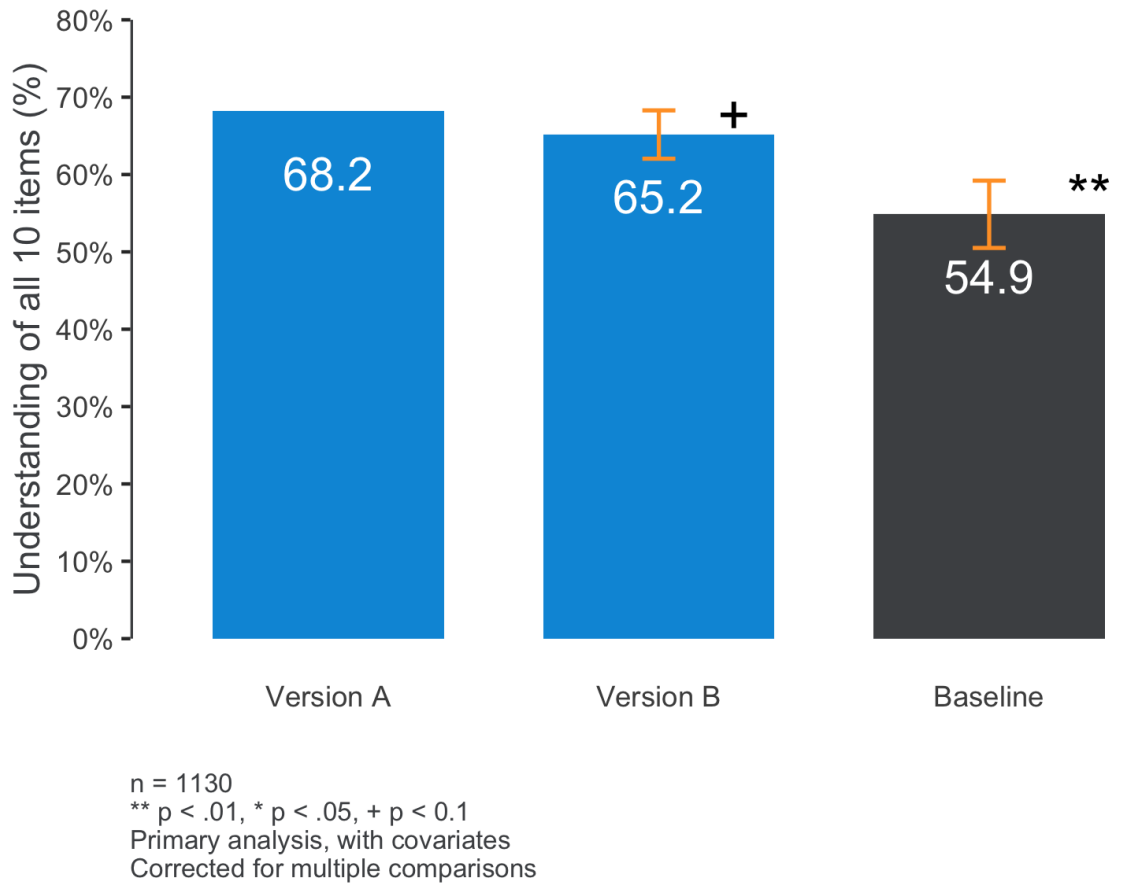


Figure 4.4. Understanding in website Version A compared to Version B and the baseline

In Table 4.7, we present associations between our covariates and the primary outcome. Interestingly, participants who stated that they were extremely knowledgeable about GDPR and privacy regulation answered 56 per cent of questions correctly whereas participants who were less sure about their knowledge, answering that they were slightly or 'not at all' knowledgeable, scored about 10 percentage points higher. Similarly, those who stated that they were extremely knowledgeable about child online safety answered 52 per cent of questions correctly, which is 20 percentage points less than those who said they were 'not at all knowledgeable'. This may be due to participants with prior knowledge being overconfident in their knowledge, answering without consulting the information on the website. This hypothesis is supported by our secondary analysis, discussed in Section 2.2 and 2.3, and is detailed as online experiment finding 4 in the main report.

Looking at other subgroup descriptives, our results suggest that participants who were female ($p < 0.01$), had income of more than £30,000 ($p < 0.01$), or had at least a degree level education ($p < 0.05$) tended to perform better across the two tasks.

Table 4.7. Associations between total understanding (%) and the covariates. p-values are the results of univariate linear regressions with Huber White standard errors.

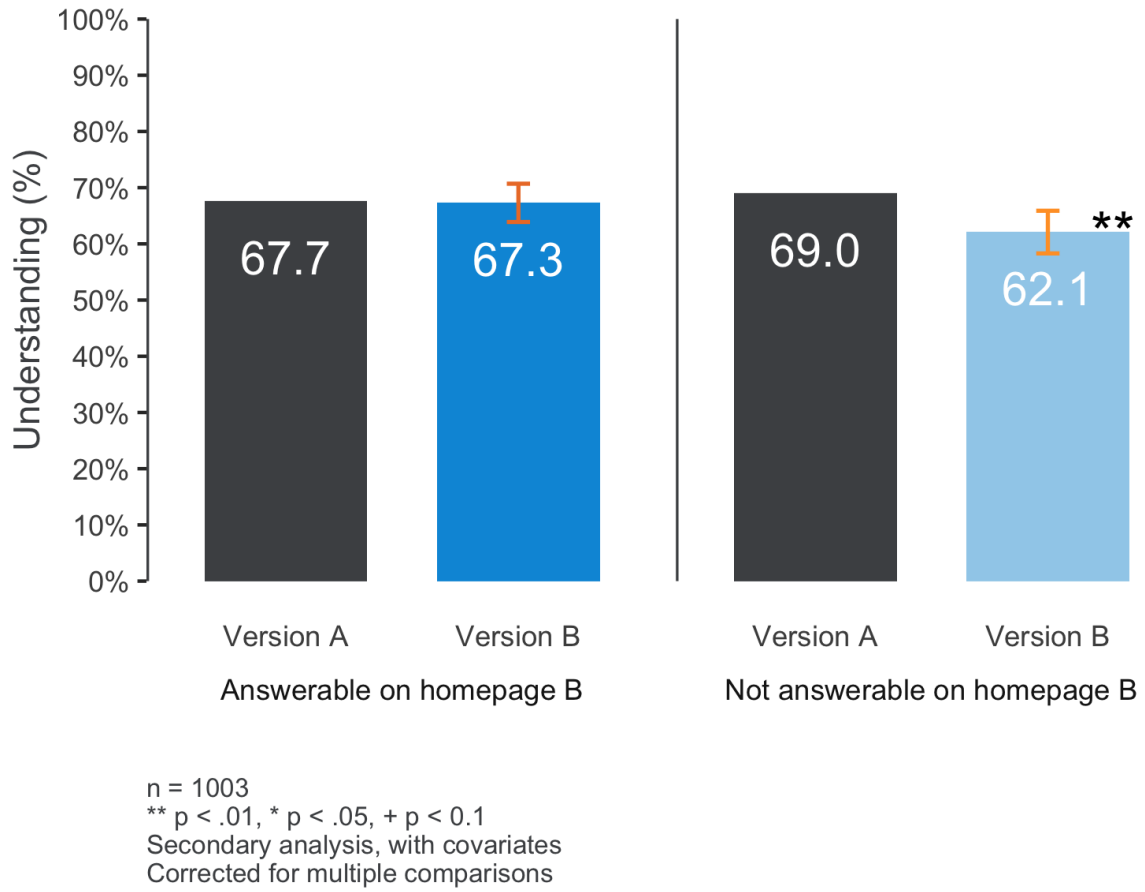
	Understanding across both tasks (%)	p-value	Significantly different from the top category within the group?
Total sample	**67%**		
Arm			
Homepage A (n=482)	68%		
Homepage B (n=521)	66%		
Sex			
Male (n=467)	63%		
Female (n=533)	70%	p < 0.01**	Yes
Other (n=3)	90%	p < 0.01**	Yes
Age			
18-24 (n=116)	61%		No
25-54 (n=576)	66%	p < 0.1+	Yes
55+ (n=311)	71%	p < 0.01**	Yes
Household Income			
Less than £30,000 (n=500)	65%		
More than £30,000 (n=503)	69%	p < 0.05*	Yes
Location			
London (n=129)	57%		
North (n=235)	69%	p < 0.01**	Yes
South & East (n=300)	70%	p < 0.01**	Yes
Midlands (n=183)	68%	p < 0.01**	Yes
Wales, Scotland & N.Ireland (n=156)	66%	p < 0.01**	Yes
Education Level			
No degree (n=730)	66%		
Degree (n=271)	70%	p < 0.1+	Yes
Prefer not to say (n=2)	75%	p < 0.05*	Yes
Geography			

