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Recognizing fake news

A comparison between Ethiopian and Swedish
students

MARCUS GROTH



**KTH ROYAL INSTITUTE OF TECHNOLOGY
SCHOOL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE**

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Abstract

Ethiopia and Sweden are two countries that do not feature together often, but they both face increasing problems with fake news. This thesis is researching whether the similarities between individuals from these countries are greater than the differences between the nations. Meaningful differences in attitudes to media and how to tell fake from fact might indicate that media literacy education has to focus on different aspects, depending on the country.

A total of 20 respondents from Ethiopia and Sweden were interviewed about their social media use and what methods they employ and signs they look for in order to separate trustworthy news stories online from fake news. They also played two missions from the game Reality Check, in order to test their ability and learn about more methods for fact-checking.

Indications of several important similarities between the groups were found. Both share the same major weakness with respondents from previous research, and exhibit similar biases. The groups differ from each other in some regards, particularly how they prefer to find additional sources.

The findings of this study agree with previous research that people who depend less on reliable sources, and rather trust their own or their friends' ability to tell fake from fact generally perform worse. Confirmation bias is identified as a threat to the respondents' fact-checking ability.

The study concludes by recommending that more attention be paid to confirmation bias in media literacy education, and how educators can be informed by the indications of differences between the groups that were found by this study.

Att skilja rykten från riktigt; en jämförelse mellan etiopiska och svenska studenter

Sammanfattning

Etiopien och Sverige är två länder som sällan ryms i samma mening, men som båda står inför ett allt större problem med ryktesspridning och fake news. Detta examensarbete undersöker om likheterna mellan människor från dessa länder är större än deras nationella skillnader. Avsevärda skillnader mellan respondenternas syn på källkritik skulle kunna indikera att utbildningsinsatser som förebygger ryktesspridning och desinformation i de båda länderna måste ha olika fokus, och att möjligheterna för internationellt utbyte minskar.

Sammanlagt intervjuades 20 respondenter från Etiopien och Sverige om deras användning av sociala medier, samt vilka metoder och kännetecken de använder för att skilja trovärdiga nyhetshistorier från rykten. För att jämföra deras förmågor fick de också spela två uppdrag från spelet Reality Check.

Flera viktiga likheter mellan de två grupperna av respondenter upptäcktes. I båda grupper förekom attityder som grupper i tidigare forskning uppvisat, och som gjort de grupperna sårbara för rykten. Det finns också mindre skillnader mellan de båda grupperna, främst när det gäller vilken metod de föredrar för att hitta fler källor.

Resultaten från denna undersökning tyder på att personer som litar mer på sin egen eller vänners förmåga att skilja sant från falskt än på trovärdiga källor presterar sämre, vilket överensstämmer med resultat från tidigare studier. Bekräftelsebias identifieras som ett hot mot respondenternas förmåga att avgöra vad som är trovärdigt och inte.

Rapporten avslutas med några rekommendationer. I utbildning där källkritik berörs borde större fokus läggas på bekräftelsebias. Etiopiska och svenska lärare borde också ta hänsyn till skillnaderna som upptäcktes i denna undersökning.

Recognizing fake news; a comparison between Ethiopian and Swedish students

Marcus Groth

KTH Royal Institute of Technology
Stockholm, Sweden
magroth@kth.se

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CCS CONCEPTS

• **Social and professional topics** → **Geographic characteristics**.

KEYWORDS

Social media, fake news, sweden, ethiopia, media literacy

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1 INTRODUCTION

In Ethiopia, rumours about violent incidents spread quickly on social media. Sometimes the rumours are factually correct, but other times the rumour itself turns out to be the cause of violence [20] [11] [6] [14]. In Sweden, extremism is rising, fuelled by exaggerated or biased depictions of Swedish society in foreign media [9].

Sweden and Ethiopia are two countries that seldom feature in the same headline, but there are actually many things that connect them, both historically and economically. One need they have in common is the need to increase the population's level of media literacy. The reasons behind this need, and under which circumstances the two nations have to deal with the consequences of low media literacy, seem very different at a first glance, especially in regards to the availability of internet in the two countries.

The differences are numerous. A majority of Swedes use social media [13], while only a small (but rapidly growing) minority in Ethiopia have accounts. Sweden has never limited access to, or censored, the internet, and citizens have been free to produce and peruse any content they want. Before the recent reforms, the Ethiopian government used to cut off internet access to limit protests, and many domestic sources were shut down or pressured to self-censor [3]. If the difference between the nations is big enough for the people to grow different perspectives of media, the consequence might be that media literacy has to be taught with different methods in Ethiopia and Sweden.

Research on media literacy cover many different topics, and feature many different demographics, but there are much fewer studies that compare the differences in attitude and method between demographics. Where would these possible differences in how to tell fake from fact appear in a comparison between Ethiopians and Swedes?

Looking beyond technological development, people from Ethiopia and Sweden are culturally similar in several ways that might have an effect on how they interpret and rate

information. Both countries have secular states, and people of many faiths practice in both places. This might mean that people from these countries are less likely to disregard an article simply because of the identity, as defined by religion and ethnicity, of the author. On the other hand, Ethiopia has a history of ethnic conflict, which doubtlessly has increased distrust between groups in society.

The purpose of this study is to investigate if Ethiopians and Swedes have different views on media and how to separate fake from fact.

2 THEORY AND RELATED RESEARCH

Comparison of social media landscapes

The social media preferences in Ethiopia and Sweden are currently similar, but appear to be diverging. In Ethiopia, Facebook can be considered synonymous with social media, and vastly outperforms Instagram, Snapchat and other competitors. However, there is a small number of accounts compared to the size of the population, and many of those accounts that are counted as 'Ethiopian users' actually belong to members of the vast diaspora. At one point, the diaspora equaled 2% of the country's population, but 50% of its online community. Telegram is a new competitor in Ethiopia's social media scene, but has quickly grown in popularity. It is now the most commonly used messaging app, but has also been modified to be used for news broadcasting, transactions and a number of other activities. [14]

In Sweden, just as in Ethiopia, Facebook is the most popular social media platform, but its growth has slowed down a lot. Instagram and Snapchat are growing more rapidly, and threaten to overtake Facebook in Sweden, just as Telegram does in Ethiopia [13].

