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Navigating Truth in a Digital World: Understanding and Addressing Fake News Challenges Among Immigrants in Germany

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Abstract

The rise of fake news in the digital age poses significant challenges, particularly for immigrant communities who may struggle with language barriers, digital literacy, and unfamiliar media environments. This thesis explores the difficulties immigrants in Germany face in identifying and avoiding fake news, as well as the development of user-centered solutions to address these challenges. Through a combination of interviews, co-design workshops, and usability testing, 25 participants contributed to the creation and testing of a prototype fake review detector designed to help immigrants critically evaluate the credibility of online news.

The study employed qualitative methods to gather in-depth insights into the experiences of immigrants and their strategies for navigating misinformation. The findings highlighted the need for improved media literacy, accessible tools, and culturally sensitive solutions tailored to immigrant populations. The developed prototype includes features such as multiple verification methods, expert opinions, community interaction, and flexible onboarding processes to enhance user engagement.

However, the study's reliance on purposive sampling and the inclusion of only highly educated participants limits the generalizability of the findings to the wider immigrant population in Germany. Further research is recommended to involve a more diverse group of participants, explore the barriers faced by less educated or digitally inexperienced immigrants, and assess the long-term impact of media literacy interventions.

Despite these limitations, this thesis contributes to the ongoing discourse on combating fake news by offering a practical, user-centered approach to supporting vulnerable populations in the digital world. It underscores the importance of empowering immigrants with the knowledge and tools needed to critically engage with online information, thereby fostering resilience against misinformation and promoting social integration.

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List of Abbreviation

1. AI - Artificial Intelligence
2. BBC - British Broadcasting Corporation
3. BMBF - Bundesministerium für Bildung und Forschung
4. BOS - Behörden und Organisationen mit Sicherheitsaufgaben
5. CCPA - California Consumer Privacy Act
6. CNN - Cable News Network
7. EU - European Union
8. GDPR - General Data Protection Regulation
9. IT - Information Technology
10. MaxQDA - Max Qualitative Data Analysis
11. NetzDz - Network Enforcement Act
12. UI - User Interface
13. UK - United Kingdom
14. UNESCO - United Nations Educational, Scientific and Cultural Organization
15. US - United State
16. USA - United States of America
17. UX - User Experience

1. INTRODUCTION

The digital environment has become a double-edged sword in the age of information proliferation, providing novel access to knowledge while also fostering a culture of disinformation. Call it disinformation, fake news, junk news, or deliberately distributed deception, the stuff has been around since the first protohuman whispered the first malicious gossip (Waldrop 2017). The most widely accepted justification attributes the rise in fake news spread and impact mostly to advancements in technology (Juhász & Szicherle 2017). Immigrants are mostly susceptible to its harmful consequences since they frequently struggle not only with adjusting to a new environment but also with discerning truth from falsehood. An immigrant is a person who relocates to a country other than their place of origin or habitual residence to make that country their new country of usual residence (OECD, 2004). The problem of fake news takes on crucial significance in the German setting, where immigrants make up a sizable and varied population, impacting decisions, perceptions, and social integration.

This thesis acknowledges the complex nature of the phenomena and its wide-ranging effects while delving into the complex realities of fake news challenges faced by immigrants in Germany. Through a thorough investigation, we hope to shed light on how fake news enters immigrant communities, highlight the unique difficulties and dangers that fake news presents to immigrant groups, and identify practical solutions that can help immigrants in Germany recognize and steer clear of fake news. At the heart of our investigation is the realization that fake news is a pervasive social problem that affects democratic governance, social cohesion, and trust in society far more than it is a technology or informational one. Immigrants are particularly susceptible to the divisive narratives propagated by fake news because they are often sidelined in public discourse. These narratives can exacerbate social isolation, feed prejudices, and thwart aspirations to integrate.

We suggest a novel strategy based on participant co-design to address this urgent issue, in which immigrants actively participate in the creation of tactics meant to combat false information and promote information resilience. To jointly develop solutions that are culturally sensitive, contextually suitable, and powerful, we wish to leverage the ideas, experiences, and cultural perspectives of immigrants as collaborators in the design process. By using this participatory approach, we hope to better understand the unique needs and concerns of the immigrant communities, while encouraging immigrants to take charge of their education and self-management in response to the problems presented by fake news. By prioritizing immigrant voices and experiences in the design of interventions, we want to build a more inclusive and effective response to the issue. Empathy, empowerment, and co-creation are the cornerstones of this strategy.

Our paper advances this goal by adding to academic discourse and useful interventions like the NEBULA project, which attempts to lessen the negative effects of fake news on German immigrant communities. A cooperative project of the BMBF, NEBULA focuses on user-centered artificial intelligence-based misinformation and fake news detection. Through open, AI-based false information detection in security-relevant contexts and audience-specific presentation of the detection results, the multidisciplinary collaborative project NEBULA aims to improve media literacy. Through the collaborative development of technical support tools, user-centered approaches assist vulnerable individuals as well as authorities and organizations with security tasks (BOS) in accurately creating situation reports and communicating during times of crisis. We hope to catalyze revolutionary change by bridging the research-practice divide through participatory co-design, enabling immigrants to negotiate the complexity of the digital information ecosystem with agency, discernment, and resilience.

The thesis is organized as follows: Chapter 1 discusses the issue of fake news and explains how immigrants are a particularly vulnerable population, making them the subject of this study. Chapter 2 contains a review of research papers along with the terminologies needed to understand the paper. The techniques for data collection and analysis are described in Chapter 3. The research's findings are presented and discussed in Chapter 4. Chapter 5 brings our research findings into designing a prototype that helps detect fake news. Chapter 6 ends with the limitations of the study and possible recommendations for future research.

1.1 Study background

The referendum for the UK's withdrawal from the European Union (commonly known as 'Brexit') and the electoral campaigns during the 2016 US presidential election have prompted inquiries into the potential impact of what is commonly referred to as 'fake' online news on political proceedings (Humphrecht, 2019). The scholarly discussion increased after these events because, based on the increasing number of these stories, online disinformation seemed to play an important role, at least in quantity (Wardle & Derakhshan, 2017) and the attention dedicated to this phenomenon following these events made Macquarie dictionary chose fake news as the word of the year in 2016 (9News, 2017).

Online disinformation, often referred to as "fake news," encompasses a spectrum of misleading or false information deliberately spread through digital platforms. This phenomenon exploits the viral nature of social media, algorithmic biases, and echo chambers to propagate narratives that deceive, manipulate, or polarize audiences. Allcott and Gentzkow (2017) conceptualized fake news as distorted signals uncorrelated with the truth. Fake news, according to them, arises in equilibrium because it is cheaper to provide than precise signals because consumers cannot costlessly infer accuracy, and because consumers may enjoy partisan news. Although fake news can be useful to some customers, it also has negative

effects on society and the individual by making it more difficult for people to determine the real status of the world. As a result, the spread of false news has become a major worldwide issue that threatens democratic institutions, widens socioeconomic gaps, and erodes public confidence in established media sources.