Urban (n=288)	60%		
Suburban (n=483)	70%	p < 0.01**	Yes
Rural (n=232)	69%	p < 0.01**	Yes
Race			
White (n=876)	69%		
Racial minorities (n=127)	56%	p < 0.01**	Yes
Employment status			
Employed (including furlough) (n=653)	66%		
Temporarily unemployed (n=66)	63%	p > 0.1	No
Economically inactive/other (n=284)	70%	p < 0.01**	Yes
Previous knowledge of GDPR/privacy regulation			
Not at all knowledgeable (n=188)	66%		
Slightly knowledgeable (n=277)	71%	p < 0.05*	Yes
Moderately knowledgeable (n=285)	71%	p < 0.05*	Yes
Very knowledgeable (n=161)	60%	p < 0.05*	Yes
Extremely knowledgeable (n=92)	56%	p < 0.01**	Yes
Previous knowledge about child online safety			
Not at all knowledgeable (n=269)	72%		
Slightly knowledgeable (n=255)	72%	p > 0.1	No
Moderately knowledgeable (n=259)	68%	p > 0.1	No
Very knowledgeable (n=126)	55%	p < 0.01**	Yes
Extremely knowledgeable (n=94)	52%	p < 0.01**	Yes
The following questions we asked only to those who were currently employed or on furlough.			
Not applicable (n=351)	**69%**		
SME status			
Small (0 - 50 employees) (n=219)	64%		
Medium (51 - 250 employees) (n=133)	65%	p > 0.1	No
Large (More than 251 employees) (n=300)	68%	p > 0.1	No
Business provides an online Service			
No (n=305)	68%		

Yes (n=287)	65%	p > 0.1	No
Unsure (n=60)	64%	p > 0.1	No
Child Online Safety is a concern			
No (n=402)	67%		
Yes (n=184)	63%	p < 0.1+	Yes
I don't know (n=66)	70%	p > 0.1	No
Job role relevant to task			
No (n=538)	65%		
Yes (n=114)	69%	p > 0.1	No
Business sector			
Producing goods and services (n=224)	62%		
Wholesale and retail (n=103)	65%	p > 0.1	No
Public service, non-profit and the knowledge economy (n=210)	70%	p < 0.01**	Yes
Other (n=114)	68%	p < 0.05*	Yes
Have a website that children can access (for businesses who provide an online service, n = 287)			
Not applicable (n=716)	68%		
No (n=83)	56%	p < 0.01**	Yes
Yes (n=167)	67%	p < 0.01**	Yes
I don't know (n=37)	71%	p < 0.01**	Yes

Understanding of questions answerable with information on the Version B homepage

For the following analysis we ran two separate models similar to Equation 1. One for understanding of questions which were answerable with information on the Version B homepage and the other for questions not answerable from the Version B homepage. For questions which were answerable based on information shown on the Version B homepage, there was no difference in understanding between the websites. Participants scored on average 68% when using either website. However, as hypothesised, for information which was not presented on the Version B homepage, participants using Version B of the website answered more questions incorrectly than participants using Version A (62% vs 69%). This is significant at the 1% level, as shown in Figure 4.5 and Table 4.8.



n = 1003
** p < .01, * p < .05, + p < 0.1
Secondary analysis, with covariates
Corrected for multiple comparisons

Figure 4.5. Understanding split by questions answerable on homepage A and homepage B.

Table 4.8. Regression table for secondary outcomes: Understanding of Questions answerable on Version B homepage (with Huber-White Standard errors)

Coefficient (Robust standard errors) (change in understanding score; 0.03 means 3 percentage points)	(1) Answers on Version B homepage (6 questions)	(2) No answers on Version B homepage (4 questions)
Constant	0.490 (0.06)	0.489 (0.06)
Website Version B	-0.004 (0.017)	-0.069** (0.019)
Covariates	Yes	Yes
Adjusted R^2	0.146	0.077
Observations	1003	1003

Understanding by topic

We next look at understanding split by task. The Boy Racer task focused on information about data protection and privacy, and the Game Chat task focused on information about age-appropriate content. Table 4.9 presents the descriptive statistics for this variable. Participants answered 64% of the questions on data protection and privacy correctly, and 70% of the questions on appropriate content correctly. Participants who viewed Version B answered significantly fewer questions on data protection correctly, compared to Version A (62% vs 65%, respectively).

Table 4.9. Descriptive Statistics of Exploratory Variable: Understanding by topic

Topic	Mean	SD
Data protection and privacy (Boy Racer)	64%	29%
Appropriate content (Game Chat)	70%	29%

There was no significant difference between arms for answers about age-appropriate content. Participants answered questions on age-appropriate content more correctly than questions on data protection. This is significant at the 1% level, as shown by Table 4.10 displaying the results of the linear equation model shown in Equation 2. This regression is based on the first task participants answered only, and does not include the baseline survey.

Equation 2:

$$Understanding_i = \alpha + \beta_1 Website_i + \beta_2 Topic_i + \beta_3 Cov + \varepsilon_i$$

Table 4.10. Regression table for the exploratory outcome: understanding by topic. Maximum score = 5.

	Constant	Website Version B	Topic (Appropriate content)
Coefficient (Standard error)	2.03 (0.30)	-0.22* (0.09)	0.24** (0.09)
Covariates	Yes		
Adjusted R^2	0.112		
Observations	1003		

Figure 4.6 presents the results of the regression models for understanding for each task, with the addition of the baseline survey. These models were similar to Equation 1, with the understanding outcome split by task.

These results show that participants tended to score better on appropriate content questions, with a higher baseline knowledge, compared to data protection and privacy. This suggests the questions on appropriate content were easier than data protection, rather than this information being easier to find on the websites. On both tasks, the homepages increased understanding by more than 10 percentage points. Participants scored approximately three percentage points higher using Version A than Version B.