Internet coverage is much wider in Sweden than in Ethiopia, and a much larger percentage of Sweden's population is active on the internet. Of the entire population, 93% had access to internet at home in Sweden, and 70% used social media in 2018 [4]. In much larger Ethiopia, with its 110 million inhabitants, the telecommunications monopoly Ethio Telecom claims on its website to have 41 million customers, out of which 39 million are connected by mobile. Outside the cities, many areas are still limited to 2G coverage [19]. Less than 5% of the entire population are active users of social media, but the group of Ethiopians that are connected grows quickly, and the percentage grows higher every year. In a report from 2019, FOJO media institute claimed the number to be 68 million in 2018, up from 53 million in 2017 [14].

The importance of media literacy

Due to the massive volumes of information that are now transmitted over the internet, rather than in printed material, it has become just as important to teach media literacy

as it is to teach regular literacy [10]. Some countries are ahead, and have already devoted resources to equip their students with the tools they need to navigate the modern media landscape. For instance, Great Britain, Australia, and some Latin American countries have introduced media education in their mandatory education. [2] [18]

The prime tenets of media education are as follows: All media messages are constructed. Media messages shape our understanding of the world. Individuals interpret media messages uniquely. Mass media have powerful implications. A media literate person will be able to limit their media use, make positive media choices, choose creative alternatives to media consumption, develop their critical thinking and viewing skills, and understand the political, social, economic, and emotional implications of all kinds of media [10].

These abilities are crucial for the development of both Ethiopia and Sweden, even though the two countries are facing different primary challenges. Sweden is often used as an example by domestic and foreign political actors, most famously activists on the far right, to push ideological concepts. Fake news feature often in reporting about Sweden, in both mainstream and 'alternative' media (such as Breitbart and InfoWars) [9].

In Ethiopia, stories and rumours that inflame ethnic and religious conflict abound. Relaxed state control of media and increasing connectivity means that the population is exposed to more clashing narratives and rumours than before. News company editors fear the worst [14]. Mahari Yohannes from Mekelle University Political Science and Strategic Studies Department and an effervescent activist and blogger said that in recent times Facebook is contributing to the expansion of hate speech in Ethiopia because of the polarized political situation in the country. In Ethiopia, there is no consensus on how to develop the country and politics is a zero sum game. Facebook as a highly uncontrolled media is fuelling this gap. The majority of fake news in Ethiopia attacks politicians or encourages religious and ethnic violence. The sudden access to Facebook has left people unprepared to critically analyze stories with anonymous sources that circulate online [16].

Swedes and fake news

In a study where 448 Swedish students were surveyed, the researchers found that, although the pupils saw themselves as good at searching and evaluating online information, a majority (88%) of the participants in their performance test, struggled to tell apart news and ads in a common digital newspaper. They found indication that self-reported surveys about media and information skills provide information that is insufficient to get a better understanding of people's actual abilities. The participants' estimate of their own fact-checking and web search skills were inversely associated with their performance [12].

They concluded that instead of teaching students to scrutinize information, it may be much more fruitful to teach them where to find and how to use credible sources. The group of participants that were the worst at determining the credibility of online content had a high opinion of their ability to search for and fact-check online information. Notably, these participants did not rate access to credible news as important [12].

The traits of the participants that performed the best on the test were a curiosity of science and an openness to consider biases, including their own. This group thought it was important to read credible news from sources that are trustworthy. This may indicate that they have an awareness of the fact that there is much to learn on many different topics from news outlets and people with more knowledge than themselves [8] [12].

International perspectives

In a study which looked at fake news across four western democracies, countries were categorized as either 'low trust' with weak public service media, or 'high trust' with strong public service media.

The study found that, in low-trust countries such as the US and the UK, partisan news stories with different biases are much more likely to be re-published by analysts, activists and fact-checkers. In Germany and Austria, the news stories were less politicized, and it was much more common to see sensational stories based on online rumors. Political actors are more likely to be sources of online disinformation in polarized, low-trust environments. It seems that, in these countries, political actors fuel polarized debates by attacking and blaming their political enemies. According to this description, Ethiopia can be categorized as a 'low trust' country, and Sweden as a 'high trust' country [7].

In another study, deep interviews were performed with a number of people from diverse, international backgrounds, though all living in Sweden at the time of the interviews. It was found that any story that the respondents perceived to be misrepresenting the actual situation would be labelled as fake news. The respondents would state that news media often do not provide 'the whole truth' of a situation, and rather just a representation of what actually happened. If a news media does not offer 'the full picture', then it is a sign that part of the truth has been obscured, and the source is labelled as 'fake news'. The problem with demanding the 'whole reality' or 'full truth' is that any single story simply can not supply it. It is impossible to fulfill every single individual's personal reality.

The respondents tried to solve this dilemma with a method that seems to make sense, but actually leads to further complications. In order to not be fooled by any single 'misrepresentation' of reality, and instead find 'the whole truth' the

respondents used a kind of source triangulation. In their perspective, the issue was not that all sources are untrustworthy, but rather that no source could give them the full account of the story they wanted to learn about. To solve this, the respondents said they would read multiple different sources that to compare what they said about the same story.

The instinct to trust things that are repeated creates an illusion of truth. There is one important weakness to this method. In these times, anyone can write anything they want online, which means that it is easy and cheap to manufacture the appearance of a diversity in sources. When people are more concerned with the number of sources, rather than the credibility of the sources, they are very likely to believe things simply because it has a high exposure. They will not critically evaluate what they see [21].

Summary of theory

Ethiopia and Sweden both have great need to improve the media literacy of their youth. Previous research indicates that among Swedish pupils, those that are the most confident in their media literacy, are actually the group with the greatest need of educational intervention. There is also indication that many people are at risk of confirmation bias, due to their attitude to what defines some news as 'fake'. Ethiopia and Sweden have different media landscapes, histories of censorship and access to internet. As Facebook is the most popular social media in both countries, the circumstances are right to make a comparative study. By using the game Reality Check, this study aims to investigate whether students at the KTH Royal Institute of Technology and AAiT Addis Ababa Institute of Technology have attitudes to media and fake news that is in line with the findings of previous research. The aim is also to identify eventual differences between the investigated student groups.