1.2 Misinformation and Disinformation

The meaning of *misinformation* is often conflated with that of *disinformation* but these words have different meanings. The American Psychological Association(2023) describes Misinformation as false or inaccurate information resulting from errors, which can include getting facts wrong. Other scholars define Misinformation as misleading information created or disseminated without manipulative or malicious intent (Dame Adjin-Tettey, 2022; Ireton & Posetti 2018) and such false and misleading information is spread unintentionally (Altay et. al., 2023). Misinformation is worse than an epidemic: It spreads at the speed of light throughout the globe and can prove deadly when it reinforces misplaced personal bias against all trustworthy evidence (Galvin, 2021).

Disinformation however has been defined in UNESCO's Handbook for Journalism Education and Training, authored by Ireton and Posetti, as deliberate (often orchestrated) attempts to confuse or manipulate people by delivering dishonest information to them (Ireton & Posetti (2018); Dame Adjin-Tettey, (2022)). The Harvard Kennedy School's Misinformation Review defines disinformation as "false or misleading information spread with the intent to deceive or mislead (Altay et. al., 2023). That is to say, disinformation involves the creation and propagation of false information to deceive the audience. Guess and Lyons (2020) noted that disinformation is a subset of misinformation, specifically characterized by its intentional spread to achieve certain objectives, often related to political, economic, or social gains. So, the difference between *misinformation* and *disinformation* comes down to intent and Dictionary.com differentiate them by stating that it all depends on who's sharing it and why. For example, if a politician strategically spreads information that they know to be false in the form of articles, photos, memes, etc., that's *disinformation*. When an individual sees this disinformation, believes it, and then shares it, that's *misinformation* (Dictionary.com, 2018).

1.3. Study Context

Hunting down every bit of misinformation that is dispersed throughout the world is practically impossible (Hong, 2020). According to Ghosh and Scott (2018), disinformation is "becoming unstoppable" in general because of its worldwide reach, quick dissemination, anonymous source, abundance of content on the internet, and ability to take advantage of psychological biases. Numerous fact-checking tools have been

developed, such as Facebook's system for identifying false material. However, according to some media analysts, fact-checking is "not working" in the battle against false information (Levin, 2017).

Researchers from all around the world have been examining various aspects of the disinformation phenomenon in an attempt to comprehend its complexities and provide workable answers. Studies have investigated the psychological mechanisms leading to the propagation of misinformation (Pennycook & Rand, 2018), the role played by social media platforms in the propagation of misinformation (Guess et al., 2019), and the strategies employed by disreputable individuals to manipulate public opinion (Wardle & Derakhshan, 2017).

Even though a lot of this study has shed light on the dynamics of misinformation, more context-specific studies that take into consideration the distinctive political and sociocultural environments of various places are still required. In the European context, the focus has shifted to comprehending the problems presented by fake news in nations such as Germany. A study conducted by Humprecht (2019) found that disinformation in German-speaking nations often targets immigrants. Fake news has a particularly noticeable effect on native populations as well as immigrant communities attempting to navigate the challenges of integration and cultural adaptation in Germany, a nation with a diverse landscape shaped by decades of immigration.

Given that Germany is a popular immigration destination for people from a wide range of socioeconomic, linguistic, and cultural backgrounds, it is critical to comprehend the unique difficulties and risks that fake news presents to these populations. Because marginalized communities are frequently the focus of false narratives and conspiracy theories, which further impedes their ability to navigate the digital information ecosystem, immigrants—who are frequently marginalized and underrepresented in mainstream discourse—fall victim to misinformation more often than not (Guess et al., 2019). Therefore, it is imperative to comprehend the unique dynamics of the consumption and propagation of fake news within immigrant groups in Germany

2. LITERATURE REVIEW

2.1. Understanding Fake News

In today's world, the problem of fake news has become a major concern, especially in digital media. The term "fake news" refers to a variety of false information that is disseminated, mostly via digital media. Information that imitates news media content but lacks the editorial standards and procedures meant to assure validity is referred to as fake news (Tandoc et al., 2018). Fake news has a greater potential to spread quickly and widely than the truth because of its novelty and emotional impact (Vosoughi et al., 2018).

2.2 Fake News in Germany

Fake news has become a bigger problem for Germany, a country renowned for its strong press laws and diverse media environment, particularly in the digital age. German media has always been known for its robust public broadcasting services and high standards of journalism (Beck 2012, Grotz et al., 2023). However, the disruption of traditional media institutions brought about by the digital revolution has resulted in the growth of online platforms where false information can spread quickly and readily (Statista Research Department, 2023). Germany has experienced a notable surge in immigration, especially in the aftermath of the 2015 refugee crisis. The emergence of fake news, which frequently targets immigrants and refugees to sow fear and xenophobia, has coincided with this shift in the population (Heidenreich et al., 2019).

The Network Enforcement Act (NetzDG), which attempts to stop hate speech and fake news on social media platforms, is one of the major legislative initiatives Germany has taken in reaction to fake news (Lee, 2017; Heldt, 2019). According to the NetzDG, social media companies that have more than two million members in Germany are required to take down anything that is deemed illegal or criminal within 24 hours of being notified, or seven days in less obvious circumstances. This covers bogus news, slander, and hate speech. Fines of up to 50 million euros may be incurred for noncompliance (Heldt, 2019). However, even if these steps aim to stop the spread of false information, they also bring up issues with censorship and freedom of speech (Lee, 2017). Furthermore, the negative portrayal of immigrants in the media has been linked to a rise in violent crimes against refugees in Germany, suggesting that exposure to fake news may have real-world repercussions (Müller & Schwarz, 2020).

The influence of fake news and disinformation on immigration views in Germany is substantial. Pro-Russian and anti-immigrant propaganda frequently use deceptive strategies to sway public opinion against immigration, including fabricating tales, disseminating incorrect settings, and presenting inaccurate information. These false narratives spread quickly thanks in large part to social media, which makes it more difficult to counter misinformation. Improving media literacy and education is essential to assisting individuals in identifying and disputing false information. Moreover, there is a demand that the European Union and its member states make investments in all-encompassing tactics to combat misinformation, protect social cohesiveness and encourage educated public conversation (Juhász & Szicherle, 2017).