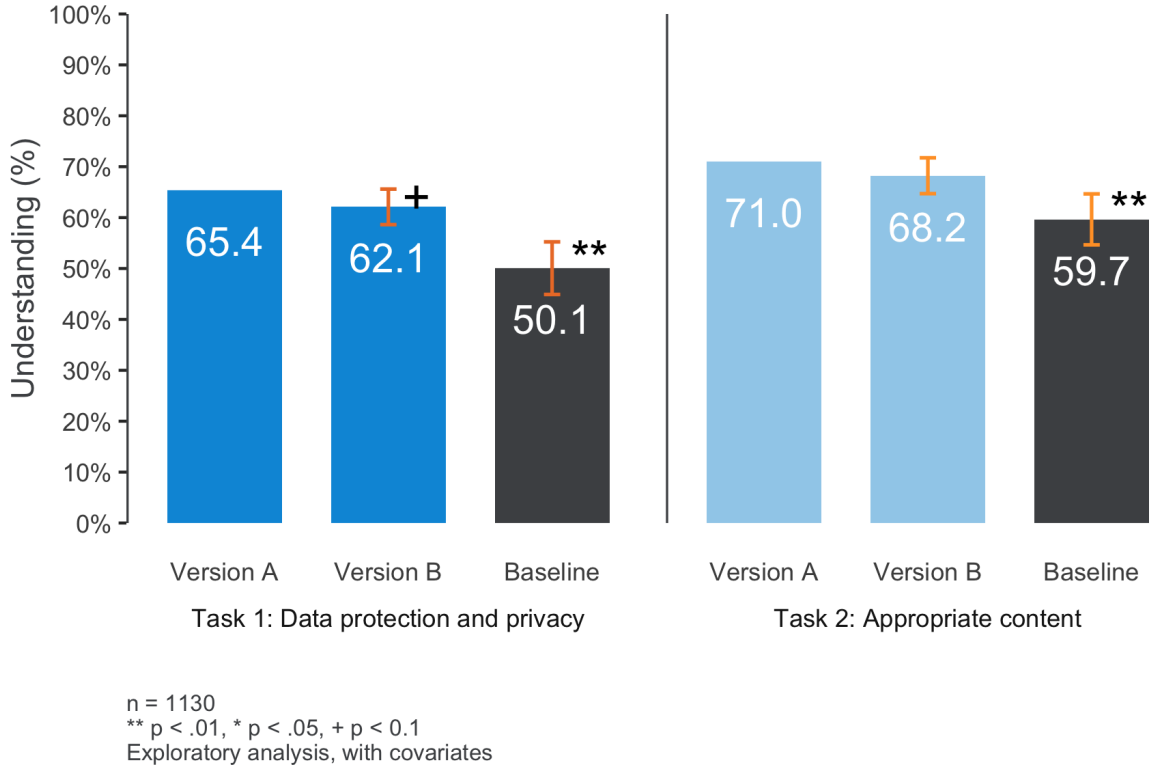


Figure 4.6 Understanding by task. Task 1 = 'Boy Racer', Task 2 = 'Game Chat'

Similarly to the primary analysis, participants who stated they were extremely knowledgeable about GDPR and privacy regulation answered only 55% of questions on this topic correctly, compared with 61% for the participants who said they were not at all knowledgeable. While this is not a statistically significant difference, we would expect these participants to have performed better, considering their stated level of knowledge in this area. Similarly, those who stated they were extremely knowledgeable about child online safety answered only 53% of questions on age-appropriate correctly, which was significantly lower than the 'not at all' knowledgeable group. However, participants who were less sure about their knowledge, answering that they were slightly or 'not at all' knowledgeable on these topics scored about 10-20 percentage points higher across both tasks. These results are summarised in Table 4.11.

Table 4.11. Associations between understanding by topic and selected covariates. p-values are the results of univariate linear regressions with Huber White standard errors.

	Data	p-value	Significant	Appropriate	p-value	Significant

	protection and privacy		?	content		?
Total sample	64%			70%		
Arm						
Website A (n=482)	65%			71%		
Website B (n=521)	62%			69%		
Previous knowledge of GDPR/privacy regulation						
Not at all knowledgeable (n=188)	61%			71%		
Slightly knowledgeable (n=277)	69%	p < 0.01**	Yes	74%	p > 0.1	No
Moderately knowledgeable (n=285)	67%	p < 0.05*	Yes	75%	p > 0.1	No
Very knowledgeable (n=161)	58%	p > 0.1	No	63%	p < 0.01**	Yes
Extremely knowledgeable (n=92)	55%	p > 0.1	No	57%	p < 0.01**	Yes
Previous knowledge about child online safety						
Not at all knowledgeable (n=269)	67%			76%		
Slightly knowledgeable (n=255)	68%	p > 0.1	No	76%	p > 0.1	No
Moderately knowledgeable (n=259)	66%	p > 0.1	No	70%	p < 0.05*	Yes
Very knowledgeable (n=126)	52%	p < 0.01**	Yes	59%	p < 0.01**	Yes
Extremely knowledgeable (n=94)	51%	p < 0.01**	Yes	53%	p < 0.01**	Yes

Full breakdown of answers

Table 4.12 shows the full answer breakdown for the understanding questions. Overall understanding for most questions was very high: on average, 60% or more for all but two questions, including over 70% for six of the questions. However, two questions about data protection were less frequently answered correctly. These were “how should Boy Racer present a privacy notice to users under 18 years old?” and “what approach should Boy Racer take to collecting location data about under-18s?”. The answer options were as follows, with the percentage of people selecting each answer option in brackets:

How should Boy Racer present a privacy notice to users under 18 years old?

- [B1] Tailor the privacy notice to different age groups, for example by using cartoons for younger users. **(51%)**
- [B2] Present the privacy notice clearly and in the same way that it has been designed for adult users. **(19%)**
- [B3] Help younger users to understand by giving them minimal privacy information. **(8%)**
- [B4] Do not present privacy notices to anyone under the age of 18. Ask parents of children aged 17 or under to give their consent instead. **(23%)**

What approach should Boy Racer take to collecting location data about under-18s?

- [B1] Do not collect location data from children by default, unless there is a strong reason to do so. **(43%)**
- [B2] Never collect location data of children. **(42%)**
- [B3] Ask children for permission to collect location data once and then do not mention location settings again. (10%)
- [B4] Collect location data without asking users, so that children can participate in regional racing tournaments. (5%)

Table 4.12. Understanding question scores for each question

	Answer option (**correct answer; frequent wrong answers;** baseline responses in brackets)			
Question	B1/G1	B2/G2	B3/G3	B4/G4
Data protection				
What should the Boy Racer app do when people aged under 18 sign up to the app?	**81%** (76%)	4% (4%)	11% (17%)	4% (4%)
How should Boy Racer present a privacy notice to users under 18 years old?	**51%** (24%)	19% (20%)	8% (8%)	**23%** (47%)
What should Boy Racer do when collecting data from under-18s?	**69%** (68%)	17% (19%)	7% (7%)	6% (6%)
What approach should Boy Racer take to collecting location data about under-18s?	**43%** (30%)	**42%** (57%)	10% (7%)	5% (6%)
What are the potential penalties if Boy Racer does not comply with data protection laws?	**74%** (63%)	11% (18%)	4% (6%)	10% (13%)
Appropriate content				
How should Game Chat determine what content is acceptable on their site?	**60%** (37%)	18% (28%)	7% (6%)	16% (29%)
Which types of content on Game Chat's website must be suitable for children?	6% (7%)	6% (2%)	15% (19%)	**72%** (72%)
What does Game Chat need to provide to users in case they come across inappropriate content?	**73%** (68%)	7% (13%)	6% (3%)	14% (17%)

What could Game Chat do regarding video content that is only suitable for certain age groups?	**74%** (76%)	2% (3%)	8% (8%)	16% (13%)
What are the potential future consequences for Game Chat if it does not remove harmful content from its site?	**72%** (61%)	9% (10%)	4% (5%)	16% (24%)

2.2 Participants' beliefs about their task performance

We were interested to know whether one version of the website led participants to believe that they had found more of the task information than the other version, and whether participants tended to be under- or over-confident in their estimations.

Participants' estimates about their task performance

This outcome measure is calculated by the sum of the predicted number of questions answered correctly after each task, as a percentage of the total number of questions (10). On average, participants who saw Version A thought they had answered 73% of questions correctly, while participants who saw Version B thought that they answered 70% correctly. This difference is not statistically significant.

There was no significant difference between the website versions in terms of participants' estimated number of correct answers. The results from a covariate-adjusted linear model for this outcome are presented as a bar chart in Figure 4.7.

