

## Supplementary material (online appendix)

### Appendix I: Composition of focus groups

Focus Group (F)	Number of participants	Gender		Age
		Girls	Boys	
<b>Wave 1 (Face-to-face)</b>				
F1	5	1	4	12-14
F2	6	4	2	12-13
<b>Wave 2 (Online)</b>				
F3	3	2	1	12-14
F4	2	0	2	12-13
F5	3	2	1	13-14
F6	2	2	0	12
<b>Wave 3 (Online)</b>				
F7	2	0	2	12-13
F8	4	4	0	13
F9	5	2	3	12-13
F10	3	3	0	12-13
<b>Total</b>				
<b>10</b>	<b>35</b>	<b>20</b>	<b>15</b>	

## **Appendix II: Final topic list (wave three)**

During the focus group discussions, we used a slide show with some additional information or examples to discuss. The materials are translated to English (where possible), but were originally presented in Dutch.

### **Part 1: Introduction (5')**

Welcoming and presentation of the researchers

Explanation of the purpose of the study

*During the interview we will talk about what you guys do online and whether you see any advertisements from time to time. We would love to hear your opinions about this.*

Agreements during the conversation

*The conversation will last for about 45 minutes.*

*Let the other finish before you want to say something*

*There is no obligation to participate in the study*

*The conversation will be recorded with both audio and video, but the transcripts will be anonymized and only read by the researchers.*

Informed consent for participating in the study

### **Part 2: Knowledge and folk theories (10')**

Introductory question:

*Do you use a lot of social media?*

*What do you guys do online?*

Introduction of the topic:

*The internet is home to a lot of advertising. Advertising shows up between your stories on Instagram, in your Facebook newsfeed, and while you are watching videos on YouTube.*

*Do you all get to see the same advertisements? Why yes/why not?*

*Online advertising is often personalized. This means that you may get to see an advertisement because it matches your personal interests and information. To do this, advertisers use your personal information. So they know who you are and what you like.*

*Do you understand this?*

*Can you give an example of such personalized advertising?*

*What personal information about you was used for this purpose?*

*In previous focus group discussions, we found that young people's knowledge about personalized advertising is limited. For example, teenagers often did not know which information is being collected about them by companies and how this information is used to personalized advertising.*

*Do you share this?*

*Do you guys know a lot about that?*

*Advertisers can collect your information in several ways. First, Internet users themselves give their information to websites to apps. Second, websites and apps find out your information based on the things you do*


*On this slide (see below) you can see some of the information that websites and apps collect about you.*

## Information that users disclose to websites and apps

Gender	Friend lists
Age	Chat messages
Place of residence	Preferences
Name	Language
Email address	...
Phone number	
Status updates on social media	
Pictures and videos	
Comments	

## Information that apps and website find out by the things you do online

- The videos and pictures that you watch
- The websites you visited
- Your interactions
- Your location
- Your search history
- Your purchases
- The videos and pictures that you like
- Activities you engage in (e.g. challenges)
- The hour and day that you do something
- IP address
- ...



*In previous focus groups, there were teenagers who did not know that this information can be collected about them. Did you know about this?*

*What did you know? What did you not know?*

*Do the apps and websites you use collect all this information as well?*

*Which information do they (not) collect?*

*How does that happen?*

*How do you know that?*

### **Opinions and practices (10')**

*How do you feel about your personal information being used by companies to personalize advertising?*

*Do you think that is right or wrong?*

*Why do you think that is right or wrong?*

*In previous group discussions, some teenagers said that they find the idea that their personal information is being used to target advertising to them is scary or "creepy". Others find this interesting because it allowed them to see relevant advertising.*

*Do you agree with this?*

*(if perceived creepy) So is there anything you do about it?*

*Do you feel that there is too much information being collected about you?*

*Would you like that advertisers collect less information about you?*

*Why yes/why not?*

*What do you think about advertising in general?*

*Do you pay much attention to advertising?*

*Why yes/why not?*

*What do you do when you see an advertisement?*

*Can you give an example?*

*What do you do when you see a personalized advertisement?*

*Can you give an example?*

Statements: the respondents had to raise a sign to indicate whether they agreed with, not agreed with or did not know what to think about the statement. A discussion followed upon each statement.

*Apps and websites have the permission to collect and use my personal information*

*Apps and websites have the right to collect and use my personal information*

*I am responsible for advertisers using my personal information for the implementation of personalized advertising*

*Or who do you perceive responsible?*

*Advertisers may only use the information I disclose myself for personalizing advertising*

*Advertisers may also use information I do not disclose myself to for personalizing advertising.*

### **Part 3: Coping strategies (20')**

*Have you ever suspected that an app or website had your personal information?*

*Why?*

*Did you respond to it? How?*

*How do you feel about companies collecting personal information about you?*

*Do you think it is important to be attentive to that?*

At this point, we gave the participants some time to individually think about the things they do (see slide below).

Do you do anything to keep your information private from advertisers?

Do you do anything to avoid that advertisers target you with personalized advertising?

What could you – or other teenagers – do?

*Do you do anything to keep your information private from advertisers?*

*What?*

*When?*

*Can you give an example?*

*Do you do anything to avoid that advertisers target you with personalized advertising?*

*What?*

*When?*

(If they do not engage in active coping): *What could you – or other teenagers – do?*

Statement: the respondents had to raise a sign to indicate whether they agreed with, not agreed with or did not know what to think about the statement. A discussion followed upon each statement.

*“Companies will collect less personal information if I use less social media”*

*Do you think it is important that you can do something about it?*

*Or do you think it is not a problem?*

*What do you do when you are on a website and asked for your personal information?*