Reuter et al. (2019) found that more than 80% of participants believed that fake news constitutes a threat and that 78% perceived fake news as undermining democracy in a survey done in Germany to explore people's attitudes toward fake news and their tactics to countering disinformation. While about half of the respondents had noticed fake news, most participants stated that they had never liked, shared, or

commented on fake news. The study findings also suggest that younger and relatively educated people are more informed about fake news, and left-wing or liberal respondents tend to be more critical of fake news. The study highlights the importance of understanding people's attitudes towards fake news and their approaches to counteract it. It emphasizes the need for practical policies and countermeasures, as the success of information and communication technology governance depends on the willingness of non-state actors (Reuter et al., 2019, pp. 6-12).

2.3. Immigrants and Media Consumption

The media consumption patterns of immigrants are crucial in understanding their vulnerability to fake news. Immigrants often rely on ethnic media, which provides content in their native languages and covers topics relevant to their communities (Zhou & Cai, 2002). The media is essential to the integration process, however, it can also keep communities away from popular narratives, which could lead to echo chambers that are fertile ground for the spread of fake information (Diaz & Nilsson, 2023). Christiansen (2004) explores the function of transnational television channels and the significance of the diaspora idea in comprehending immigrant groups' media habits in their analysis of media consumption among immigrants in Europe. The study emphasizes how immigrants' media consumption patterns are greatly influenced by their language proficiency, cultural orientation, and affinity for foreign news. The study also emphasizes how important it is to take social and cultural settings into account when examining media consumption in immigrant communities. The concept of diaspora holds significance as it encompasses the idea of different belongings and their influence on the day-to-day lives of immigrants. With this sophisticated understanding, media tactics that cater for the particular requirements of immigrant populations can be more effectively implemented (Christiansen, 2004, pp 2-11).

To create their hybrid cultural identities, people who consume media diasporically move between local and international media venues in a dynamic process. This dual involvement facilitates knowledge and assimilation into the local culture and helps them keep ties to their cultural heritage (Georgiou, 2006). Digital platforms and social media are important additions to traditional media. Because digital diasporas enable instantaneous connectivity to global networks and the establishment of online communities that transcend geographic borders, they are redefining how immigrants interact with media (Leurs & Ponzanesi, 2018). Media can significantly influence the integration process for immigrants. It provides essential information about the host society, including legal rights, societal norms, and available services, which are crucial for successful integration. However, the extent to which media facilitates integration depends on the accessibility of culturally and linguistically relevant content (Viswanath & Arora, 2000).

2.4 Vulnerabilities to Fake News Among Immigrants

Immigrants are particularly susceptible to fake news due to several factors, including language barriers, cultural differences, and a general distrust of mainstream media (Muda et al., 2023). Reading news headlines in a foreign language can affect the ability to discern truth from fake news. Immigrants, who often rely on foreign-language news sources, may be particularly susceptible to fake news due to language barriers and a general distrust of mainstream media. When using a foreign language, false news might be believed even more than true news due to a lack of understanding. This suggests that immigrants may be more vulnerable to misinformation and may have difficulty in accurately contrasting their local news with international news. There is therefore a need for methods that help bilingual individuals navigate news media in their foreign language to reduce the potential negative effects on news discernment (Muda et al., 2023). Fake news can easily fuel xenophobia and discrimination, significantly affecting immigrant communities (Taub & Fisher, 2018). Moreover, there are cognitive factors, such as the continued influence effect, where corrections of misinformation often fail to change people's beliefs if the false narrative fits their preconceived notions (Ecker, et al., 2017).

Marwick and Lewis (2017) provide a comprehensive analysis of the mechanisms and impact of media manipulation and disinformation in the digital age. They highlight the complex interplay between social media platforms, political entities, and individual users in the propagation of false information. The authors argue that the rapid dissemination of content on social media, coupled with algorithms that prioritize engagement over accuracy, creates fertile ground for disinformation campaigns. These campaigns are often tailored to exploit societal divisions and may disproportionately affect vulnerable populations, including immigrants, by targeting them with tailored disinformation. In their examination, Marwick and Lewis discuss how disinformation not only misleads but also serves to erode trust in media and institutions, complicating the public's ability to discern truth from falsehood. They call for a multifaceted response involving both technological solutions by social media companies and educational efforts aimed at improving media literacy. This response they suggest is crucial in mitigating the effects of disinformation and restoring the integrity of the information ecosystem (Marwick & Lewis, 2017, pp 2-47).

There exists a tendency within European media to underrepresented migrant groups and frequently depict them in a negative light, often framing them as delinquents or criminals. This portrayal is predominantly negative and conflict-centered, which has been shown to influence public attitudes towards immigration negatively, reinforcing stereotypical perceptions of migrants. The crucial role media plays in shaping societal views on immigration calls for the importance of conducting comparative studies to examine how these narratives affect migrants. Such studies are essential for a deeper understanding of the media's influence on public sentiment and policy regarding immigration (Eberl et al. 2018).

Fake news has become an important topic in the social and political environment and poses a threat. Certain demographic and ideological factors may contribute to the vulnerabilities to fake news in Germany. This shows that immigrants stand a high chance of being vulnerable to fake news in Germany (Reuter et al., 2019).

Finally, Social isolation can exacerbate the effects of limited media literacy. Immigrants often rely on their immediate social networks for information, which can become echo chambers that reinforce misinformation. Social networks that are homogeneous and limited to one's ethnic or cultural group can prevent exposure to a broader range of perspectives and information, thus increasing susceptibility to fake news. These isolated networks can become breeding grounds for misinformation, as there is less corrective content to challenge inaccuracies (Törnberg, P. 2018).

2.5 Addressing the Vulnerabilities to Fake News Among Immigrants

The rapid exchange of information and the decline in deep reading habits pose significant challenges to effective fact-checking, further compounded by diminishing trust in traditional media. Urgent structural reforms are needed on online platforms to counteract the dissemination of false information. However, these reforms often encounter resistance from companies prioritizing user autonomy (Mihailidis & Viotty, 2017).

Furthermore, the existence of homophilous online networks perpetuates echo chambers, amplifying polarization and distrust. Consequently, there's a pressing need to reassess media literacy strategies to align with the realities of a post-fact society. Recognizing the critical role of consumers and content sharers is paramount in upholding the integrity of news dissemination. Media education should be tailored to the specific needs of immigrant communities to enhance their ability to critically evaluate online content. The recommendation to reposition media literacies within the framework of digital culture and the proliferation of misinformation is crucial for addressing the vulnerabilities associated with fake news among immigrant populations. It is imperative for media literacy efforts to emphasize the connection between people, the celebration of diversity, and the cultivation of empathy. Furthermore, media literacy plays a pivotal role in encouraging regular participation in civic activities and fostering community engagement. These principles are in line with the objectives of digital literacy and media education, which seek to empower individuals with the skills and understanding to critically evaluate and produce media content in the digital era. By promoting critical thinking, responsible consumption of information, and active involvement, digital literacy and media education initiatives can effectively tackle the challenges posed by the dissemination of misinformation and the emergence of post-factual cultures (Mihailidis & Viotty, 2017).