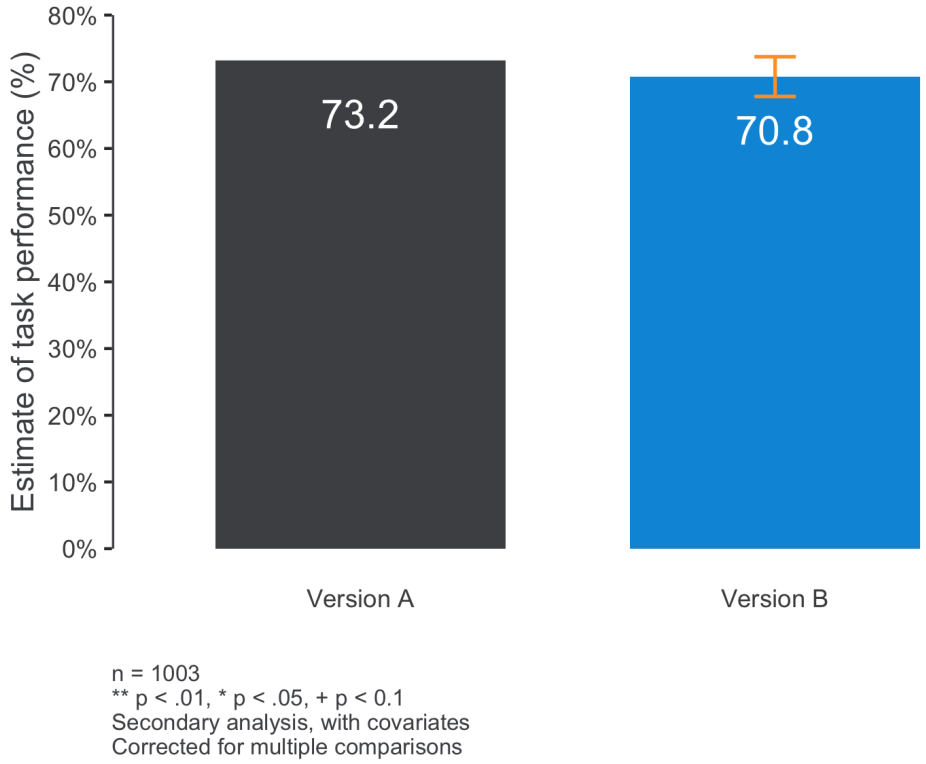


Figure 4.7. Effect of trial arm on the estimated number of correct answers

Table 4.13 provides the full breakdown of the estimates of task performance by our covariates. Despite the fact that participants with higher stated pre-existing knowledge of GDPR and privacy regulation tended to perform relatively poorly in the task (as shown in Table 4.7), they estimated higher levels of understanding than those with low pre-existing knowledge. This overconfidence is further explored in the following subsection.

Table 4.13. Associations between estimated number of correct answers and the covariates. p-values are the results of univariate linear regressions with Huber White standard errors.

	Predicted percentage of correct answers (%)	p-value	Significantly different from the top category within the group?
Total sample	71%		
Sex			
Male (n=467)	72%		
Female (n=533)	71%	p > 0.1	No
Other (n=3)	73%	p > 0.1	No
Age			

18-24 (n=116)	70%		
25-54 (n=576)	72%	p > 0.1	No
55+ (n=311)	70%	p > 0.1	No
Household Income			
Less than £30,000 (n=500)	69%		
More than £30,000 (n=503)	73%	p < 0.05*	Yes
Education Level			
No degree (n=730)	70%		
Degree (n=271)	75%	p < 0.01**	Yes
Prefer not to say (n=2)	50%	p > 0.1	No
Ethnicity			
White (n=876)	71%		
Racial minority (n=127)	73%	p > 0.1	No
Employment status			
Employed (including furlough) (n=653)	73%		
Temporarily unemployed (n=66)	64%	p < 0.01**	Yes
Economically inactive/other (n=284)	69%	p < 0.01**	Yes
Previous knowledge of GDPR/privacy regulation			
Not at all knowledgeable (n=188)	64%		
Slightly knowledgeable (n=277)	72%	p < 0.01**	Yes
Moderately knowledgeable (n=285)	73%	p < 0.01**	Yes
Very knowledgeable (n=161)	73%	p < 0.01**	Yes
Extremely knowledgeable (n=92)	78%	p < 0.01**	Yes
Previous knowledge about child online safety			
Not at all knowledgeable (n=269)	68%		
Slightly knowledgeable (n=255)	73%	p < 0.05*	Yes
Moderately knowledgeable (n=259)	71%	p > 0.1	No
Very knowledgeable (n=126)	73%	p < 0.05*	Yes
Extremely knowledgeable (n=94)	74%	p < 0.05*	Yes

Beliefs versus actual performance

Overall, participants were well calibrated: the average calibration score was +0.04 (on a scale from -1.0 to +1.0), indicating very mild over-confidence, on average. There was no difference between trial arms.

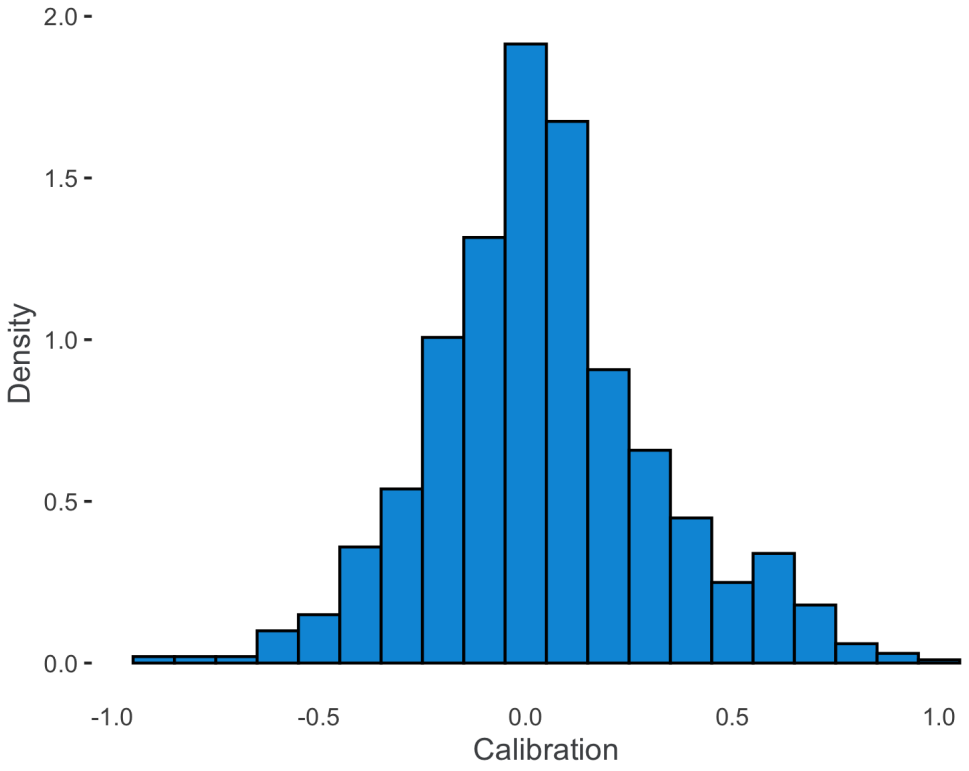


Figure 4.8. Overall distribution of calibration scores

However, this overall symmetry hides an internal heterogeneity. In line with the observation that participants with ‘extremely’ or ‘very’ high reported levels of pre-existing knowledge showed relatively poor performance but gave high estimates of their level of understanding, their calibration score was substantially greater than the scores of less knowledgeable participants. For instance, those in the top two categories of reported knowledge of privacy regulation had an average calibration score of +0.16 whereas those in the bottom three categories had an average score of +0.01 (see Figure 4.9).