3 METHOD

Two groups of ten respondents were recruited. The respondents were *selected for variation* in order to make the groups as similar as possible except for one important variable: their nationality [5]. For this purpose, the respondents were recruited from the student body of the Royal Institute of Technology in Stockholm and the Institute of Technology in Addis Ababa. The respondents were similar in age (lower to mid-twenties), studied in the capital and largest city of their countries, and studied within the same field (IT). The respondents from Sweden will be referred to as S1 - S10, and those from Ethiopia will be referred to as E1 - E10.

Semi-structured interviews were performed individually with the respondents. Even though this means it is impossible to make statistical generalizations from the results, interviews are a good method to explore traits and exceptions among respondents [15]. The interview consisted of four

parts, where the respondents talk about their social media habits, how they rate the trustworthiness of stories online and then play a game, Reality Check, to challenge their fact checking skills and reflect on their own ability.

The first part was a number of background questions about the respondent's social media habits, in order to determine whether they use similar social media services as the other respondents. Too much diversity will make it harder to compare their habits. Because Facebook is common in both countries, it was chosen as the common denominator, and all respondents included in this study either currently use, or have recently stopped using, Facebook.

In the second part the respondent was asked about how they rate the credibility of a story or verify it. If the respondent does not bring up all of the examples from the Reality Check game, the researcher will inquire about them. The examined details are: the identity of the sharer, sentiment in the comments, the identity of the author, the identity of the source, language, looking content up on known sites and performing online searches.

The third step was to let the test subject play the Reality Check game, developed by Canada's centre for digital and media literacy[17]. The approach of using a game means that this study is not ecologically valid. It does however have the benefit that all respondents are reacting to the same content, which makes it easier to compare their comments. In the game, the player is presented with an imaginary Facebook post which shares a link. Points of interest, such as the headline or the link can be clicked to get more details and context. At the end of the mission, the player gets to rate the trustworthiness of the post. The options are 'completely false', 'false in some ways', 'no way to tell', 'true in some ways' and 'completely true'. In this paper, these options are referred to by a numerical scale from 1 to 5, where 1 means 'completely false' and 5 means 'completely true.' The respondents played mission 1, referred to in the paper as 'the first mission', about a sink hole which has opened downtown. The correct answer to the first mission is '5'. They also played mission 3, referred to in the paper as 'the second mission', about a cat food which can detox your pet. (See appendix.) The correct answer to the second mission is '2'. The researcher did not intervene in the game, except to answer any questions the test subject had about how to play it.

The fourth step was a revisit to the questions from the second step. The respondent has been told whether they answered the missions correctly or not, and also which factors should have influenced them when making their choice for each mission. The respondent was asked about how their view on fact-checking has changed, and how they will change their method of investigation in the future.

Finally, a last background question was asked, in order to investigate if or why the respondent think media literacy

is important. The question was "what are the worst consequences you can imagine, of people not thinking about whether the stories they see online are trustworthy or not?" This was not asked at the beginning of the interview, in order to not manipulate the respondents' expectations of the interview, or put them in a pessimistic mood which might influence their answers in an emotionally negative way. Letting the test subject think freely, and not just respond to questions was also an excellent way to round off the interview.

The respondents answers were summarized and compared to identify where the majority of the two groups differed. The answers were also individually analyzed to find individuals who stood out from the group, and probe deeper into the reasons behind the respondents' preferences and prejudices.

4 RESULTS

Purpose of Facebook use

Nine out of the ten Ethiopian respondents used some mix of 'read feed', 'keep in touch with friends' and 'find info' to describe their Facebook use. Three of those also mentioned memes (an amusing or interesting item that is spread online), which no Swedes did. E7 said: "Read news, football news, and see what friends post. And read some funny jokes, memes. Things like that." One respondent had a completely different use case. The main purpose was to stay updated on the band BTS. E9 said: "For like, there is a community that we all are in, fan base for BTS, the korean boy band. So we use Twitter, Facebook and Youtube and other social media to communicate with BTS and other fans."

Similarly, all Swedish respondents described their Facebook use with terms such as 'checking in on people' and 'killing time' and 'scrolling'. Three of them mentioned events, which no Ethiopians did.

Options to Facebook

If Facebook shut down, all Ethiopians said they would replace it with Telegram, most already use Telegram in a way that is very similar to the Facebook chat and feed. Two mentioned Instagram and two others mentioned Twitter. E3 said: "Telegram. All I need is on Telegram. There are channels that share memes so I just Telegram mostly." E7 said: "Instagram, Snapchat, some other medias to connect to people, like Telegram, WhatsApp. For business matter I sometimes use WhatsApp."

Swedish responses included more services. Instagram, Discord, Reddit, Slack, Pinterest and Twitter were brought up. S4 said: "To waste time it would be Instagram, or Pinterest. To communicate it would be Slack or maybe Instagram too and SMS". Two only mentioned going straight to news sources and television instead of replacing Facebook with any other

social media. S2 said: "Sometimes, if I do not find it, (on) Facebook, I go to the web sites. Before, I used to read Dagens Industri [financial newspaper]. I got the paper version. Before, I used to watch the evening news on SVT play." One said it would be best to only use news sites and interaction with friends, rather than social media. S7 said: "I would get rid of [Facebook], but instead I would spend more time with people in my network, ask around".

General trustworthiness of online content

No Ethiopians thought anything on Facebook was trustworthy, but for three of them anything with an official and reliable source was trustworthy, typically national television or international news such as the BBC. E1 said: "It depends on who is posting it, if you see for example BBC news, it's usually the same as what they will talk about on the TV." E4 said: "Fake news are everywhere. But I think the way Facebook displays things makes it more intense to the reader. And so... there are activists and groups who actively use Facebook to spread their own narrative." "Is that good or bad?" "Mostly bad."

Swedish responses were slightly more nuanced, but no one thought Facebook to be generally trustworthy either, except for those three who said it depends on the source of the story. S1 said: "Spontaneously I think [other sources than Facebook] are more trustworthy. I am sceptical of stuff on Facebook. Reddit is about the same level as Facebook, but it also depends on the content. It depends on what people link to, I think." S5 said: "The news I see on Facebook is usually posted by someone I know with a link to a news site... usually DN [Dagens Nyheter] or some local paper. Then I think it's just as trustworthy, if the source is trustworthy. There's lots of garbage on Facebook too, so you have to take it with a pinch of salt."