Also, to address the vulnerabilities to fake news, interventions can be made to condition and nudge users to reflect more deeply on the accuracy of the news they encounter. This can be done through crowd-sourced verification mechanisms where users rate the perceived accuracy of social media posts. Additionally, efforts can be made to reduce the consumer utility of engaging with fake news by shifting the utility supply curve upwards. This can be achieved through the adoption of sophisticated algorithms for detecting fake news and verifying contributors, as well as the development of crowdsourcing capabilities for the same purpose. The government can also disseminate official guidelines and protocols for social media platforms to address fake news while considering the protection of free speech and avoiding the privileging of certain points of view (Hartley & Vu, 2020).

Additionally, methods for addressing vulnerabilities to fake news include, establishing state IT centres of defence, aggravating penal provisions, promoting transparent and self-critical journalism, ensuring quick reaction of authorities to set right false information, obligating operators to remove fake news from the internet, and obligating operators to mark fake news as such (Reuter et al., 2019). Moreover, primary approaches to detecting fake news including linguistic analysis, topic-agnostic features, machine learning algorithms, knowledge-based systems, and hybrid methods could be adopted. These approaches range from analyzing the style and structure of text to employing advanced algorithms and combining multiple methods to improve accuracy in identifying fake news (de Beer & Mathee, 2021).

Finally, In their 2023 article, Casero-Ripollés, Tuñón, and Bouza-García examine the European Union's (EU) strategies for managing the spread of disinformation within its digital ecosystems, emphasizing the balance between market forces and foreign policy objectives. The authors discuss how the EU, through entities such as the European External Action Service (EEAS), leverages partnerships with social media platforms, fact-checkers, and independent verifiers to mitigate disinformation risks. They also detail the formation of the High-Level Group on fake news and disinformation online, which has focused on enhancing media pluralism, bolstering education, improving transparency, fostering media literacy, and empowering users and journalists. Further, the study highlights the European Commission's endorsement of the "European Code of Practice on Disinformation," a voluntary framework promoting self-regulation among digital stakeholders. This initiative underscores the EU's commitment to creating a sustainable media ecosystem and continuously evaluating the effectiveness of these measures (Casero-Ripollés et al., 2023, p. 8).

2.6 Research Gap

An absence of research specifically addressing the experiences, vulnerabilities, and information needs of immigrants in navigating the digital information landscape exists, despite a large body of research on the dissemination and effects of fake news, the difficulties presented by fake news and disinformation, and

immigrants' capacity to distinguish truth from false information. To close this gap, our research aims to shed light on the particular difficulties encountered by immigrant communities and to provide guidance for the creation of interventions that are both contextually appropriate and successful in reducing the negative effects of fake news on societal cohesiveness and immigrant integration in Germany.

2.7 Research Questions

To understand the challenges of fake news among immigrants in Germany and to help address these challenges, our study will explore the following research questions:

1. What are the specific challenges and vulnerabilities faced by immigrant communities in Germany in navigating the digital information landscape, particularly in discerning truth from fake news?
2. How do these challenges affect their integration, perceptions, and ability to critically evaluate online information?
3. What are the information needs and preferences of immigrant populations in accessing reliable and trustworthy news sources?
4. What strategies do immigrants employ to verify information and protect themselves from disinformation?
5. How do immigrants perceive the desired features of a fake review detector?

The first question is crucial for developing targeted interventions and support mechanisms to address immigrants' unique information needs. By identifying the barriers that immigrants encounter in discerning truth from fake news, this research question can inform the design of educational programs, media literacy initiatives, and digital literacy resources tailored to immigrant populations, thereby promoting information resilience, and enhancing societal integration.

A thorough analysis of the complex effects of fake news on immigrants' experiences in Germany may be found in the second question. Immigrants' effective integration into German culture, the formation of their perspectives on institutions and societal concerns, and the development of their digital literacy all depend on their ability to comprehend the significance of these challenges. To assist immigrant integration efforts and foster social cohesion in Germany, politicians, educators, and community stakeholders can gain important insights from this study topic by addressing these issues.

To provide fair access to correct information and encourage civic engagement among immigrant groups, the third question is crucial. Through the identification of trusted news sources, preferred languages for

news consumption, and information-access platforms, this research question can contribute to the development of culturally sensitive and linguistically appropriate news delivery channels, promoting greater equity and inclusion of information.

Considering internet disinformation, immigrants utilize resilience mechanisms and coping techniques that are elucidated by the fourth question. This research question can help develop targeted interventions to improve immigrants' media literacy, critical thinking, and digital resilience, which will lessen the negative effects of fake news on immigrant integration and societal cohesion. It also helps to understand the cognitive, emotional, and behavioral responses of immigrants to fake news.

Furthermore, the fifth question sheds light on the features, usability specifications, and cultural factors that need to be considered when creating and implementing these kinds of solutions for immigrant communities. This research question can help develop user-centered and culturally sensitive tools that effectively address the needs and preferences of immigrant communities, thereby improving their ability to recognize and mitigate the impact of fake reviews on their decision-making processes and consumer choices. It also helps understand immigrants' expectations and preferences regarding fake review detection technologies.

3. METHODOLOGY & ANALYSIS

This section contains the research design, data collection techniques, and procedures followed throughout our study. We aim to provide a thorough rundown of the methods employed to guarantee that the study was carried out systematically, meticulously, and with much attention to validity and reliability. This session explains the procedures for participant selection, data gathering tools, and data analysis techniques.

3.1 Research Design

This study adopts a qualitative design to comprehensively explore the issue of fake reviews and develop an effective solution. The research design is structured into two main stages to ensure a thorough understanding and effective outcome. During the first phase, in-depth qualitative insights were obtained from participants through first interviews. To provide a more complex picture of the problem, these interviews explored the participants' experiences, perceptions, and difficulties regarding fake reviews. Participant co-design session, where participants actively cooperate to produce design solutions, comprised the second stage. The qualitative information acquired from the interviews was utilized to develop workable, user-centered solutions. This study prioritizes depth and detail by concentrating solely

on qualitative methodologies, effectively capturing the intricate and multifaceted character of participants' interactions with fake reviews. This methodology guarantees that the generated solutions are derived directly from the demands and lived experiences of the participants, hence augmenting their efficacy and pertinence.