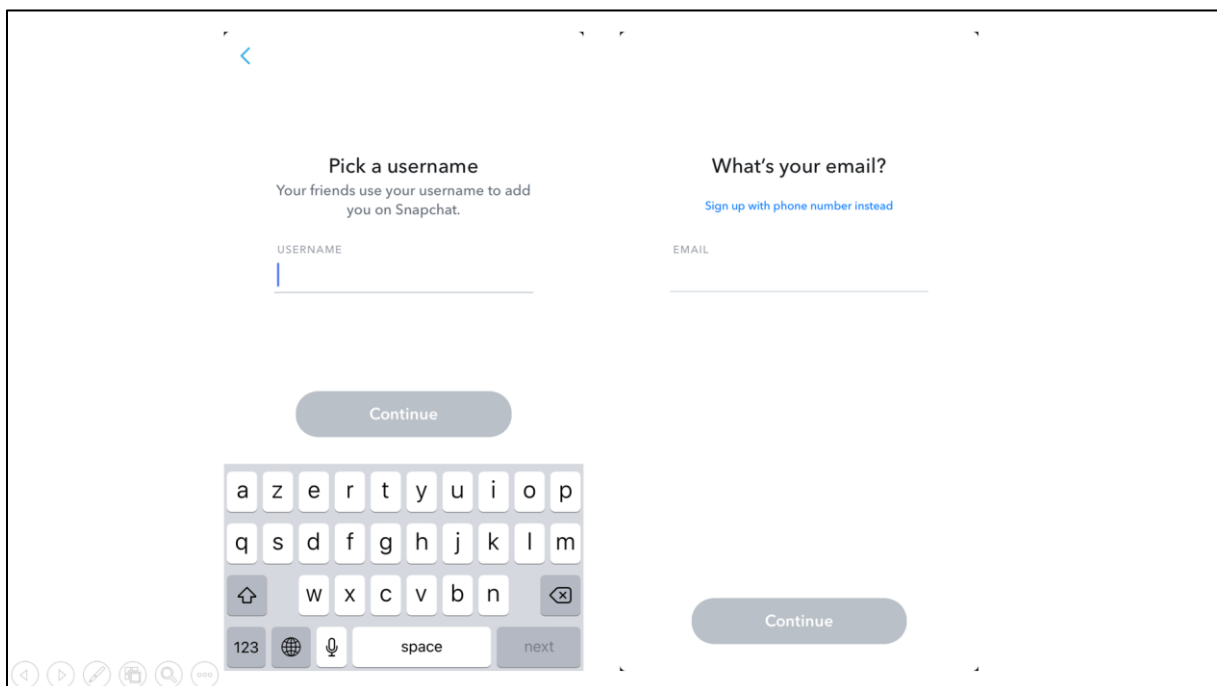
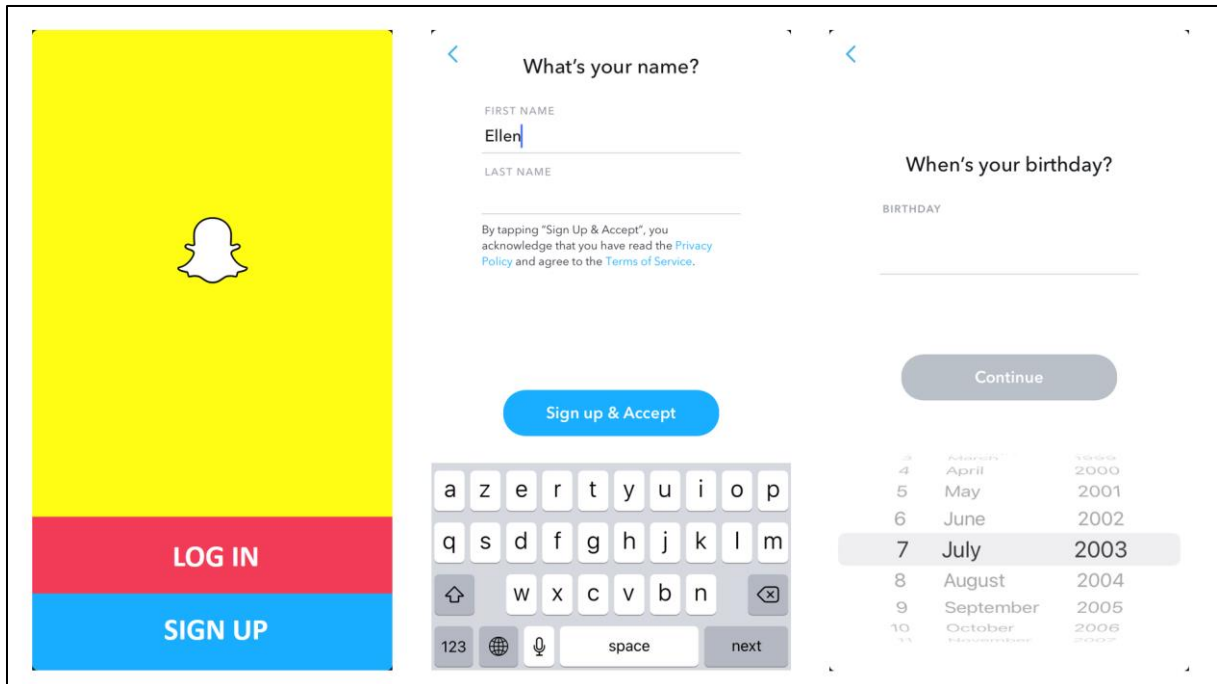
Do you give all the information that is requested?

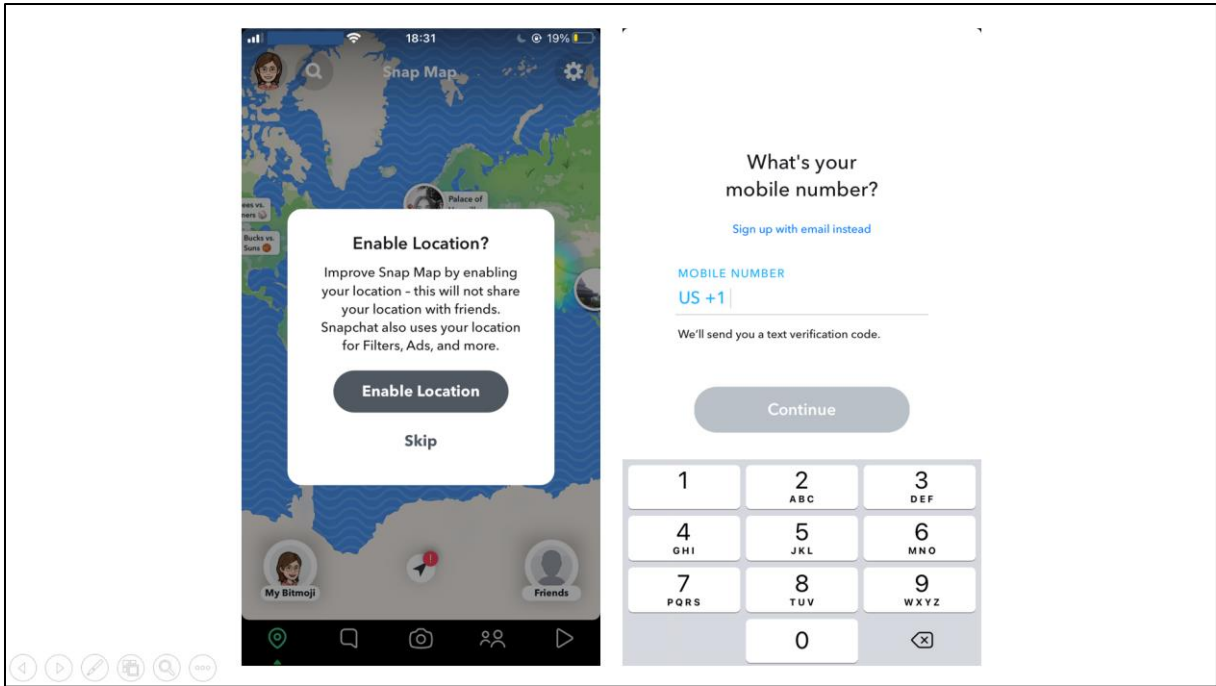
Why (not)? When (not)?