Source and author

To determine trustworthiness, seven Ethiopians said that the number one detail they look for is the source. On being asked whether they usually consider the trustworthiness of stories online, E2 replied: "Definitely. I won't consider any source unless I actually know about that source." When asked if really nothing online can be taken for real, E7 replied: "Yeah. On Facebook there is an official page of other countries' people, like football memes, political memes, like BBC they have an official music channel. I do believe them, like that news" "Do you trust the BBC?" "Yeah, BBC is... and mostly when I see BBC and I see the story I read on Facebook, it's the same, it must be the same [to be trusted]."

Seven Swedes said that a known and trusted source or author is the number one detail they look for. On how to rate a story, S6 said: "It must have a reliable source." "What else?" "I go to the source and see if they write the same thing as

the link, or if it is biased. You can also read other articles on the same site. I always check if there is a [responsible editor] and if there's a year, if there's not it's a little... [unreliable]." About some things that appear in the feed, S8 said: "You can see direct they are not serious. They have lots of weird advertising or you have to click really many times to read. Then I think it's not trustworthy. But it depends on what it is, if it is DN, ah, then it's trustworthy." "What else do you look for? How important is the identity or habits of the sharer?" "No... not so much I think. Or... no. I do not trust peoples ability to tell what's fake." "Do you think more about the identity of the source or the author?" "The newspaper. Or the author, if it's independent."

The remaining three did not emphasize the identity of the source or author. Instead they brought up how no single source is completely unbiased, and how to solve this issue. When questioned about which sources tend to give reliable news, S5 said: "I might google it and if only this site mentions it, I will ignore it. But, no... sometimes I google in another language. If it's international news I change to Spanish, because the Swedish and Spanish news will be different. On Facebook I see many news from South America, because I have lived there. I have to search in English to find an unbiased reporting about it. Or, not independent, maybe, but at least not as biased." While talking about how to have an overview of an incident reported in media, S9 said: "What's great about Marcus Oscarsson [political analyst for TV4[1]] is that he really compares both sides' strengths and weakness and doesn't talk shit about SD [political party in Sweden] just because it's popular now. His way of discussing I think makes him feel more trustworthy. Um, he might miss something, but it doesn't feel like he ignores facts to make his argument better."

Family and friends

Three Ethiopians did not believe source as important for determining trustworthiness as verifying with friends and family. When asked how to confirm whether an unbelievable story is true or not, E5 said: "I would check if it's true on other channels." "And when do you know if it's true?" "Ah... I'm gonna ask some people about what I've heard." "Who do you ask?" "Friends. Classmates." "People on the internet?" "No!" To the same question, E10 replied: "If I've heard it maybe two or three times, if it's a repeated story, then I can believe it. I mean, from multiple people that I trust, that is." About the source, E10 said that: "It is important when I hear it from an international news center, so if it's from the BBC maybe, yeah, okay... it's more reliable." "But that's not the first thing you think of?" "No it's not. It's more about the people who are posting it, sharing it."

Two Swedes also brought up that it depends on the sharer. For S3 it was about contacts outside of Sweden: "It depends

who among my friends have posted. Very often it is my relatives in India who share less trustworthy things than my friends in Sweden." For S5 it was older relatives: "I have this discussion regularly with my grandma and grandpa. Usually it starts with them sharing something that they've read, and then I comment: 'come on, now you have forgotten to check this, we have talked about this.'" The risk of being caught in an echo chamber of friends, even if the sources are reliable also came up. S7 said: "I am not afraid of the bubble, I am worried that my friends are a bubble, but as long as the link leads to one of my trusted sources, I get a wide range. But if it takes [me] outside them, like [to] American Vox or whatever, then I start worrying about getting caught in a bubble and [I] think about what kind of site this is."

Some Swedes stated that a sharer's reputation can never improve a story's trustworthiness, only ruin it. After playing Reality Check, S6 said: "When you share something to your friends, for example 'this hamburger is the best I've ever eaten,' you put your stamp on it. Depending on who this person is, I can go and try the burger and if it's not good I believe your stamp less. So if you have... previously shared stories that aren't true, your stamp loses in value, if you compare to someone who always checks."

Language level and choice of words

In both the Ethiopian and Swedish groups, there were respondents who relied on language to identify bad sources and dismiss false information. Some viewed language quality as a reflection of the author's ability and the source's integrity.

E3 said: "Yeah, most of the grammar, if they write in English I see the grammar. If they write in Amharic I see the sources they mention and if what they say agrees with what I know... last week someone told me they read on Facebook that there was a big fight around Adama or some place. And I'm from Adama, I know that place. I told them it's not true, because I know the place. And even if I do not know the place, I know people from around there, so I ask them. That's how I know if something is trustworthy or not. In English, if it's bad grammar its probably not a good source. Like if I am going to post something serious, I'll make sure that the grammar is correct, and use the right words to convey my message. That is my basic language filter."

S4 said: "I think it's about how, not who that has written it or if it is a comment, but it is important that it's grammatically correct or if it follows the same ethics and morals that I have." "So if it is someone who shares your sympathies, it's easier to trust the message?" "Yes maybe." "And the language is important too?" "Yeah, it depends a bit on what it is. If the person is talking about themselves, I can believe it, but if someone writes about a big event and use a lot of 'poop

Table 1: Answers to the first mission (correct answer: 5)

Group/Number	1	2	3	4	5	6	7	8	9	10
Swedish	4	2	4	2	4	1	4	4	2	2
Ethiopian	3		2						5	4

words' [respondent used Swedish words, the term is undefined] then, like uhuh, okay it might be true but doesn't feel really relevant, kind of like when the Nigerian prince sends an e-mail [refers to common scam].

Others went beyond the general language level, and described how their opinion changes because of a crude or exaggerated choice of words.