3.2 Data Collection Methods

3.2.1 Interviews

Immigrants in Germany served as our study population and purposive sampling was used to ensure individuals who might offer deep, pertinent, and varied perspectives into the difficulties of fake reviews were selected and to also guarantee a broad representation of participants concerning age, gender, place of origin, and duration of residence in Germany. Based on their immigration status in Germany and their experiences with online evaluations, ten participants were chosen for the interview phase. A semi-structured interview guide was created for the interview. Open-ended questions in the guide were intended to elicit detailed responses about the participants' experiences with fake reviews, their methods for spotting and responding to fake news, how they felt fake reviews affected their time in Germany, and what features and functionalities they would like to see in a fake news detector.

Each interview lasted sixty minutes and was conducted using video conferencing services, this interview method was selected to fit the schedules of participants and to also maintain a welcoming and pleasant atmosphere for all participants. All interviews were videotaped with consent from the participants, and the audio was transcribed verbatim for analysis. To encourage direct and honest discussion, the interview environment was designed to be as casual and relaxed as possible. Throughout the whole interview process, ethical issues were given the greatest consideration. Each participant received a digital copy of an information sheet and consent form outlining the goals of the study, their rights, and how their data will be managed and protected. Participants were assured of confidentiality and were told they could withdraw from the study at any moment without incurring any penalties. Data protection mechanisms were put in place to protect all recordings and transcriptions.

3.2.2 Participant Co-design

The co-design phase involved a subset of the interview participants and additional participants identified as relevant to the development of the fake news detector. One co-design workshop was conducted, which lasted approximately two hours. The workshop was structured to encourage active participation and collaboration among all participants. The session included activities designed to elicit creative ideas and practical solutions. The activities included:

Brainstorming: Participants collaborated to generate a wide range of ideas for addressing the challenges of fake reviews on immigrants in Germany and the features of a fake review detector, the findings from the interview sections were provided to them to serve as a base to build upon. This activity aimed to harness the collective creativity and knowledge of the group.

Creating User Flows: Participants created user flows that visualize how the fake news detector app will function. They worked individually to map out the steps a user would take to navigate the app, from launching it to identifying fake news. Each person presented their user flows to the rest of the participants. Feedback and suggestions for improvement were collected.

Prioritization and Refinement: Following the user flow presentations, a discussion was facilitated to prioritize the identified features and steps. Participants ranked the importance of different elements in the user flows. This prioritization helped with the focus on the most critical and desired features of the app. The top-ranked elements were then refined into a cohesive design plan, ensuring that the most valuable features were incorporated into the final design, enhancing its relevance and usability for the target users.

The participants facilitated the co-design sessions, we guided the activities and ensured that all participants had the opportunity to contribute. We hosted the co-design online with the help of Miro software which helped us to visually collaborate in real time and tools such as whiteboards, sticky notes, drawing tools, shapes and icons were used to capture and organize ideas. All co-design sessions were documented through audio recordings, photographs of sketches, and detailed notes. These records were used to capture the rich interactions and insights generated during the workshops.

3.3 Analysis

The analysis of interview data was performed using MaxQDA, a qualitative data analysis software. This analysis aims to identify key themes and insights related to the challenges posed by fake reviews among immigrants in Germany and to inform the development of the fake review detector prototype.

3.3.1 Interview Data Analysis

At first, the analysis process involved transcription of the interview audio recordings. Every conversational exchange was meticulously transcribed to ensure that every participant's statement was accurately captured. After that, any inconsistencies in the transcriptions were examined and fixed, as necessary.

The transcribed data were arranged and ready for coding before analysis. The transcriptions were imported into MaxQDA to organize and classify the data for systematic analysis. The selection of MaxQDA was based on its strong qualitative analysis features, which encompass data visualization, thematic analysis, and coding.

Initial coding was conducted to identify significant data related to the research questions. This process involved breaking down the transcriptions into manageable segments and assigning preliminary codes based on the content. These codes were developed inductively, emerging from the data rather than being predetermined.

A codebook was developed to organize the initial codes into meaningful categories. The codebook included definitions for each code and guidelines for their application. This step ensured consistency and reliability in the coding process. The codes were grouped into broader themes reflecting key aspects of participants' experiences and perceptions of fake reviews.

MaxQDA's coding features were utilized to apply codes systematically to the interview data. The software allowed for the creation of code categories, hierarchical code structures, and color-coded labels for easy identification. Codes were applied to relevant segmented text, and the software's query functions enabled the examination of relationships between codes.

3.3.2 Thematic Analysis

Thematic analysis was conducted to identify and explore recurring themes across the interview data. Themes were derived from the coded data, focusing on patterns and trends that addressed the research questions. The analysis aimed to uncover commonalities in participants' responses and highlight significant insights from their experiences with fake reviews. We examined the coded data to group similar codes into overarching themes. This process involved identifying connections between codes and integrating them into coherent themes that encapsulated participants' views and experiences.

3.3.3 Participant Co-design Analysis

To analyze this data, a thematic analysis approach was employed to identify common themes and patterns. The first step involved familiarization with all collected data, including notes, sticky notes, and user flows, to gain an initial understanding. Next, key points and ideas were coded to categorize the data, with codes assigned to segmented text and visual data representing similar ideas or themes. These codes were then grouped into broader themes, capturing the essence of participant contributions. Themes such as "user-friendly interface," "language support," and "security sensitivity" emerged from the data.

The prioritization exercise conducted during the workshop indicated the most key features to the participants. The results from the dot voting were analyzed to identify the top-ranked features and functionalities. Additionally, the user flows were analyzed to understand the logical sequence and critical steps identified by participants for navigating the fake news detector app. Key features and interactions were extracted from these visual representations and compared across user flows to identify commonalities and differences.

4. FINDINGS & DISCUSSIONS

A. Interviews

This chapter presents the findings from the interviews conducted with ten participants to explore the challenge related to fake reviews among immigrants in Germany and the strategies employed to cope. The aim is to provide a comprehensive understanding of how immigrants perceive, identify, and manage fake reviews and how these experiences vary across different demographic groups. The analysis is structured in several sections. To set the forthcoming findings in context, the individuals' demographic profile is first described. Subsequently, the major topics that surfaced from the interviews are examined, emphasizing the participants' perspectives, experiences, and tactics about fraudulent reviews. Direct quotes from the interviews will be used to bolster the findings to offer deep, qualitative insights into the viewpoints of the participants.