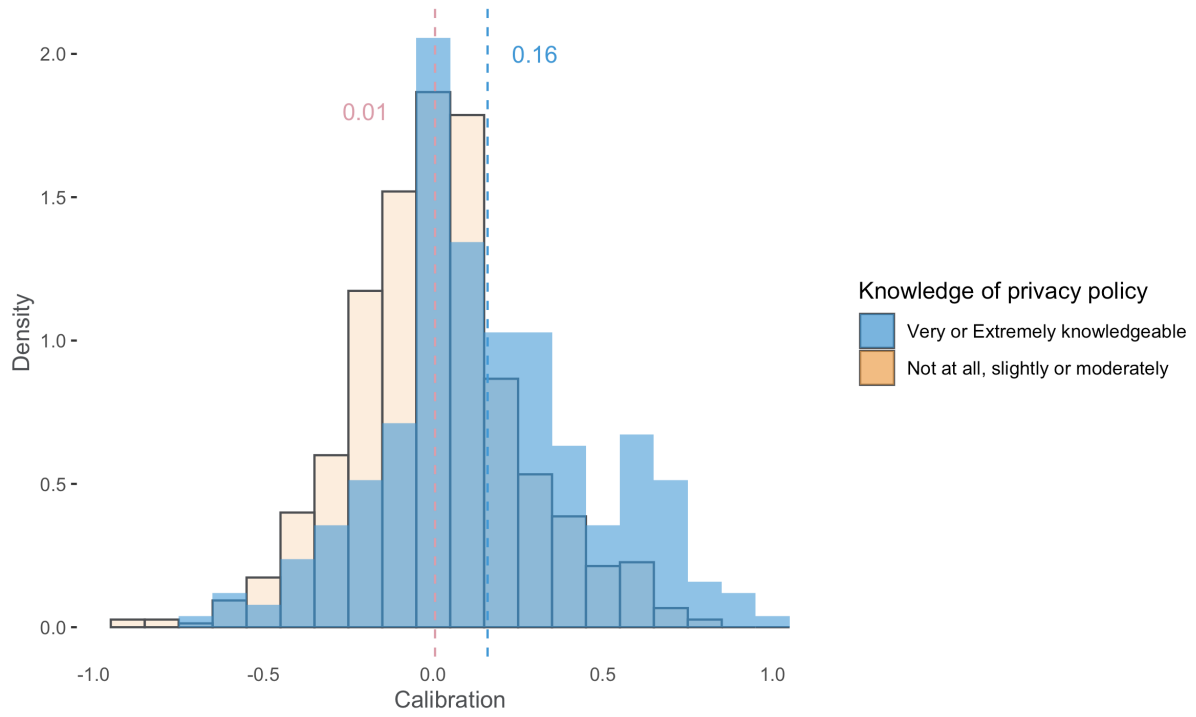


Figure 4.9. Distribution of calibration scores for participants with high vs low reported knowledge of privacy regulation

We also found several associations of overconfidence with participant demographics (see Table 4.14 for details):

- Males tended to be slightly overconfident (+0.09) while females were well calibrated (+0.01);
- Young (18-24) participants were slightly overconfident (+0.09); old people (55+) were well calibrated (-0.01);
- Racial minority participants tended to be overconfident (+0.17) while white participants were relatively well calibrated (+0.03).

Interestingly, we did not find any subgroups that tended to be strongly underconfident. The smallest average calibration score was -0.04 for those who said that they were 'not at all knowledgeable' of child online safety.

Table 4.14. Associations between calibration and selected covariates. p-values are the results of univariate linear regressions with Huber White standard errors

	Calibration	p-value	Significant?
Total sample	0.04		
Arm			
Website A (n=482)	0.05		
Website B (n=521)	0.04		

Sex			
Male (n=467)	0.09		
Female (n=533)	0.01	p < 0.01**	Yes
Other (n=3)	-0.17	p > 0.1	No
Age			
18-24 (n=116)	0.09		
25-54 (n=576)	0.06	p > 0.1	No
55+ (n=311)	-0.01	p < 0.01**	Yes
Ethnicity			
White (n=876)	0.03		
Racial minority (n=127)	0.17	p < 0.01**	Yes
Previous knowledge of GDPR/privacy regulation			
Not at all knowledgeable (n=188)	-0.02		
Slightly knowledgeable (n=277)	0.01	p > 0.1	No
Moderately knowledgeable (n=285)	0.02	p < 0.1+	Yes
Very knowledgeable (n=161)	0.12	p < 0.01**	Yes
Extremely knowledgeable (n=92)	0.22	p < 0.01**	Yes
Previous knowledge about child online safety			
Not at all knowledgeable (n=269)	-0.04		
Slightly knowledgeable (n=255)	0.01	p < 0.05*	Yes
Moderately knowledgeable (n=259)	0.03	p < 0.01**	Yes
Very knowledgeable (n=126)	0.18	p < 0.01**	Yes
Extremely knowledgeable (n=94)	0.22	p < 0.01**	Yes

2.3 Engagement with the two versions of the website

Time spent on task

Forecasts: DCMS were split by the website version on which people would be fastest to find the correct answers. Two-thirds of BIT thought Version A would perform best.

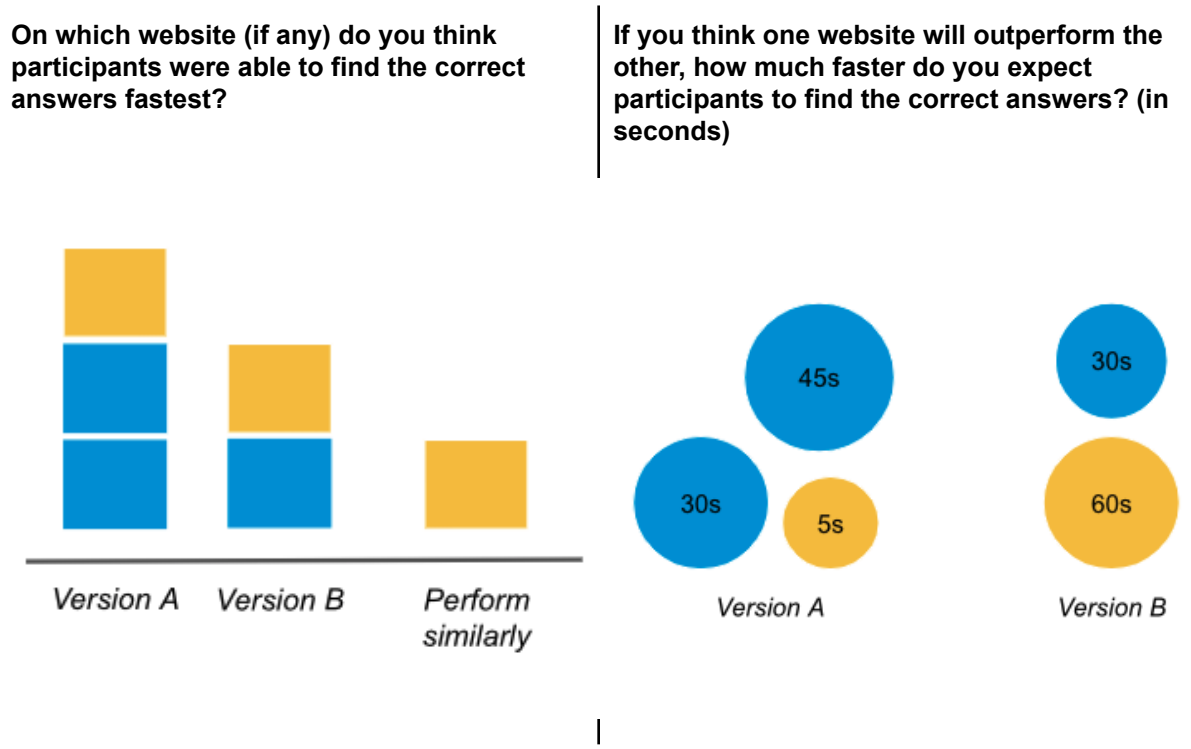


Figure 4.10. Results from the forecasting exercise for the outcome of time spent on tasks. DCMS represented by yellow. BIT represented by blue.

Overall time viewing the two tasks did not differ between the trial arms. On average, participants spent on average (mean) 9 minutes and 36 seconds to complete both tasks. This is a reassuringly high level of engagement, indicating either that participants were sufficiently motivated by the offered performance-linked incentive or that they found the task sufficiently interesting in itself. Additionally, the termination of participants who failed the attention check may have successfully removed from the sample anyone seeking to rush without paying attention.