Can you give an example?

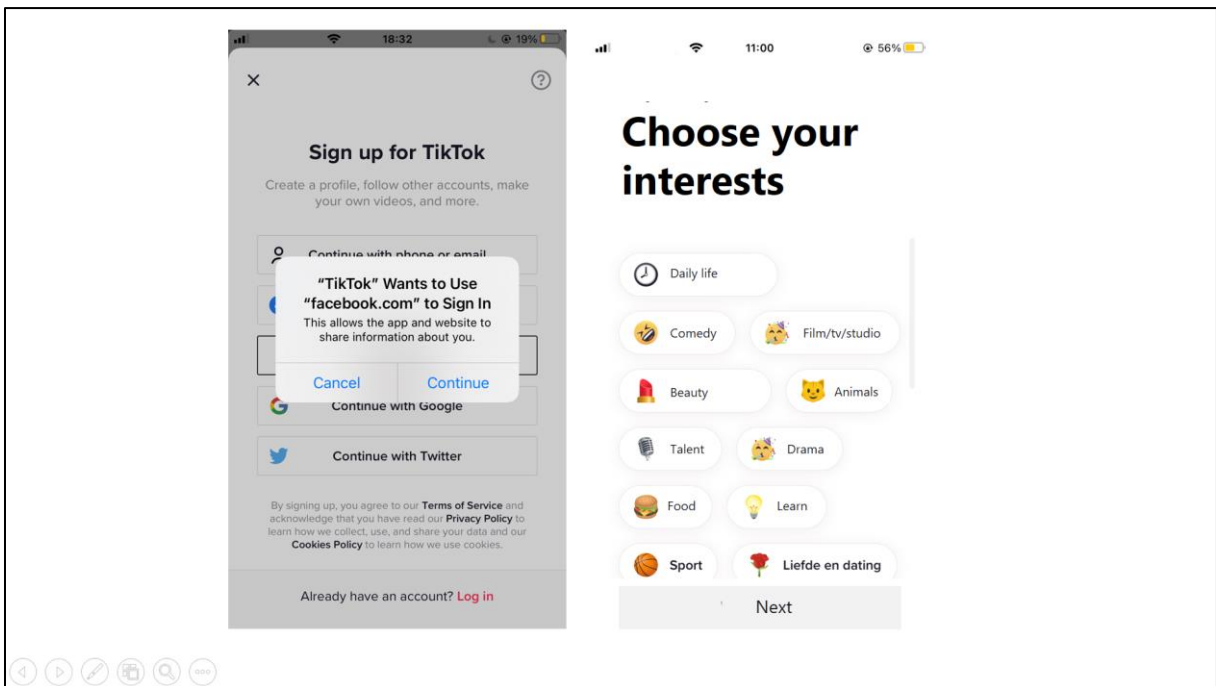
Discussion of some examples of data collection practices (see slides below)

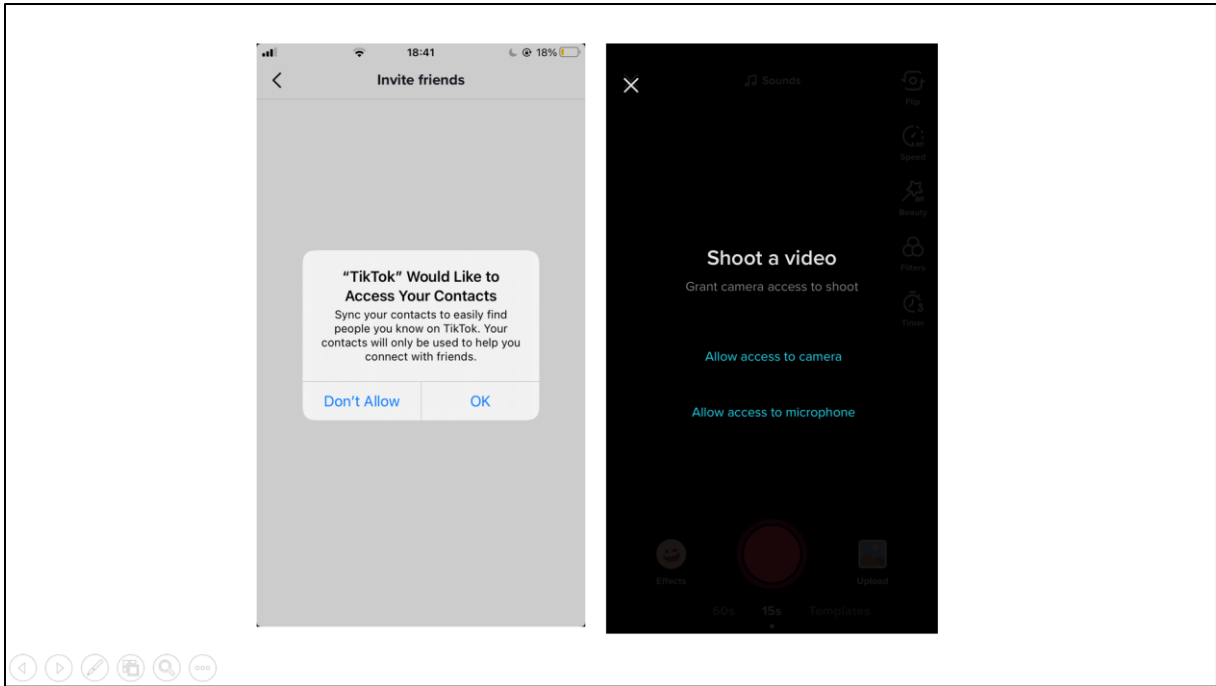
Snapchat's procedure to sign up:





TikTok's procedure to sign up:



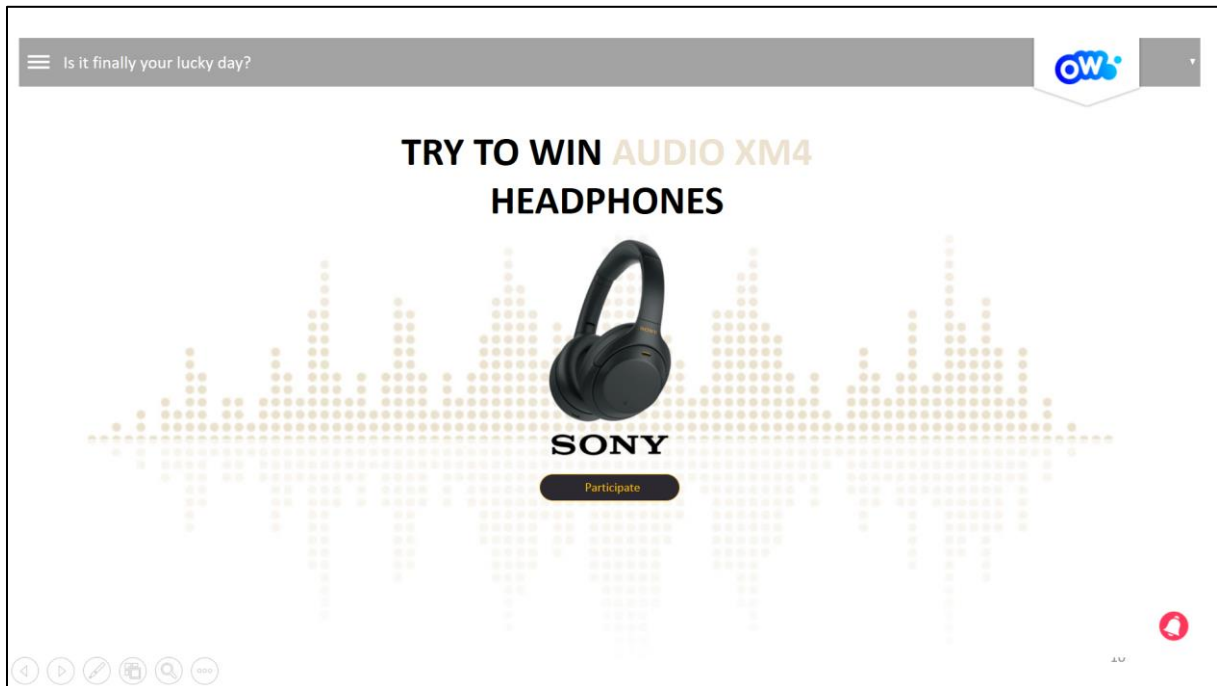


Procedure to sign up for a regional online video-on-demand-service:

The image shows a web browser window displaying the registration page for VTM GO. The browser's address bar shows the URL 'login2.vtm.be/registration?client\_id=vtm-go-web&email=MINRWIK5bHVKRJSOVHIG3VLLN0UJ5ZTHZWA-WWHEWEV5WSYQLH1K2EMHCSTANLUF8PTD...'. The page has a dark background with white text. At the top, the VTM GO logo is visible. The main heading is 'Start hier je kijkplezier'. Below this, there is a paragraph of text: 'Vul hieronder je gegevens aan. Zo krijg je gratis toegang tot alles van VTM GO: sterke lokale programma's en exclusieve internationale series. Go-go-gol'. Another paragraph follows: 'Om een account aan te maken, moet je 13 jaar of ouder zijn. Jonger dan 13? Vraag aan je ouders om een account aan te maken.' Below this is a link: 'Heb je al een account? [Ga naar inloggen](#)'. The form is divided into two sections: 'Login gegevens' and 'Persoonlijke gegevens'. The 'Login gegevens' section has two fields: 'E-mailadres' and 'Wachtwoord (minimaal 6 karakters)'. The 'Persoonlijke gegevens' section has four fields: 'Voornaam', 'Achternaam', 'Land' (with 'België' selected), and 'Postcode'. At the bottom, there is a label 'Adres (niet verplicht)' above a text input field.



Contest to win headphones:



Questions to discuss with the examples above:

*Why do they ask all of this information?*

*Would you disclose this information to advertisers?*

*Why? Why not?*

*The example of Snapchat shows at the bottom: "By tapping Sign Up & Accept, you confirm that you have read the Privacy Policy and accept the Terms of Service."*

*How do you cope with such request?*

*Why?*

*What happens if you accept?*

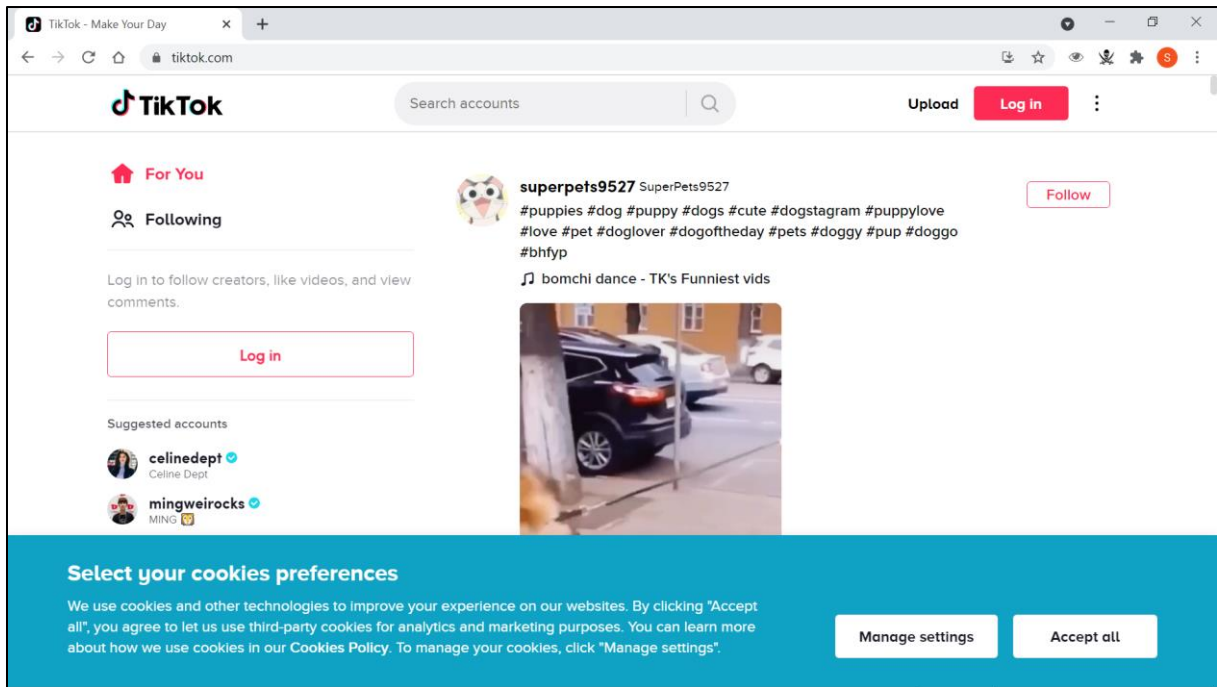
*What are you agreeing to?*

*What do you think about this way of giving consent?*

*Do you think this is right or wrong?*

*Is personal information also collected if you don't create an account? (Question inferred from the previous focus groups)*