4.1 Demographics

Table 1: Participants Demographics

PARTICIPANTS	GENDER	AGE	COUNTRY OF ORIGIN	LENGTH OF STAY IN GERMANY	OCCUPATION	MOTHER TONGUE	OTHER LANGUAGES	LEVEL OF EDUCATION
Participant 1	male	late 20's	Ghana	1 year	Compliance Analyst	Twi	English	BA
participant 2	Male	30	Ghana	4.5 years	Working Student-Logistics	Twi	English & German	BA
participant 3	Female	24	Albania	5 years	Student	Albanian	German & English	BA
participant 4	Female	23	Russia	8 months	Student	Russian	English, Learning German	Master Student
participant 5	Female	late 20's	Iran	1.5 years	UX Designer	Persian	English, Learning German	Master Student
participant 6	male	34	Nigeria	5 years	IT consultant	Yoruba, english	German	BEng
participant 7	Male	50	Turkey	20 years	Bussinessman	Turkish	German & English	High School Diploma
participant 8	Female	40	Brazil	7 years	Lecturer and Researcher	Portugese	German, Spanish & English	PhD
participant 9	Female	32	Iran	6 months	Research Assistant	Persian	English, Learning German	PhD
participant 10	male	27	Pakistan	2.5 years	Technical inventory	Punjabi	Arabic, Urdu, German & English	Master Student

Contextualizing the interview results requires an understanding of the participants' demographic profile. The following discusses a summary of the major demographic traits of the 10 study participants, as indicated in Table 1.

There were five men and five women among the participants in terms of gender. Thanks to the equal representation of genders, the findings are guaranteed to be impartial and not favor the experiences or viewpoints of one gender over another. A thorough examination of the perspectives and approaches taken by German immigrants; both males and females, regarding the problem of fake reviews is made possible by this equitable division.

People's interactions and perceptions of credibility on online platforms can be influenced by their gender. For instance, previous study indicates that there may be differences between men and women when it comes to technology use, information verification techniques, and degrees of trust in online sources. Research has indicated that women are more skeptical of material obtained online than males are, and they frequently employ more elaborate methods of verification (Flanagin & Metzger, 2000; Hargittai & Shafer, 2006). However, men may be more confident in their abilities to assess the reliability of content found online (Karimov, Brengman, & Van Hove, 2011).

This study is well-positioned to investigate these potential disparities and offer detailed insights into gender-specific issues and methods linked to fake reviews because it has an equal number of male and female participants. Additionally, the study's equal gender representation guarantees that a wide variety of experiences and viewpoints are included. Understanding social phenomena like fake news—which can be influenced by a variety of factors, such as cultural norms and gender-specific online behaviors—is especially crucial.

The participants ranged from 23 to 50 years old, with the majority falling between 20 - 35 years old. This distribution reflects a diverse age group thereby providing a more balanced perspective across different life stages. The length of stay in Germany varied among participants ranging from six months to twenty years. This range indicates that the participants included both relatively new immigrants and those who have been residing in Germany for a longer period, offering insights into how time spent in the country might affect their experiences and adaptation strategies.

As seen in Table 1, Participants came from various countries, reflecting the diverse immigrant population in Germany. This variety in the country of origin helps in understanding how different cultural backgrounds might influence perceptions and experiences with fake reviews.

Participants' employment status varied, providing insights into different socioeconomic contexts. Understanding the employment status is crucial for comprehending how economic factors may impact participants' engagement with online reviews. The education background of our participants was diverse with all of them having formal education and at least a diploma degree.

The participants in this study came from diverse linguistic backgrounds, reflecting the multicultural makeup of immigrants in Germany. The distribution of mother tongues among the participants was as follows: Twi, Albanian, Russian, Persian, Yoruba, English, Turkish, Portuguese and Punjabi. The diversity of mother tongues among the participants provides a rich context for understanding their experiences with fake reviews. It underscores the importance of considering linguistic and cultural factors when developing strategies to address the issue of fake reviews among immigrants in Germany.

To gain a comprehensive understanding of the media consumption habits of immigrants in Germany, participants were asked about their primary sources of information. The findings reveal a diverse and multi-faceted approach to media consumption among the participants.

4.2 Primary Sources of Information

Nine out of the ten participants said they mostly use the internet to access information. A variety of national and international news sources are included in this list, including Hurriyet, The Guardian, BBC, CNN, Al Jazeera, ResearchGate, Folha de São Paulo, and Spiegel Online. These platforms are preferred because of their wide reach, reliability, and ease of use, aligning with findings that immigrants are more likely to seek trusted sources for comprehensive news coverage to compensate for unfamiliarity with local media (Mikal, Rice, Abeyta, & DeVilbiss, 2013). The inclination for such credible sources suggests that immigrants have a propensity to look for trustworthy and thorough news coverage.

Individuals frequently share news with their networks and stay up to date on current events using social media platforms like Facebook, Twitter, and WhatsApp. Despite concerns about the spread of misinformation on these channels (Allcott & Gentzkow, 2017), these platforms are a desirable source of information due to the speed and simplicity of access. Essential information sources included radios, televisions, newspapers, academic publications, and local news organizations. For many participants, these traditional media platforms offer a sense of comfort and confidence. Furthermore, friends and family are important sources of information since they frequently serve as verifiers or filters for news items, a pattern observed in previous studies highlighting social networks as key mediators of information for immigrant communities (Boyd & Ellison, 2007). The significance of remaining informed in one's

daily life is underscored by the fact that most participants reported regularly accessing these diverse sources.

4.3 Preference for Home Country vs. German News

When asked whether they prefer news from their home country or from Germany, all participants, except one, expressed a preference for both. This dual interest allows them to stay connected to their roots while also staying informed about their current environment. News from their home country keeps them connected to their cultural heritage and helps them stay updated on events and issues back home. On the other hand, German news provides them with essential information about the society they live in now, helping them understand local issues, policies, and events. Research suggests that maintaining access to media from one's home country helps immigrants stay informed about familiar cultural and political contexts, reinforcing cultural identity and providing a sense of belonging (Georgiou, 2006)

Participant 3, however, expressed a unique perspective, stating a preference for exclusively consuming German news. She explained that news from her home country tends to focus heavily on negative events, which she finds discouraging. She articulated this sentiment as follows: *"Like, okay, for example, you have news and it's like... Let's say 20 minutes long, the first 15 minutes are just negative things. And five minutes in the end are like positive things, but I don't think they balance each other at all. German news is more straightforward and fair."*

4.4 Strategies for Verifying News Credibility

Understanding the strategies adopted by participants to filter and verify the news they consume is crucial in the context of rising misinformation. Most participants indicated that they employ a comparative approach to verify the credibility of news. They cross-check information across multiple sources to ascertain its accuracy. As Participant 7 explained, *"I compare news from different sources, so when I see it on the TV, I try to see if I can find the same news on the radio. And sometimes if I hear something significant, I check multiple channels and websites to see if the information is consistent."* This practice of triangulation helps them build confidence in the news they consume.

Some participants emphasized the importance of the goodwill and credibility of the news agency or website circulating the information. They tend to trust well-established and reputable sources over less known or questionable ones. This reliance on trusted brands indicates a cautious approach to news consumption.