E4 said: "No, there are groups who by my experience have racist opinions. So if they post the content, I try to avoid it. There are also mainstream medias that try to publish balanced information. I will also go to the comments, and read peoples opinion. Usually you can sort of tell, when people comment, you can understand how the content has impacted them. So, when people react in a manner that I consider not good, I just avoid it." "And what manner do you consider not good? Aggressive or racist or what...?" "Yeah, racist and aggressive comments or when they curse at the poster. If the comments involve such terms, I just try to avoid it."

When asked what kind of language ruins trust, S8 said: "Well, it it's poor language, when people can not write. This is not really about Facebook, it's more about when I google something and find a source, or a page and the text is incoherent and not spelled correctly, that makes me lose trust. Step 1 is if they can at least write, to have some kind of trust. Or sometimes a newspaper will try to make a story out of something that's not interesting... they use sensational language. Sometimes it's hard... to understand what actually happened. If the language is harder to understand than helping... then it's not a good source."

Responses to the first mission

Due to network issues, only four Ethiopians could play the Reality Check game.

E9, who said that a well-known source is the most important detail, said: "It seems true, there is a real information source. I think it's a recognized newspaper. Also the date and the place where it happened, everything is detailed." Half of the respondents did not feel they could trust the post. E3, who said that source and language are the most important details to rate trustworthiness, reasoned about the first mission in this way: "First the image. The other is like there are not much comments. And also the sharer usually doesn't check things. If they usually do not check they are going

Table 2: Answers to the second mission (correct answer:2)

Group/Number	1	2	3	4	5	6	7	8	9	10
Swedish	1	2	2	1	1	2	1	2	1	1
Ethiopian	2		1						3	1

to fall into all of the traps. That’s why I didn’t trust it." S4, who valued the author’s identity, good grammar and google searches, said: "Mmh... it was a combination of... it felt like everything I clicked pointed to a bias, that it [the fictional newspaper] was liberal and... I do not know, it felt like they tried to push me in a direction, and then it wasn’t neutral." S9 also reacted on the wording of the post: "Spontaneously, this winkeyface feels just... who does that? About a sink hole? It’s probably false."

The original source’s good reliability was mentioned both by people who got it right and those who got it wrong. S1 said: "It seemed like a pretty reliable source, but no one else was writing about holes", and S2 said: "It hadn’t spread on the web, that is weird. The newspaper seemed pretty trustworthy." E1 got it wrong, and on being told the correct answer, said: "It’s true? Okay, I do believe it, because Herald News was a good source, I believe it. I got very conscious when..." "No one else wrote about it?" "Yeah, that part. Living in Ethiopia, you have to be sure that what they are talking about is true, that’s the cause."

However, everyone who correctly trusted it mentioned that the source was good. On why the story was trustworthy, S5 said: "Most of all, because it was an old newspaper which had published it on their website." Several who didn’t trust the story did not focus on the original source, or did not trust it. S4 is already quoted to have felt manipulated due to the original source’s liberal bias. S10 hesitated more than S4 before picking 'completely false', but also brought up the bias: "This was hard! The website was, sure it was biased, but... I think it’s false."

Responses to the second mission

E1 said: "Its probably false. There is one thing, the doctor is a... cardiologist, and we are talking about the cat, its so confusing." [Picks correct answer] "My mind was this uh, I read the researches, but my mind was stuck on the doctors profile, so..."

E3 said: "Okay. I thought this was a scam because like they are saying in the article that the supplement is good. But if you just wash your hands that’s enough. The product is not necessary. They are exaggerating the disease. That’s why its probably a scam. The language they used was ambiguous, like how is it toxic? They do not mention anything so..."

E9 said: "Hmm... probably true. Because a lot of places say its true, but since its using it for adverts, it might just be exaggerated, or try to picture something in our mind so we use their product." Since E9 answered the first mission correctly, which fewer respondents managed to, but was the only one of all respondents to not pick option 1 or option 2 for the second mission, E9 is asked if E9 would change the methods for determining trustworthiness in the future. "Not really. I would use the same methods in the future. The way I played the game was just like how I do it in reality. I always look after a real newspaper or some source, and I always look for a witness."

S4 said: "That they are selling something and that they have a scary title and try to scare the person who will buy it. Everyone in the comments was a cat owner, and there was a lot of fear and feeling. Actually it’s about facts, I guess. There was no data from any other site, and everything kinda pointed back to them."

S9 said: "There was no site that could explain toxoplasms. And normal hygiene is enough. It stink of TV-shop! The doctor too, Lacrosse, had a bad reputation. It felt like pseudo-science."

Imagining the consequences

The Ethiopian respondents provided vivid description of what might happen in the worst case, if people do not think about what’s fake and real online. They provided examples based on Ethiopia’s situation.

E1 said: "Fake news are really being a problem here in Ethiopia, especially in... if you ask most people they are on Facebook rather than on Twitter or other medias, so the fake news are being broadcasted more on Facebook. You have to check whether it’s true or not. You have to be brilliant. For example, you might see photoshopped pictures that someone got arrested, you might see... so... You really have to be updated with the mainstream news, so you can see through it."

E4 said: "So if the social media has biased content I think the situation in our country is a very good example of the consequences. People can have very distorted opinions about other people. They can hate other people, even stop trusting their neighbors because of the content that is presented to them on social media. You hear news of people going to their neighbors and robbing them of their belongings, telling them to go away 'this is not your land, this is our land.' And these things I think are consequences of whats on social media."

E7 had a more specific example: "On Facebook, there is always a fight, even though in that subcity there is no fight, they will make it look like there was a fight, and they will make about religious matter, or nationalities, and they will make the other subcities to make a conflict. They make people go out for a fight." ... "But they [people online] make it

look like the government is fighting with them [Oromo ethnicity], without helping, even without going to the Oromia states, they make it look like the government is in a bad ways. Then the other side of the Oromia get up and go to that city and they fight the Amhari people, the Tigrinya people." ... "Im amhara. But it's not because I'm amhara that im saying this. Amhara people have a problem too. There is a conflict between Amhara and Tigray. About a little bit of population, the government didn't say anything, but both groups say its theirs. Now it's a conflict."

One of the Swedish respondents, S3, also had a detailed description, based on stories from India: "Over there, they spread hate for, uh, political groups, opponents, a lot of uncertainty and fake news about things. In India, as I said, it's WhatsApp. People have died because of it. In one case, there was a rumour about pedophiles running away on a motorcycle. Some people, they were attacked and lynched by a mob. The rumour was completely made up. So far it hasn't happened in Sweden. It's the worst I can imagine."