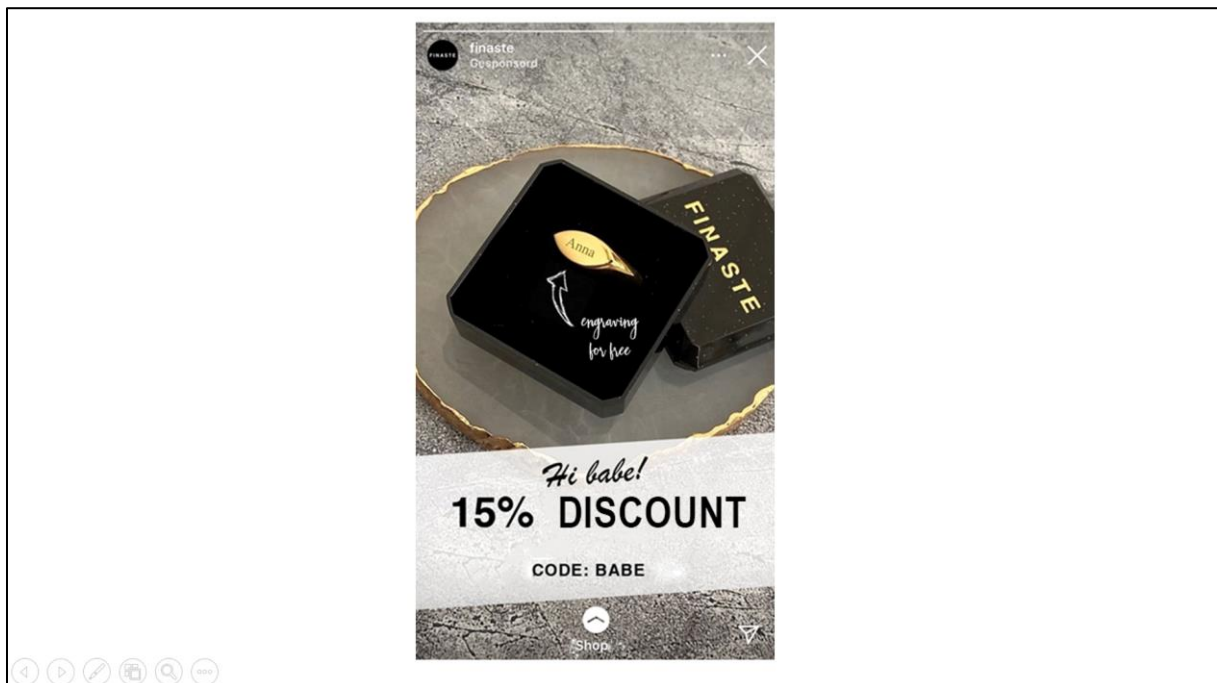
*What do you do when a site asks you to accept cookies? (See slide below)*



Discussion of some examples of personalized advertising

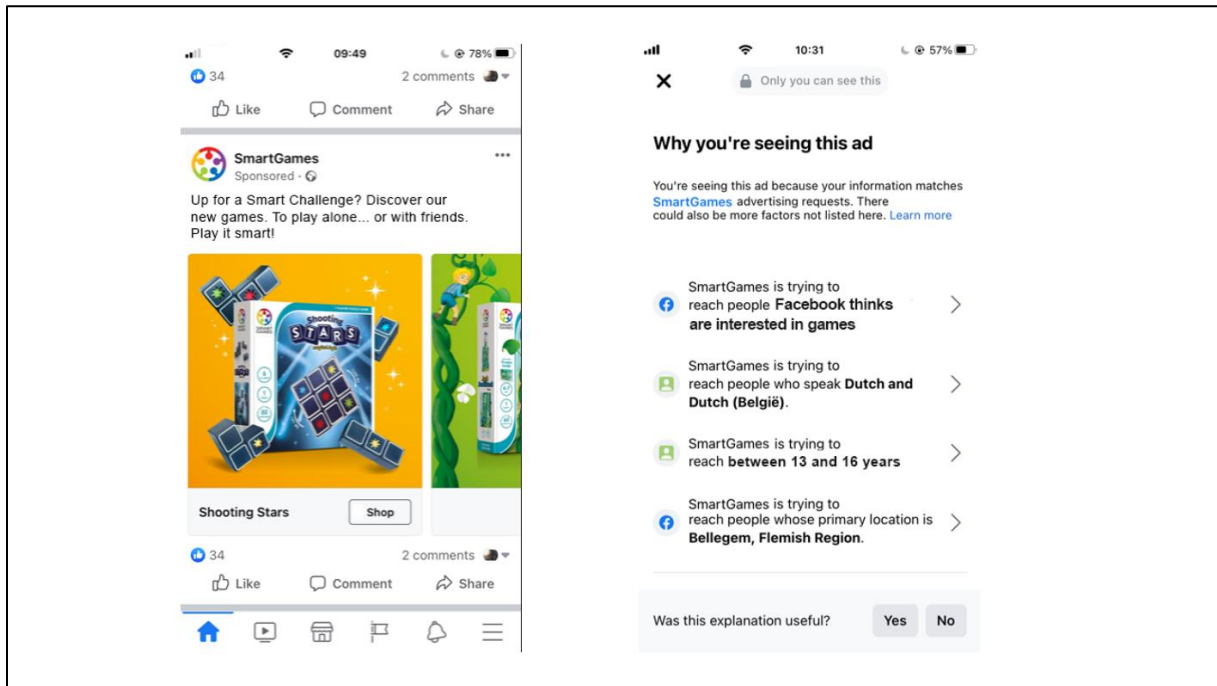
Scenario: *Anna is checking her stories on Instagram. Suddenly she sees an advertisement for rings, which can be engraved for free. On the ring that is shown in the advertisement, she sees her name, Anna.*

*What would you do if you noticed that your profile information is being used to personalize advertisements?*



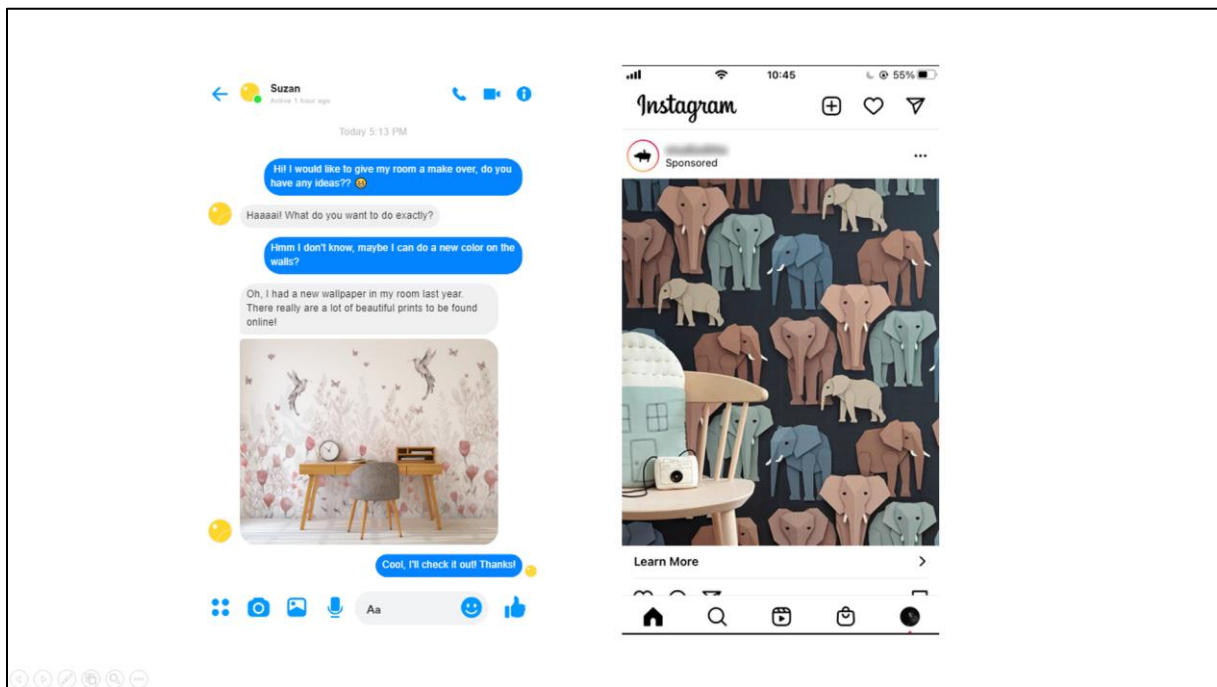
Scenario: *Anna gets to see an advertisement about board games from the brand SmartGames. She sees this advertisement because SmartGames wants to reach people who speak Dutch, who are between 13 and 16 years old, and who live in Flanders (Belgium). Anna provided this information when she created her account.*