Several covariates showed significant associations with viewing time. Consistent with past Predictiv trials, younger participants and males tended to spend less time on the task. Participants from small enterprises spent more time on the task.

The strongest associations, though, were with the questions about prior knowledge of privacy and child online safety regulation. Those who reported being ‘extremely knowledgeable’ on these topics spent 8 and 7 minutes completing both tasks, respectively, whereas those who were ‘not at all knowledgeable’ spent around 11 minutes. This supports our prior hypothesis

that these participants may have not fully engaged with the content on the website but instead relied on their existing knowledge.

Interaction with the website

To analyse clicks, we use post-pilot data only (n = 934). We counted clicks on active links used to navigate through the pages and the “back” buttons. These click counts do not include clicks used to answer the multiple-choice questions, or clicking of the red hyperlinks which were inactive (we specified these links were inactive in the task instructions).

The total number of clicks across both tasks was significantly lower on Version B, compared to Version A. Participants clicked on approximately 4 fewer buttons when using Version B. This is shown in Figure 4.11. This might be expected considering Version B displayed a lot of information on the homepage itself (which could be used to answer 6 questions in total) compared to Version A, where participants saw no content on the homepage and had to click to see the advice pages. However this result may also be indicative of participants satisficing with the answers they found on the Version B homepage, not considering any further search beyond the homepages as worth their time/or the financial incentives. In fact, **42% of participants using version B did not click through to any advice page, compared with 15% of participants using version A.**

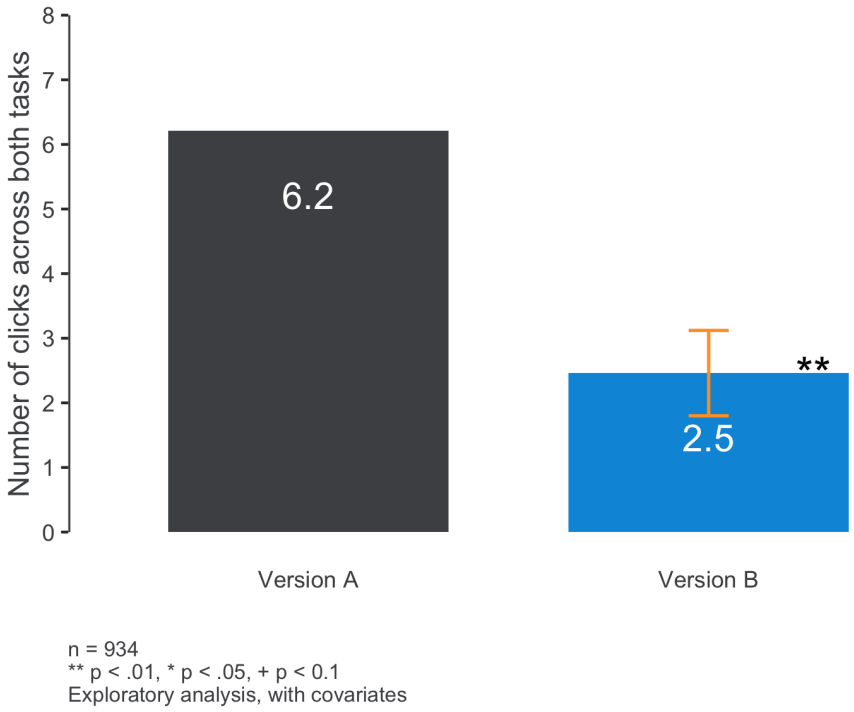


Figure 4.11. Total number of clicks by trial arm

This result is particularly interesting when considering the differential attrition previously discussed. When participants realised that the Version B homepage provided information relevant to answer several of the questions, they may have been more likely to complete the task. However, the cost of search from the homepage of Version A was higher, albeit only by

one click, as it did not provide any answers to questions immediately on the homepage, and this may have caused some participants to drop out.

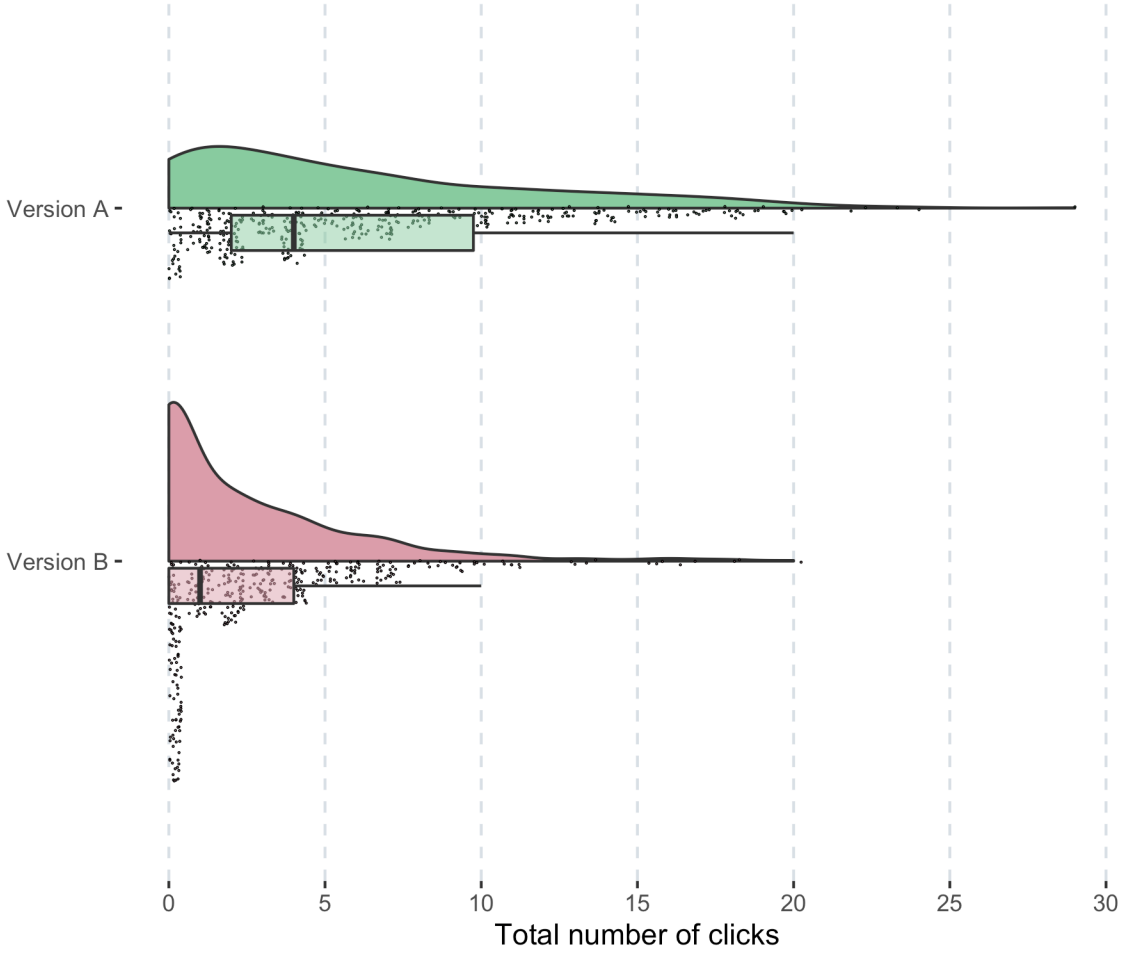


Figure 4.12. Distribution of the total number of clicks by trial arm

2.4 Sentiment measures about the website

Trust ratings

Overall, levels of reported trust were high, with an average score of 7.7 out of 10. We observed no significant differences in trust in the website content between the trial arms. In the free-text responses at the end of the experiment, participants indicated that they had no reason *not* to trust the content, or that they automatically trusted it because it was a GOV.UK website. As such, trust as an outcome may not be very informative for selecting which design of the One-Stop Shop is superior.