Most Swedish respondents conjured vague visions of uncertainty, lack of safety and rising extremism. S6 said: "The last time people didn't check facts, Hitler happened. Uhm. Right wing extremists want people to not check facts. Sometimes it's hard." ... "And then global warming. That people do not realize it's for real. I think that could be, or is, the worst that can happen."

One of them, S4, referred to an actual event, a terrorist attack in Sweden: "It might be like during the truck thing, that there is more panic. Because then, first there was the truck, and then there were rumours about shooting at Karlaplan or whatever, and everyone got a lot more panic. And it's... it can be other things too, but like if you buy unnecessary things, you get panic without a point, that's maybe the worst."

One respondent provided a more detailed description. According to S7: "Genocide... no, but violent conflicts, civil war. That is the general danger. And dictatorship, when you have left wing extremists fighting right wing extremists. Then you want security, and you get a dictatorship. The mechanism where asking for security leads to dictatorship. Then we might trust science less, but that's not as bad I think. It's worse that we stop trusting society, each other, because everything goes to hell. No knowledge is bad, but war is slightly worse."

5 DISCUSSION

Global and local similarities

According to the study on Swedish school pupils [12], people who rely more on their own ability to spot fake news, rather than depend on a good source, are more likely to be mistaken. This agrees with the fact that the Swedish respondents who did not emphasize the source, but rather google searches or

friends, got the first mission wrong. The Ethiopian respondents that got the first mission wrong also did not emphasize the source as important for rating trustworthiness, just like the Swedes who got the first mission wrong. In contrast to the Swedes, however, they preferred to consult family and friends, rather than doing google searches.

This difference can be explained by the fact that Ethiopia is a low-trust society [7]. This is an indication that people from any country that do not emphasize the source are worse at fact-checking, but whether they prefer to rely on contacts or their own ability depends on their background and the circumstances of their country.

Several Swedish respondents described a need to consult many sources or get expert summary in order to negate the bias inherent any source, and get a 'fair' picture of the situation. Several of the Ethiopian respondents also echoed this sentiment, either by relying on analysts on social media, or by casually disregarding any story that has not appeared in several places yet. This is reminiscent of how respondents in the study by Zaryan [21] labelled anything that did not give 'the whole truth' as 'fake news.' This similarity between the two groups, in combination with the fact that Zaryan's respondents are transnational, indicates that this way of thinking does not depend on nationality, but rather is a human trait.

The threat of confirmation bias

As Zaryan [21] writes, respondents that use the number of times a story appears as a method to rate trustworthiness are more vulnerable to confirmation bias. The responses to the missions in this study provide several examples of how respondents succumbed to confirmation bias. Of the five Swedes who got the first mission wrong, only two brought up the source in the reason for their choice, and they justified their choice by saying there was only one source. The clearest example from this study is how E9 was the only respondent to not rate the story in the second mission with a '1' or '2'. The reason expressly given was that "a lot of places say it's true".

In contrast, all the Swedes who got the first mission right, and correctly believed the story, stated that they made that choice because the source was good, despite the surrounding factors that raised suspicions about the already unlikely premise of the story.

By looking at the Swedish respondents' answers to the second mission, it becomes clear how insidious confirmation bias actually can be. All of them correctly did not believe the story, and they all brought up advertising, and the exaggerated language as reasons. However, three also mentioned the fact that the story only could be traced to one source. As we know, and they should know since the first mission, even stories with only one source can be trusted *if the source is good*.

Two of these three got the first mission right, and explained their reasoning by the source being trustworthy. Yet, in the second mission, they refer to there being only one source as one of the reasons to not trust the story. This indicates that even individuals with good habits, that search for reliable sources as the main method of rating news, might still carry the same preconceptions that those who more openly exhibit confirmation bias have.

The people who are vulnerable to confirmation bias can be sorted into two primary groups: those that believe in their own investigative ability and those that trust other people to give them reliable news. What separates these two groups is that those who rely on web searches to verify a story bear the responsibility to critically rate what they find themselves, while those who rely on the input of contacts or experts effectively relegate this responsibility to individuals they consider more capable than themselves. In the case of experts that are transparent and rigorously analyze their own sources, which is how S9 describes that his favoured expert won S9's trust, this can be a sensible choice. In the case of contacts, however, it is pointless to trust another rather than oneself, unless that person has some sort of expert or insider knowledge about the topic.

Recommendations

Based on these observations, media literacy educators in both Ethiopia and Sweden should continue to emphasize the importance of reliable sources with experience, good practice and integrity. They should drive home the point that one good source is worth more than 10 doubt-worthy sources in agreement in order to help students resist confirmation bias. In Ethiopia, particular attention should be paid to the difference between hearsay and source.

Concerning sources

One of the striking, and uplifting, similarities between the two groups, is that a majority of the respondents in both groups considered the reliability of the source to be the main indicator of trustworthiness for a story. It is especially good news that this point of view is dominant, as this is also the best way to avoid confirmation bias. The fact that such a high number of respondents thought this way, and that members of both groups used the same, well known outlets as examples of English language media, is a good indication that the two groups are not so different.

Several of the respondents, however, were concerned with the issues of manipulated photos, and bias even in well-respected sources, and they are not alone [21]. As the number of 'alternative' media online continue to grow, and tools to doctor photos and videos get better, it becomes increasingly hard to know what to believe, and by extension, whom to trust. As reputation is easily ruined but slowly earned,

as illustrated by the metaphor of a personal 'stamp', that one respondent made, prominent and well-respected media companies should value their integrity above all else. If they, in the search for scoops, mistakenly broadcast wrong information, as several Swedish outlets did during the terrorist attack that S4 mentioned, trust will quickly erode and people will find it even harder to where to find reliable news.

Are there more alternatives for the future? Several respondents preferred the analysis of an expert over reading straight from the source on the one hand, but on the other hand they tended to not trust people online, unless if what the person was saying was backed up by a good source. Perhaps it is possible to combine the benefits of both these situations. Moderated forums, blessed with the 'stamp' of a respected analyst might become more common in the future. Forums similar to this, organized around common interests or political ideas already exist on Facebook, Reddit and elsewhere, but they are characterized by their topic of focus, rather than their standards of transparency and editorial responsibility.