What do (or would) you do if you notice(d) that your profile information is being used to determine what advertising you see?



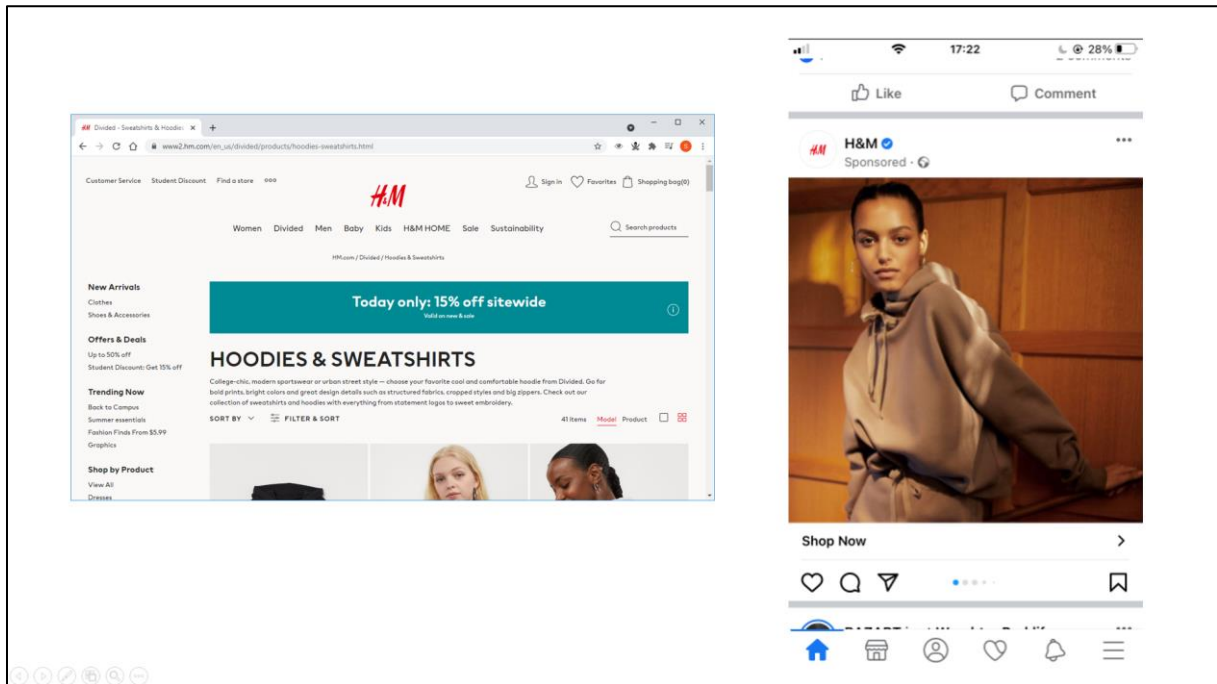
Scenario: Anna would like to give her room a makeover and asks for tips from her best friend Suzan. The same evening, she looks at her news feed on Instagram and notices advertisements of wallpapers.

What do (or would) you do if you notice(d) that your conversations are being used to target you with advertising?



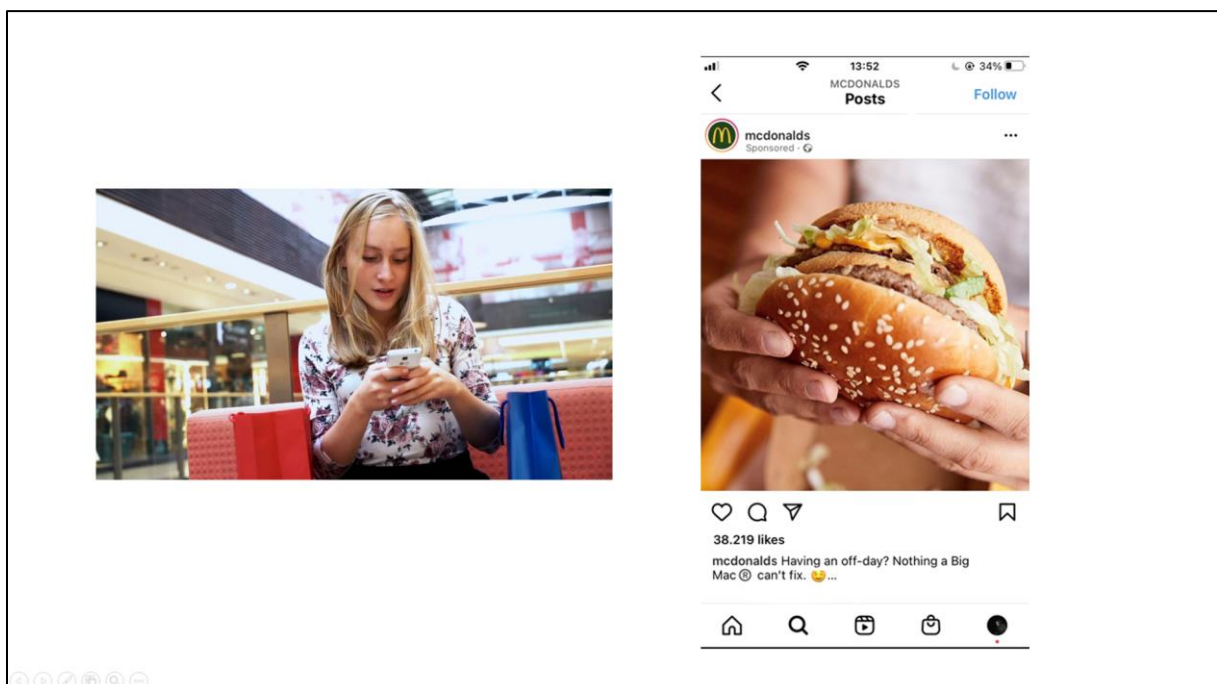
Scenario: Anna is looking for a new sweater and saw on the H&M website that the newest collection is available. She's not sure if there's something in there for her, so she decides to wait. A little later, she surfs on social media and sees an advertisement from H&M. She gets to see this advertisement because she had just visited H&M's website.