Few covariates showed significant associations with reported trust. The notable exception was 'previous knowledge of GDPR/privacy regulation' where higher self-reported previous knowledge correlated with higher levels of trust. This could be due to a number of reasons. For example, people with higher levels of knowledge may have recognised the veracity of the information on the website and therefore trusted it more than those who did not recognise it.

Alternatively, people with prior knowledge of GDPR and privacy regulation may generally have a high level of trust in government websites.

Confidence to find and act on the provided information

We asked participants to rate on a 0-10 scale their confidence to (a) find information and (b) take action based on the information they had seen. Interestingly, participants who saw website Version A were more confident to both find information and take action, by about 0.3 points. This difference was significant at the 5% level.

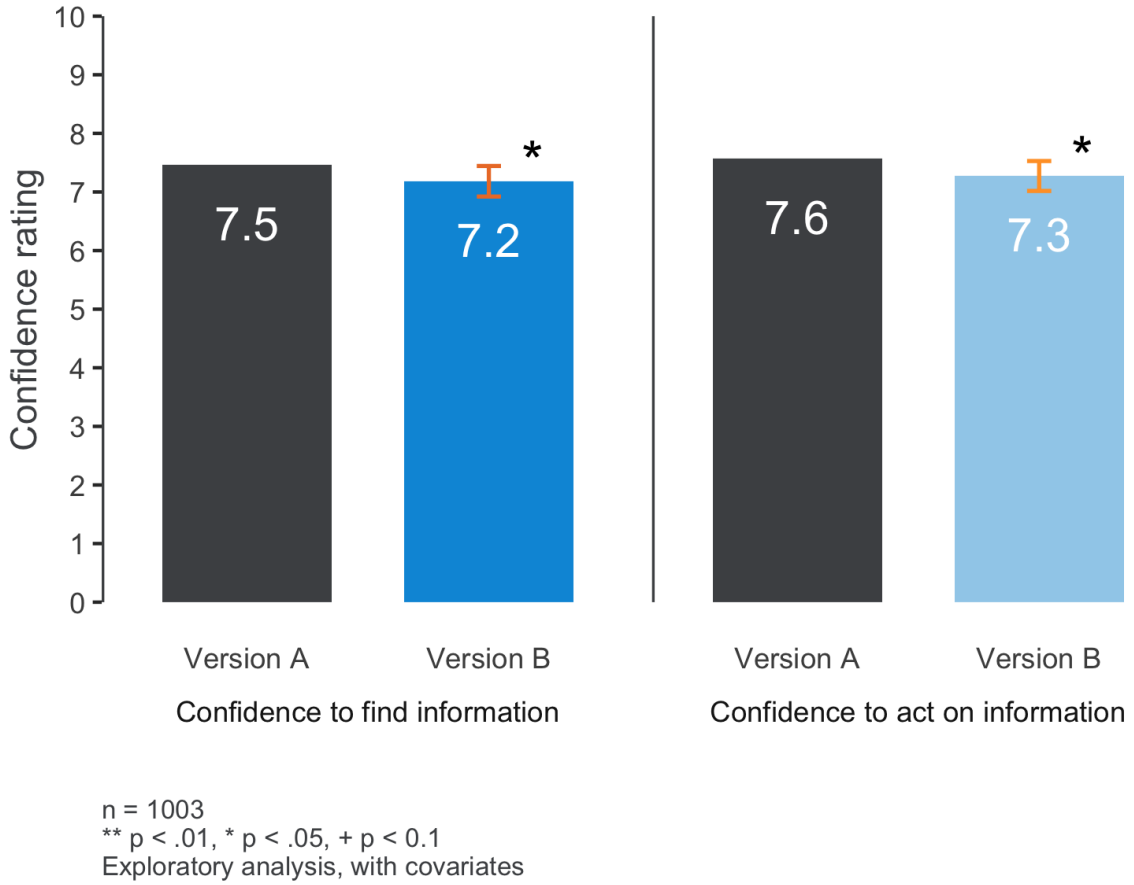


Figure 4.13. Reported confidence in (a) being able to find information or guidance on child online safety from the presented website, (b) taking action based on the presented information.

Net promoter score

We asked participants for their willingness to recommend the website they had seen on a 0-10 scale and used this to calculate the net promoter score (NPS) in the conventional way: classifying scores of 0-6 as 'detractors', 7-8 as 'passives' and 9-10 as 'promoters'. We then calculated the net promoter score as:

Net promoter score = Percentage of promoters - Percentage of detractors

The net promoter score for Version A was +12, compared to +4 for Version B. Using standard interpretations of the NPS, this places both versions into 'good' territory but falls short of a 'great' or 'excellent' rating, which would require a score of +20 or more. Given that this was a prototype government website, however, we consider this to be a satisfactory outcome.

Table 4.15. Breakdown of Net Promoter Score by website version

	Website Version A	Website Version B
Net promoter score	+12	+4
Detractors	27%	32%
Passives	34%	32%
Promoters	39%	36%

The distribution of this variable is presented in Figure 4.14.

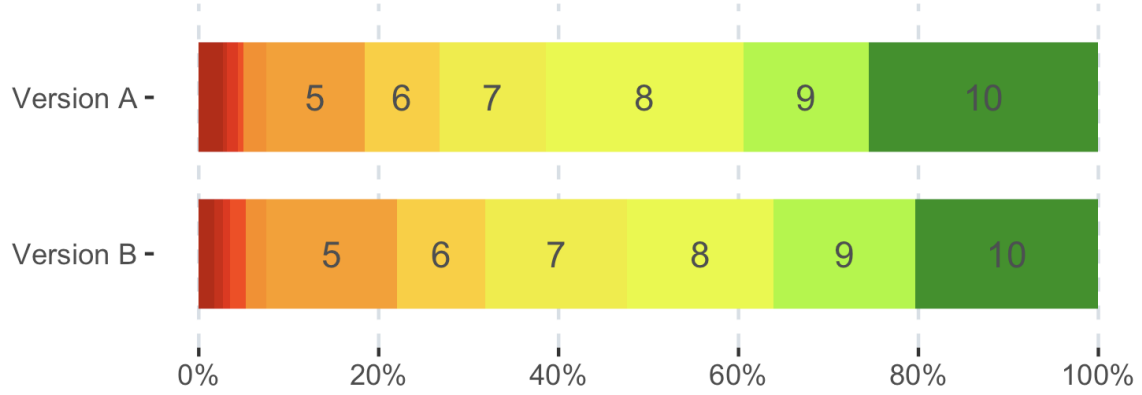


Figure 4.14. Distribution of answers to the Net Promoter Score question

2.5 Differences in task drop-out rates

As reported in Section 1.3, we observed differential attrition across the two trial arms, which could have been a threat to the validity of our results. In this analysis, we look to see how much the results would vary if as many people had dropped out of the experiment when viewing Version B of the website as did when viewing Version A. We look at overall understanding (which previously displayed a difference significant at the 10% level) and at understanding of questions not answerable using the Version B homepage (which previously displayed a difference significant at the 1% level).

Descriptive observations

We first look at the distribution of the understanding outcome (see Figure 4.15). In Version A, there was a higher proportion of people getting 100% of questions correct (78 vs 46 participants), while in Version B, there appears to be more mid-range understanding scores (5-7 out of 10). Version B also has very few 0 scores (1 participant), compared to version A (8 participants).

This is consistent with the design of these versions: participants who failed to navigate away from the Version A homepage could not have extracted any information from the site, but those who did click through to the relevant advice pages had the information to answer all ten questions correctly. Conversely, participants who saw Version B had information to answer six questions without clicking through to an advice page, but if they did not go to the relevant advice pages then they would not have seen the information needed to answer the remaining four questions correctly.