Limitations and further research

While the similarities between the two groups of respondents in this study make them more suitable for making comparisons between their home nations, it also means that neither group can be considered suitable representatives for the entire population of their country. Being highly educated, technologically savvy urban dwellers, they are also bound to have more similarities than other equivalent social groups in the two countries would have, due to the international atmosphere of the field they study to work in. Future research should focus on other groups, for whom local conditions might have a greater impact on their online habits and news consumption. Any group with a strong interest in collective organization, such as nurses, workers in the construction industry or war veterans would make excellent respondents, as they many reason to stay updated on news, and are likely to face similar challenges in any country, which would make them easier to compare. It would also be interesting to perform studies with older, preferably retired, and younger, possibly in upper middle school, people in order to gauge not only the differences between the countries right now, but how those differences have changed over time.

The size of the material for this study was seriously reduced due to poor network stability that stopped six out of the ten Ethiopian respondents from playing Reality Check. This loss made it much harder to draw comparisons between the respondents' reactions to the missions and the way they explained their reasoning. A lesson to learn from this is to never depend on network speed in order to gather data, but rather always be independent and have everything necessary either on print or on the hard drive.

Another drawback of using the Reality Check game, is that it informs the player of their performance right after a mission is finished. This might be good from an educational perspective, but bad from a research standpoint as the respondent may form a bias to the later missions depending on how they fared in the previous missions and what the correct answer was.

As mentioned in the background of this study, the social media landscapes of Ethiopia and Sweden are diverging. Where Facebook once ruled supreme, Ethiopians are abandoning it in favor of Telegram, while Swedes are emigrating to Instagram and Snapchat. In the future, it might be better to use one of these services as the common denominator, or phrase the questions in a way that they are platform agnostic.

6 CONCLUSION

The Ethiopian and Swedish groups of respondents displayed several similar characteristics. In both groups, the majority of members value the reliability of the source above all else. The respondents that preferred to rely on sources performed better in the fact-checking game, which is in line with findings from previous research.

Both groups are vulnerable to confirmation bias, as a number of respondents said they would disregard a story if they did not see it more than once. This phenomenon has also been observed in previous research. In the worst case, they would use friends or the first search page of Google to find 'additional evidence', thus becoming even more biased. In the best case, they would trust in an expert to analyse news from several sources and help them make sense of an event.

One of the major differences between the groups is found with the minority of members in both groups that value their own investigative ability or the input of contacts more than knowing the source. Among these respondents, the Ethiopians tended to emphasize friends and family, while the Swedes emphasized web searches.

These findings indicate that both Ethiopia and Sweden need to continue emphasizing the benefits of using well-known, reliable sources, and the pitfalls of confirmation bias. It also indicates that Ethiopian educators should particularly focus on the difference between hearsay and sources, to reduce the impact of rumours.

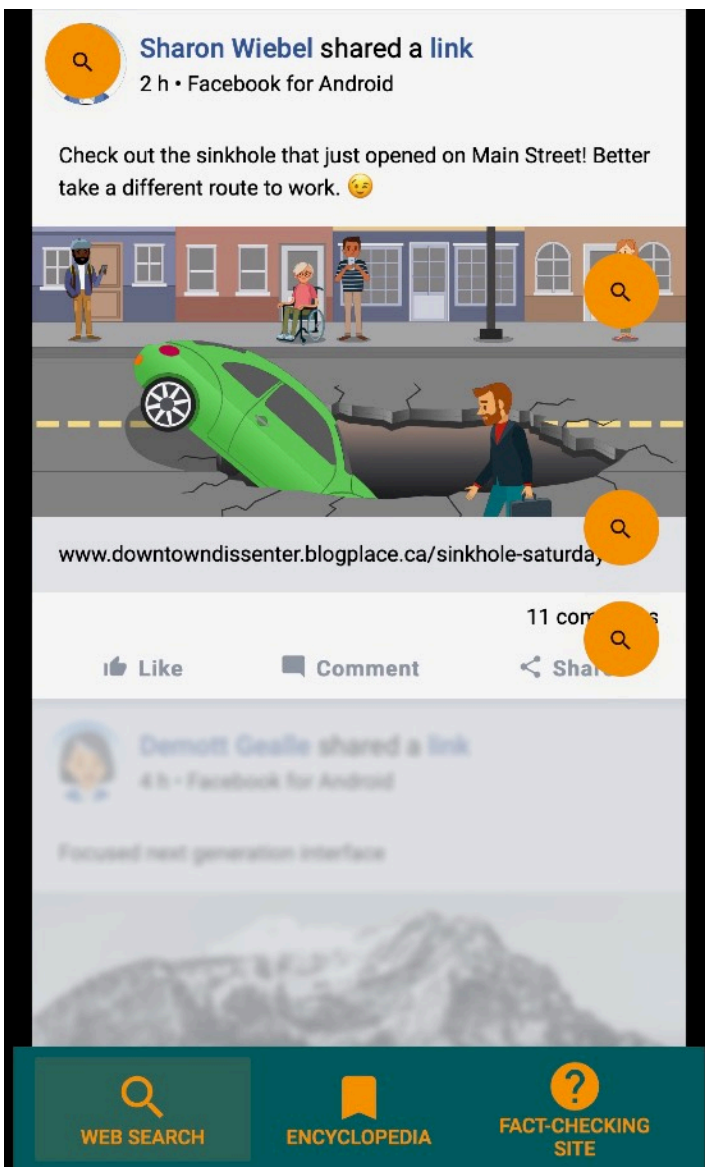
Overall, the Ethiopian and Swedish respondents in this study had quite similar views on what sources are reliable, and what the benefits of media literacy are.