Additionally, discussing news content with friends and family is another common strategy. These discussions provide a platform for participants to share perspectives, question information, and collectively determine the credibility of the news. This social aspect of news verification underscores the role of community and social networks in combating misinformation.

4.5 Understanding of fake news

The awareness and experiences of fake news among participants were unanimous, with all participants acknowledging their familiarity with the phenomenon and recounting personal encounters with fake news. Their experiences reflect a broad understanding of the pervasive nature of misinformation and its potential impacts on various aspects of society. All participants demonstrated a clear awareness of fake news, having encountered it in different contexts. Participant 8 shared a particularly striking example of a viral health event in Brazil: *“One notable instance was a viral story about a supposed health crisis in Brazil that turned out to be completely fabricated. It was quite unsettling and caused unnecessary panic among the public.”* This example underscores the potential for fake news to cause significant public distress and highlights the importance of vigilance and verification in consuming news.

Similarly, Participant 7, a small business owner in Germany, recounted an event where fake news directly impacted the business community. He stated, *“It has happened, there was a story about a supposed new law affecting small businesses that turned out to be completely false. And as I said before, during the earthquake in Turkey, there were several news stories about it that were fake.”* These instances illustrate the broad scope of fake news, affecting not just individuals but also businesses and entire communities.

Participants identified several significant impacts of fake news on the public. These impacts were multifaceted, affecting emotional well-being, reputations, attention, societal trust, and decision-making processes; they often generate unnecessary worry and anxiety among individuals. Participant 7 described how fake news caused widespread panic: *“During my stay here I have panicked over several fake news stories.”* This sentiment was echoed by Participant 6, who recounted a specific instance: *“There was an instance where a false report about a visa policy change caused a lot of anxiety among my friends. We later confirmed that the news was false, and it had already caused several emotional damages. People thought they were going to be sent back home.”*

Our findings revealed Fake news can tarnish reputations, particularly when it involves false information about laws or regulations affecting businesses. Participant 5’s experience with the fake story about a new law demonstrates how misinformation can damage the reputation of small businesses and create a sense of instability and distrust within the business community. This can also divert public attention away from

prominent issues, leading to confusion and a lack of focus on genuine concerns. The spread of fake news during the earthquake in Turkey, as mentioned by Participant 5, exemplifies how such stories can distract from real crises and hinder effective responses. Participant 8 highlighted the rapid spread of false information: *“It was frustrating to see how quickly false information could spread and create confusion.”*

The dissemination of fake news often results in fear and panic, as seen in the viral health crisis story. This fear can lead to irrational behavior and decision-making, further exacerbating the negative effects of the misinformation. Participant 7 detailed the emotional toll: *“It caused a lot of unnecessary worry and confusion. People were stressed and started making plans to deal with the changes that were never going to happen. Fear and panic.”*

Findings from the interviews also revealed that, Fake news disrupts sound decision-making and can hinder societal development by spreading false information that misguides public perception and actions. This can result in policies and actions based on incorrect assumptions, affecting societal progress and development. This has the potential to erode confidence in crucial establishments including the government, media, and medical systems. People may grow wary of reliable information sources when they are exposed to false material on a regular basis, which could undermine public confidence in these organizations. The impact of fake news was a source of annoyance for participant number six, who said, *“It was frustrating and sometimes worrying. There was an instance where a false report about a visa policy change caused a lot of anxiety among my friends.”*

The testimonies of the participants demonstrate a thorough comprehension of the occurrence and effects of false information. Their stories demonstrate the pervasive effects of disinformation, which range from reputational harm and emotional misery to larger societal upheavals and a reduction in faith in important institutions. These observations highlight the urgent need for practical methods to counter false information, raise public awareness, and improve media literacy.

4.6 Impact of Fake News on Germans Perception of Immigrants

To understand the context-specific impact of fake news on immigrants in Germany, participants were asked whether they believed that fake news affects the immigrant community differently than other groups. Almost all participants affirmed this belief, providing valuable insights into how misinformation uniquely impacts immigrants. However, one participant remained neutral, explaining that their lack of engagement with other groups made it difficult to assess the comparative impact of fake news.

Participants consistently highlighted several factors that make immigrants particularly vulnerable to fake news. Participant 8 noted that misleading stories can create a distorted view of immigrants, portraying them as a threat to local culture and security. This sentiment was echoed by Participant 2, who stated, *“These misleading stories can create a distorted view of immigrants, portraying them as a threat to local culture and security”*. Such portrayals can fuel xenophobic attitudes and deepen societal divides.

Participant 1 discussed the economic implications of fake news, noting that it makes people conclude that immigrants come from difficult situations with the intention to compete with natives for available resources. This story has the potential to increase hostilities between the native population and the immigrant population by encouraging rivalry and resentment rather than understanding and collaboration. Participant 6 underscored the significance of media depiction by sharing personal accounts of the unfavorable preconceptions that are promoted by false information. He explained, *“The media has painted some kind of pictures which are not pleasant, probably due to the mistakes of one or two persons. For where I’m coming from, Nigeria, the international media has painted a picture of scamming crime around us and this has affected my encounters with people since they see me in that light.”* This highlights how misinformation can lead to unfair generalizations and biased treatment based on nationality or ethnicity. As an example of the wider societal impact, Participant 7 said, *“Fake news often portrays immigrants as a threat, which influences public opinion and leads to discrimination.”* This unfavorable representation may increase mistrust and discrimination, making the atmosphere unfriendly for immigrants. The third participant mentioned that false information and unfavorable stereotypes are frequently spread via fake news, which makes it harder for the public to comprehend immigrant populations.

Participants identified several negative outcomes, such as anti-immigrant sentiment, a polarizing atmosphere, heightened suspicions, prejudice, discrimination, hate, xenophobia, negative stereotypes, and incorrect perceptions, when asked how they believed fake news had affected the public perception of immigrants in Germany. These comments highlight how seriously fake news affects the social fabric and makes society less inclusive and more divided. For example, Participant 6's contacts with biased media depictions have caused societal discord and unjustified bias. This is an example of how fake news can cause prejudice. Like this, Participant 7's observation regarding fake news that presents immigrants as threats emphasizes how such false information has the power to sow discord and anxiety, escalating social unrest and eroding confidence in important institutions.

According to the findings, fake news not only skews public opinion about immigrants but also creates a climate of distrust, divisiveness, and fear. Targeted efforts to raise media literacy, encourage truthful reporting, and assist programs that encourage communication and understanding across cultural

boundaries are necessary to address this issue. A more knowledgeable, unified, and inclusive society can be achieved by reducing the dissemination and effects of fake news.

4.7 Impact of Fake News on Immigrants' Perception of Native Germans

Fake news's profound effect on immigrants' perceptions of native Germans has become known. The study's conclusions show that false information has a significant impact on how immigrants see Germans, resulting in mistrust, the reinforcement of negative stereotypes, and an increase in dread. The effects of these skewed perceptions on attempts to promote social cohesiveness and integration are extensive.