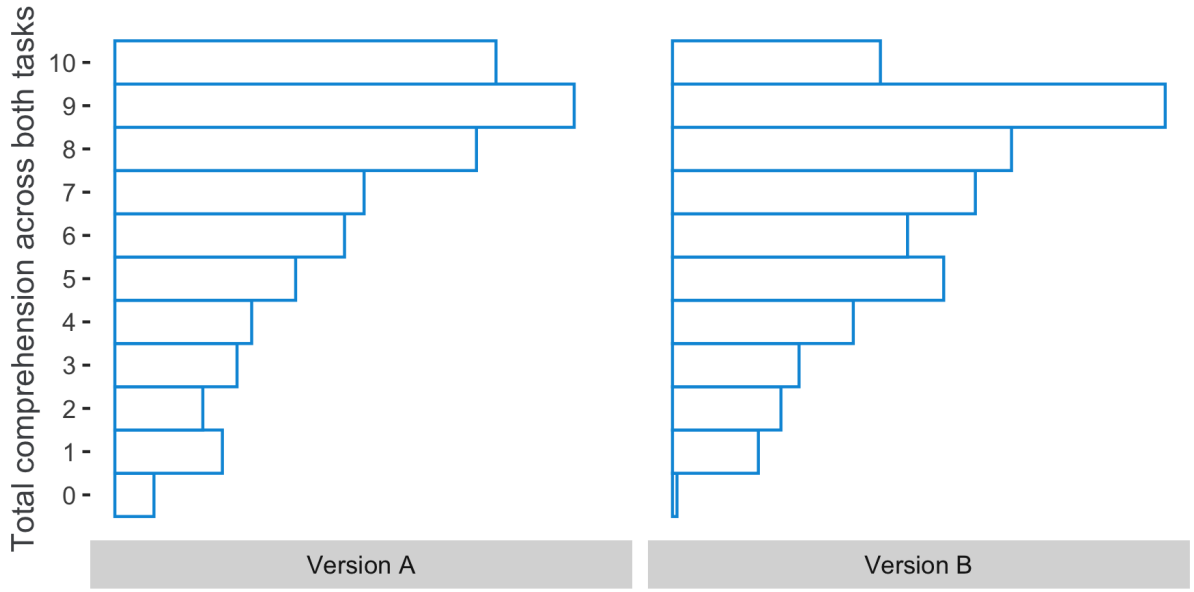


Figure 4.15. Distribution of the overall understanding scores in the two trial arms.

Modelling – overall understanding

We conducted a sensitivity analysis by re-running the main regression while simulating how the results would change if as many people had dropped out in Version B as did in Version A. We modelled these additional drop-outs in two ways:

1. **Strict exclusion criterion**, excluding a subset of participants in Version B who answered fewer than 3 questions correctly (i.e. the very worst-performing participants).
2. **Less strict criterion**, excluding a subset of participants in Version B who answered fewer than 8 questions correctly (i.e. all but the very well-performing participants).

To make the attrition rate in Version B the same as Version A, we removed 150/632 * 638 - 117 = 35 participants. In the models, we randomly selected participants who fit our criteria.

The results of both models are shown in Table 4.16. Following either of the exclusion criteria, there was no significant difference between the two versions of the website on the primary outcome measure. This suggests that the primary result is not very robust, which is not surprising for a finding that is statistically significant at only the 10% level.

Table 4.16. Sensitivity analysis for the primary outcome: understanding across both tasks

Coefficient (Robust standard errors) (change in understanding score; 0.03 means 3 percentage points)	(1) Strict exclusion criterion (total comp < 3)	(2) Less strict exclusion criteria (total comp < 8)
Constant	0.514 (0.05)	0.515 (0.05)
Website Version B	0.006 (0.015)	-0.022 (0.016)
Covariates	Yes	Yes
Observations	1096	1096

Modelling – understanding of questions answerable using Version B homepage

Next we look at the secondary understanding outcome. Participants could score up to 4 points on this outcome. We modelled two different scenarios:

1. **Strict exclusion criterion**, excluding a subset of participants in Version B who answered fewer than 2 questions correctly (i.e. the very worst-performing participants).
2. **Less strict criterion**, excluding a subset of participants in Version B who answered fewer than 3 questions correctly (i.e. all but the very worst-performing participants).

Table 4.17 shows the results of these analyses. After multiple comparison corrections, the model with the strict exclusion criterion displays a null result but the less strict criterion yields a result significant at the 5% level.

Table 4.17. Sensitivity analysis for the secondary outcome: understanding of information not on the homepage of Version B

Coefficient (Robust standard errors) (change in understanding score; 0.03 means 3 percentage points)	(1) Strict exclusion criteria (total comp < 2)	(2) Less strict exclusion criteria (total comp < 3)
Constant	0.497 (0.064)	0.487 (0.063)

Website Version B	-0.04 (0.019)	-0.05* (0.020)
Covariates	Yes	Yes
Observations	969	969

However, we do not consider the strict version to be very realistic. It assumes that all participants who dropped out of Version A would have answered only 0 or 1 question correctly, which is highly unlikely given that 80% of participants who saw Version A scored 2 or more, as shown in Figure 4.16. If we assume the less strict but still rather unlikely scenario that all participants who dropped out in Version A scored 0, 1 or 2, the result is significant at the 5% level. Therefore, this result is robust to all but the most extreme case of selection bias due to differential attrition.

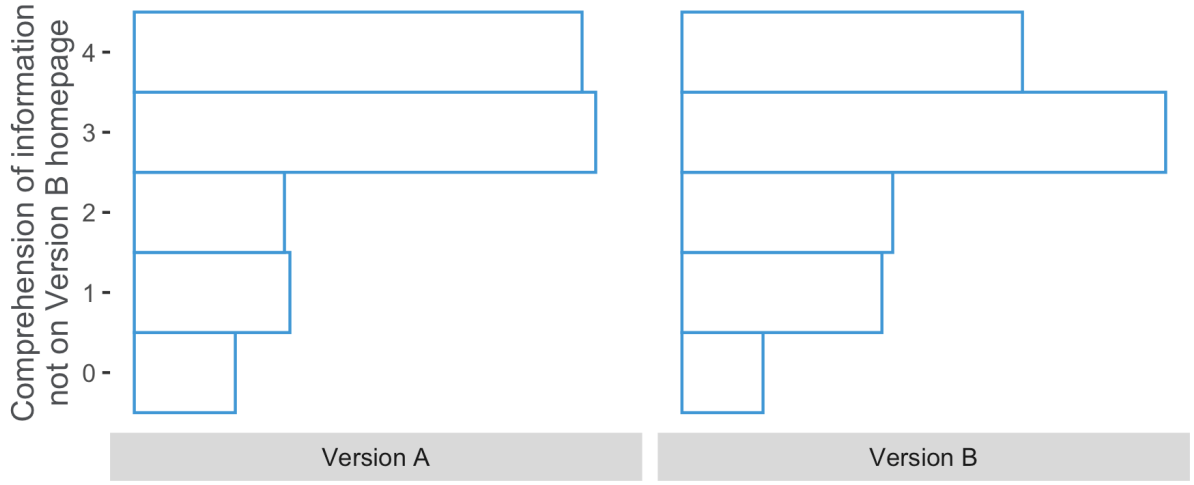


Figure 4.16. Distribution of understanding scores for questions answerable using the Version B homepage

Taking the two sensitivity analyses together, our interpretation is as follows: The result for the subset of questions not answerable on Version B homepage is fairly robust. However, since the primary outcome is made up of this subset of questions as well as the subset that *were* answerable on Version B homepage (which showed no difference between trial arms), the treatment effect for the primary outcome is 'diluted' and falls on the boundary of statistical significance where the assumption of even a weak selection bias makes it non-significant. Since we have a good understanding of what is driving the difference between the trial arms, we do not believe that the observed difference between Versions A and B is a result of the differential attrition rates, and thus conclude that our overall findings are robust.