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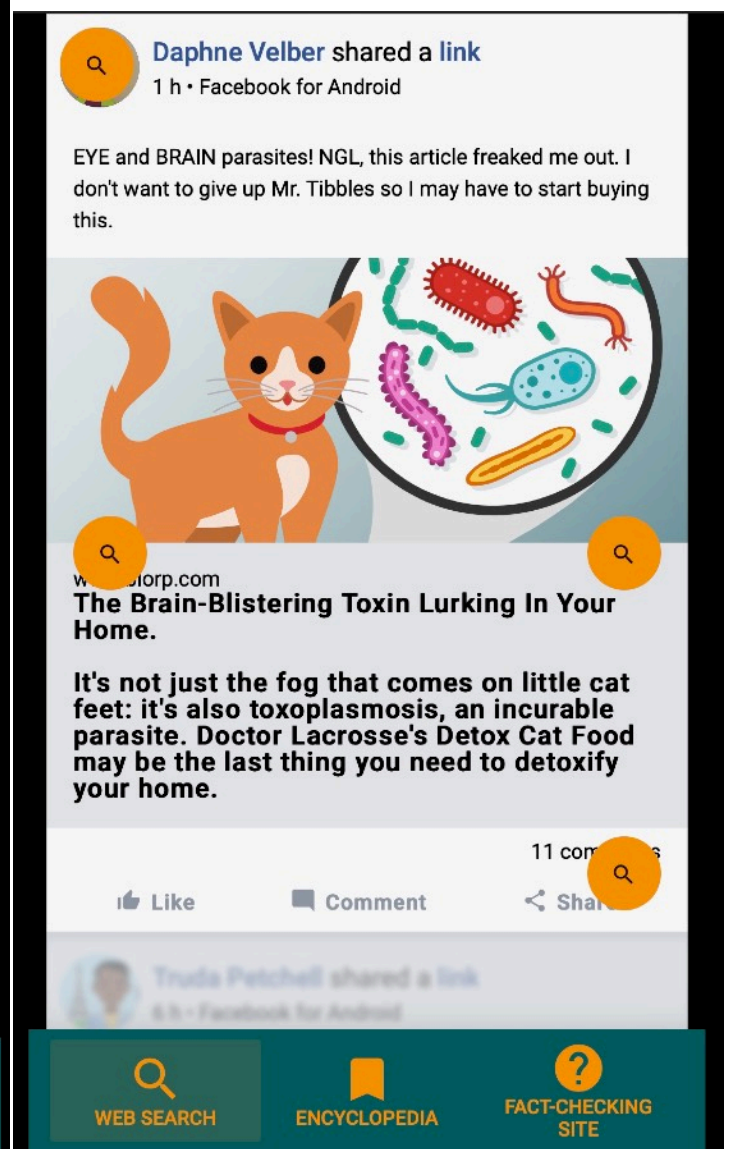
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REFERENCES

- [1] 2019. TV4. <https://www.tv4play.se/tema/marcus> (2019).
- [2] Jane D Brown and Elizabeth M Witherspoon. 2002. The mass media and American adolescents' health. *Journal of adolescent health* 31, 6 (2002), 153–170.
- [3] Laura Cardona. 2017. Modes of Censorship in the World's Five Most Censored Countries. *International Review Spring 2017* (2017), 37.
- [4] Statistiska centralbyrån. 2019. Befolkningens it-användning. (2019).
- [5] Mats Ekström and Larsåke Larsson. 2010. *Metoder i kommunikationsvetenskap*. Studentlitteratur AB.
- [6] Tom Gardner. 2017. 'We fear for our lives': how rumours over sugar saw Ethiopian troops kill 10 people. <https://www.theguardian.com/global-development/2017/nov/07/we-fear-for-our-lives-how-rumours-over-sugar-saw-10-people-killed-in-ethiopia-oromia> (2017).
- [7] Edda Humprecht. 2018. Where 'fake news' flourishes: a comparison across four Western democracies. *Information, Communication & Society* (2018), 1–16.
- [8] Dan M Kahan, Asheley Landrum, Katie Carpenter, Laura Helft, and Kathleen Hall Jamieson. 2017. Science curiosity and political information processing. *Political Psychology* 38 (2017), 179–199.
- [9] Mathilda Linnander. 2018. Last Night in Sweden: A Critical Discourse Analysis of the Image of Sweden in International Media.
- [10] B McCannon. 2009. Media literacy/media education: solution to big media. *Strasburger VC, Wilson BJ, Jordan A. Children, Adolescents, and the Media. 2nd ed. Thousand Oaks, CA: Sage* (2009), 519–569.
- [11] Fathiya Nur. 2019. The rumour that led to medical researchers in Ethiopia being killed by a mob. <https://www.bbc.com/news/av/world-africa-48313462/the-rumour-that-led-to-medical-researchers-in-ethiopia-being-killed-by-a-mob> (2019).
- [12] Thomas Nygren and Mona Guath. 2019. Swedish teenagers' difficulties and abilities to determine digital news credibility. *Nordicom Review* 40, 1 (2019), 23–42.
- [13] Matti Palm och Åsa Melin Mandre Pamela Davidsson. 2018. *Svenskarna och internet 2018*. (2018).
- [14] Christer L. Petterson and Nigussu Solomon. 2019. Social media and journalism in Ethiopia - Setting the scene for reform. *FOJO* 1 (2019), 1–20.
- [15] Mark NK Saunders. 2011. *Research methods for business students, 5/e*. Pearson Education India.
- [16] Hagos Niguse Sibhat. [n. d.]. Spreading Hatred A study of Facebook in Ethiopia. ([n. d.]).
- [17] Media smarts. 2019. The reality check game. <https://mediasmarts.ca/digital-media-literacy/educational-games/reality-check-game> (2019).
- [18] Victor C Strasburger. 2010. Media education. *Pediatrics* 126, 5 (2010), 1012–1017.
- [19] Ethio Telecom. 2019. Overview of coverage. (2019).
- [20] Kinfe Michael Yilma. 2017. Fake News and Its Discontent in Ethiopia. *Mekelle ULJ* 5 (2017), 98.
- [21] Stella Zaryan. 2017. Truth and Trust: How Audiences are Making Sense of Fake News. (2017).



Screenshot from the opening view of the first mission. The story is about a sinkhole that has opened on the main street in the neighborhood. This image is reproduced within the permissions for research, that are outlined on the website of Media smarts.



Screenshot from the opening view of the second mission. The story is about dangerous parasites that cats carry. This image is reproduced within the permissions for research, that are outlined on the website of Media smarts.

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