What do (or would) you do if you notice(d) that your browsing history was being used to target you with advertising?



Scenario: Anna is shopping with her friend at the mall. While her friend is trying on a new sweater in the fitting room, Anna is on Instagram. Suddenly, she sees an advertisement pop up from McDonald's, the hamburger restaurant about 100 yards away from her. Anna and her friend decide to go for a burger.

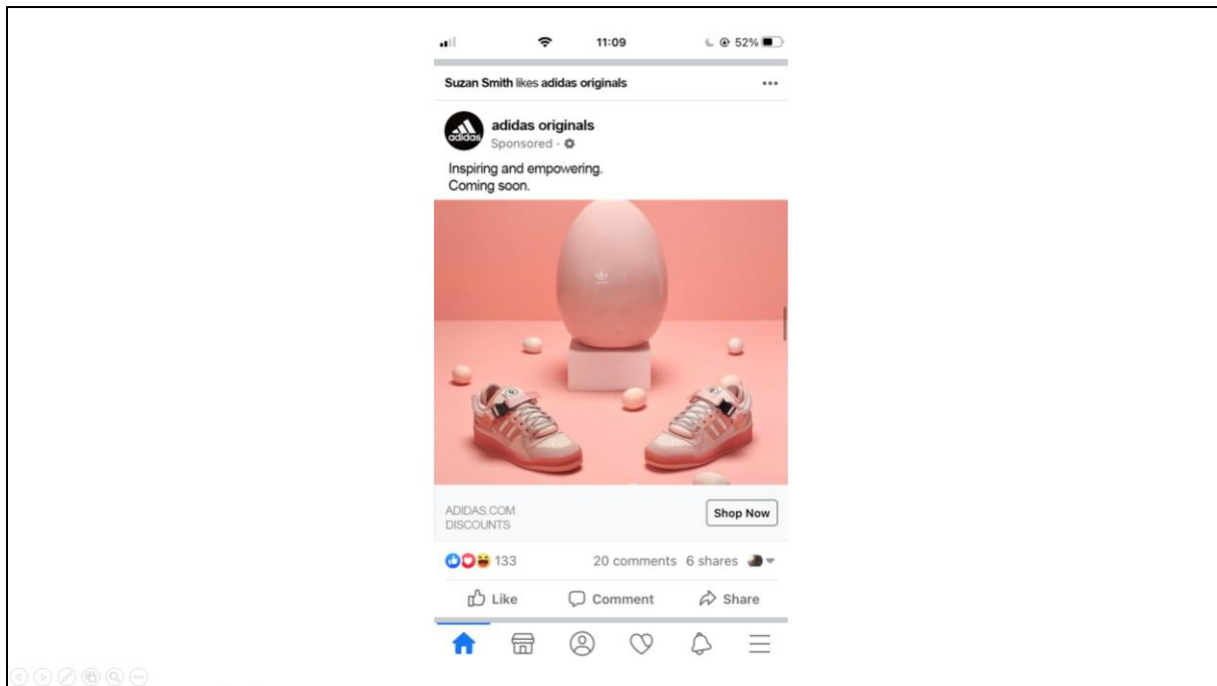
What do (or would) you do if you notice(d) that your location is being used to target you with advertising from shops or restaurants close to you?



Scenario: Anna is surfing on Facebook and suddenly she sees an advertisement for Adidas. She notices that her friend Suzan likes Nutella's page.

*What do (or would) you do if you notice(d) that your friends are being used to determine what advertising you see?*

*What if you notice(d) that your name was being used?*



**Part 4: Wrap-up (5')**

*In America and England there will soon be an app on which people will be able to indicate which subjects they are interested in and about which they want to see advertisements. Companies will actually use the information that people themselves provide, instead of relying on predictions by algorithms and other technologies.*

*What do you think of this?*

*Would you use it?*

*Why? Why not?*

End (wrap-up)

## Appendix III: Coding scheme

Main code	Categories	Subcategories (examples)
<b>Knowledge and perceptions</b>	Personalized advertising	Retargeting, commercial repurposing of data
	Data collection (implicit and explicit)	Profile information, behavior tracking
	Informed consent	Privacy policies, cookie disclosures, permission giving
<b>Attitudes</b>	Personalized advertising	Creepy, relevant, irritating
	Data collection (implicit and explicit)	Intrusiveness, creepiness,
	Informed consent	Responsibility, commercial parties' rights
<b>Coping</b>	Responses to personalized advertising	Social advertising, retargeting, location-based advertising
	Explicit data requests	Signing up for social media
	More implicit forms of data collection	Tracking behavior, location collection
	Informed consent and other permission requests	Cookie windows, consenting when using the platform, ToS, privacy policies

## Appendix IV: Additional quotes in support of the results

The respondents' names were replaced with pseudonyms to ensure their privacy.

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### Folk theories (awareness and perceptions)

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#### 1) Personal information collection is unavoidable, unclear and related to advertising

*Most respondents were aware that their personal information is being tracked by default through cookies, although they were unable to explain how these cookies work:*

F1 Ellen (12, girl): "I know what they [cookies] are, but I don't know exactly how they work(...) It's something that looks what you search for... and keeps tracks of that."

F9 Interviewer: "What do you agree with when you accept cookies?"

Lex (13, boy): "With the *terms of agreement*, something like that."

Willow (13, girl): "I'm not 100% sure what those cookies do... But it doesn't really matter to me."

Interviewer: "Does anyone else know?"

Emily (13, girl): "I think it is easier to surf the web when you accept them."

Lex: "No I think that cookies are like... If you go on Google then you get advertisements about that... or if you are on a website than you get advertisements for that."

*When discussing cookies, teenagers were cognizant of the connection between their online activities and exposure to advertising:*

F4 Mason (12, boy): "If you for example search for shoes on the Internet, then you will get advertising of shoes on Instagram."

*Their knowledge and awareness of commercial data use (for advertising personalization) was, however, limited to the above. They mostly believed that their information was being collected for non-commercial purposes, for instance:*

F6 Bella (12, girl): "I find it useful to give my real email address because when I forget my password I can enter my email address and get a new one."

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#### 2) Personal information is handled and read by real people

*Teenagers believed that their personal information is managed by real people. They referred to "someone", "anybody", "everyone" and "they" as the people working for commercial companies:*

F3 Zoey (14, girl): "I'm always aware that someone can have it [her personal information], I just don't know how they get it or what they do with it, but I'm aware that something can happen with it anyway."

F3 Zoey (14, girl): "I think it's a little bit weird, that everything [all information] is stored like that... That everyone, or that all those advertising people know what you have looked for and can give you advertising about that..."

Interviewer: "What do you think, Evelyn?"

Evelyn (14, girl): "I think so too, everyone knows who you are..."

Interviewer: "What do you mean by 'everyone'?"

Elena: "The people behind it, behind the website."

F2 Jonas (12): "When you are at home a long time, then they know that that is your house, and if hackers hack that website, then they know where your home is."

*After explaining how location targeting is implemented through algorithms and not by 'real people', teenagers still had difficulties to understand this:*

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F4 Pascal (13, boy): "I do think that's safer! But if they recommend a restaurant that's near you, they still know that restaurant is close to you. They also know that you are there... They will know that."

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**3) All principles of privacy statements are the same and have no added value**

*Although privacy statements have the purpose to provide more transparency to Internet users, one of the folk theories explains that teenagers do not perceive them as having added value. They believe that the principles described in these statements are practically the same everywhere and could only tell that those statements have something to do with privacy:*

F1 Interviewer: Do you know what's in it [the websites' privacy policies/statements]?

Elena: "I do know that it's about privacy..."

*In addition, teenagers felt that privacy policies are too complex to understand:*

F2 Evelyn (14, girl): "It is kind of the same like when you sign a contract and there are things in the fine print that require a microscope to read."

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**4) Data collection and processing is an individual responsibility**

*When teenagers reflected on their own behavior, they often came to realize that they themselves chose to undergo the collection and respective use of their personal information by commercial companies. For instance, they blamed themselves for not reading the privacy statements:*

F8 Ivy (13, girl): "Sometimes I just click on accept and then later I come across something in the app of which I thought that they didn't ask permission for but do it right away, and then I think that I should have read it [privacy policy]"

F3 Zoey (14, girl): "But maybe that's our own fault that we don't read it [privacy policies](...)"

*While discussing the responsibility of the teenagers, participants often mentioned that companies have the right to collect and use their data because the they themselves have made the decision to use the apps:*

F3 Zoey (14, girl): [about advertising based on chat history] "I don't think that's nice or really okay that they do that... But I do think that apps themselves think that they have the right to do that... But I don't like that they make advertising with that [chat history] or share that..."

Interviewer: "So you're saying that you believe that they have the right to do that?"

Zoey: "Yeah but I understand that they do that, even if I don't like it. It's still their app and... you need to agree with everything... They invented it, and we choose to chat with others via that app."

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**Coping strategies**

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**1) Coping with explicit data requests**

*The teenagers have developed some mechanisms to cope with data requests by commercial parties. Their decision is mostly based on their perceptions of trust or reliability:*

F9 Emily (13, girl): "I would do it [give up her personal details] if it's for Smartschool [the electronic platform of the school] because you know that's reliable, but for TikTok I usually just give my email address."

F10 Nikki (12, girl): "Sometimes I have to enter my place of Residence when I buy something but on Snapchat I never enter this because I don't trust it."

Interviewer: "And why don't you trust that?"

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Nikki: "Just because you can't know what they are going to do with it and I don't think it is necessary for them to know if I just want to make an account."  
Interviewer: "Who are *they*?"  
Nikki: "The app itself and the people who work for Snapchat."

F8 Interviewer: How do you check whether the website is reliable?  
Ivy (13, girl): "When I go on a website it says either 'secured' or 'not secured' and I also downloaded an app that blocks bad websites on my phone."  
Interviewer: "How do you know it's a bad website?"  
Ivy: "If they ask too much information. Or if you just want to look something up but they immediately ask to give your name and address."

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**2) Coping with more implicit forms of data collection**

*The teenagers have developed some coping mechanisms they think may help to prevent them from more implicit forms of personalized advertising as well. For instance, some teenagers are likely to set up a private account:*

F9 Arthur: "The only thing I do is setting up a private account."  
Sanne: "Do you do that to protect your information from people you don't know or also because the app would know less about you?"  
Arthur: "I think a bit for both"

F9 Interviewer: Do you think advertisers can still access your information when your account is on private?  
Willow (13, girl): "Yeah I think so."  
Emily (13, girl): "I don't know that actually. I think they still can but to a lesser extent..."

*Although this is not a strategy that they would adopt, some teenagers believed that using less social media would prevent them from implicit forms of data collection.:*

F9 Interviewer: "In one of the previous focus group discussions a teenager told that if he uses less social media, less information can be collected from him. How do you think about that?"  
Emily (13, girl): "I think that's true, but I don't think this is anything for me to do."

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**3) Coping with informed consent and permission requests**

*The teenagers explained that they accept privacy policies, cookie disclosures and other permission requests because it enables them to use the app:*

F6 Bella (12, girl): "It's not because we agree with something that we think it is good, it's also because the app itself is super cool."

F4 Lara (12, girl): "I mostly do that because the message then disappears. Otherwise it gets in the way and then I accept the cookies, because if you click on that other button than you're being redirected to another site... and that's really annoying"

*Accepting privacy statements often depends on trust perceptions, though:*

F3 Interviewer: "Why don't you read the privacy policy?"  
Zoey (14, girl): "They make it so difficult to find and sometimes it's in another language or super long to read. But I'll check before if it's okay or not..."  
Interviewer: "How do you know that it's okay?"  
Zoey: "I *think* it is okay. I am more likely to trust something if it's well-known. But if it's an unknown site I don't do it... And if it looks so weird... unprofessional... I don't know, it's like a feeling I have. But that could be totally wrong as well! But you can see that... Sometimes I feel like I shouldn't do that, I shouldn't make an account, because it doesn't look reliable."

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*Additionally, they often look at their peers to decide on their own behavior:*

F7 Interviewer: "(...) Do you immediately tap on 'Sign up and Accept'?"

Lenn (13, boy): "I think I did that"

George (12, boy): "Me too"

Interviewer: "Why?"

Lenn: "Because I have many friends who use Snapchat and they told me to do this as well. And they didn't say that there had ever happened anything bad to them because of Snapchat. I believe them so then I think it's okay."

*Some teenagers were more critical regarding accepting cookies because of negative experiences:*

F2 Interviewer: "Do you always accept cookies?"

Jonas: "No, I don't (...) I did that before on the website of 'Het Nieuwsblad' [regional news site] and I the only thing I saw was advertising"

Interviewer: "Do you think that was because of those cookies?"

Jonas: "Yes!"

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**4) Coping with personalized advertising**

*The teenagers often do something to avoid that they are being targeted with (personalized) advertising, but do not always feel they succeed in doing so:*

F8 Ivy (13, girl): "On TikTok I often see advertising and then I indicate that I'm not interested in those advertisements because I think that they will stop showing up, but they don't (...)"

*The extent to which they cope with personalized advertising depends on the type of information that was used:*

Ivy (13, girl): "If I would happen to see an advertisement about something close to my home I would do something about it, but if it's for example based on my aged I wouldn't do anything about it right away."

Interviewer: "And if it was based on your location, what would you do then exactly?"

Ivy: "I think I would turn off my location."

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