With her reply, Participant 5 offers a powerful example of this phenomenon: *"It is untrue that all Germans are racist and Nazis. If you get closer to them, they are really nice. Though there are still some people who follow the Nazi rule, not everyone does."* This observation highlights the pervasive impact of fake news, which often relies on broad generalizations and negative portrayals. While there are indeed individuals who may hold prejudiced views, the participant's experience emphasizes that such stereotypes do not reflect the entire population. The distortion created by fake news can lead immigrants to hold generalized and inaccurate beliefs about Germans, overlooking the diversity and the positive aspects of German society.

Participants across the study consistently reported that fake news has skewed their perception of Germans. Many have noted that sensationalist and misleading stories contribute to a distorted view, creating a sense of fear and mistrust. This distortion hinders the development of meaningful relationships and impedes efforts toward social integration. The misrepresentation of Germans as uniformly negative affects how immigrants engage with the native population, often leading to a reluctance to interact and a reinforcement of prejudices.

Participants in the study saw that the narratives spread by false news frequently highlight extreme or negative features, which feeds into damaging preconceptions and creates conflict. These beliefs have practical consequences for how immigrants manage their everyday lives and assimilate into German society; they are not only theoretical worries. For example, immigrants may be less likely to engage in community activities or make friends with local Germans if they arrive and see Germans through the prism of fake news. This resistance has the potential to strengthen social divides and prolong cycles of miscommunication and loneliness.

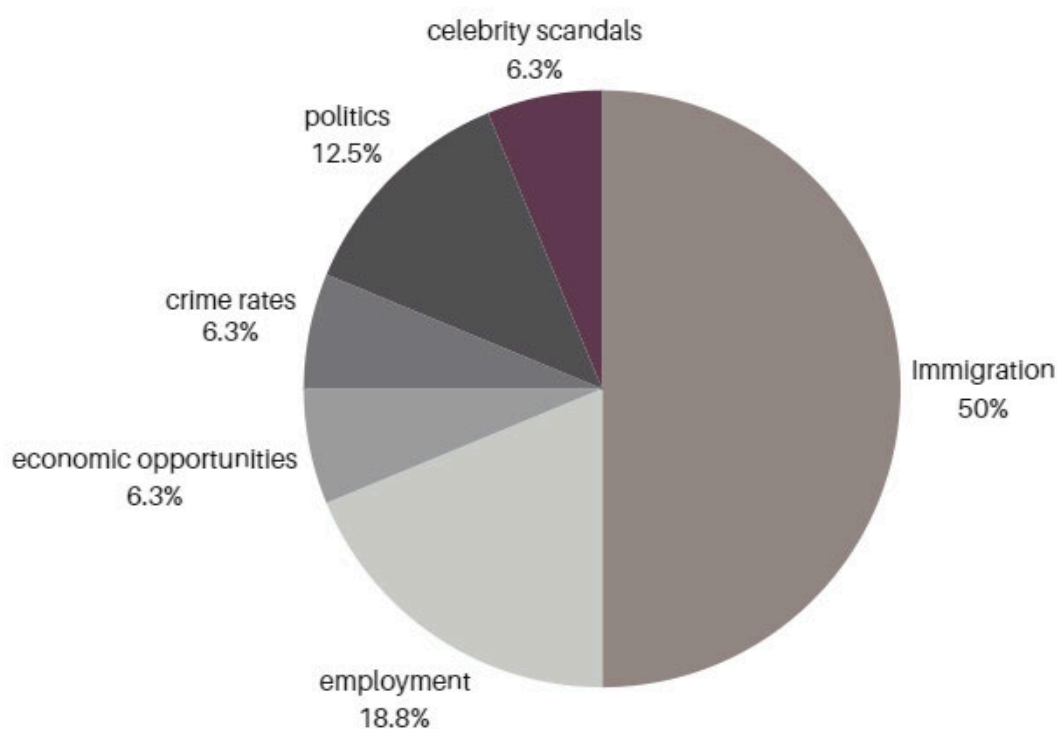
Participants' comments showed that fake news can undermine social cohesion by erecting needless barriers between native Germans and immigrants, in addition to feeding negative stereotypes. Fake news

hampers efforts to foster cooperation and mutual understanding by fostering mistrust and fear. To promote a more inclusive society where immigrants and native Germans may engage on an equal and courteous basis, it becomes imperative to address these issues.

Fake news has a significant and complex impact on immigrants' impressions of native Germans. Fake news distorts narratives, which impede integration and have a negative impact on social relationships by feeding negative preconceptions and beliefs. Understanding these effects is crucial for creating plans to squelch false information and advance a society that is more inclusive and united. The negative consequences of fake news can be lessened, and community ties can be strengthened by addressing the underlying reasons of these misguided beliefs and promoting greater understanding between immigrants and native Germans.

4.8 Themes and Topics Prone to Fake News

Fig 1. Themes of fake news



When asked if they have noticed any themes or topics that are more prone to fake news, about 50% of the participants indicated that topics related to immigration are most susceptible. As shown in Fig 1, this was the most frequently mentioned category, underscoring the heightened sensitivity and prevalence of misinformation surrounding immigration issues. Participant narratives reflected concerns about how fake news perpetuates negative stereotypes and misconceptions about immigrants, which can significantly impact public perception and policy.

Additionally, almost 19% of participants highlighted employment-related issues as another common subject of fake news. This includes misleading information about job availability, labor market conditions, and employment rights for immigrants. Such misinformation can create unnecessary anxiety and confusion among immigrants, affecting their job search and career stability.

6.3% of the participants cited economic opportunities and same cited crime rates as subjects that are prone to false information. Narratives that inflate the number of crimes committed by immigrants or mistakenly link immigration to economic downturns can incite xenophobia and unfairly place the responsibility for larger social problems on immigrant groups. This kind of false information can worsen prejudice and discrimination, isolating immigrants even more and impeding their assimilation. For instance there was a wavering hatred against immigrants during the period of the stabbing incident on the 30th August 2024 on the Siegen - Neunkirchen road because it was initially rumored to be caused by an Iranian girl until the police issued an official report to refute the rumor and confirm it was a native German.

12.5% of participants said that politics served as a breeding ground for false information. Political misinformation can polarize public opinion and widen societal differences. It frequently consists of made-up remarks, falsified figures, or sensationalized accounts of events. Political fake news can make it difficult for immigrants to comprehend the laws that govern their lives and their rights, which makes it harder for them to make wise decisions.

Finally, 6.3% of participants recognized celebrity scandals as a topic prone to fake news. Fake news concerning celebrities can have a big cultural and societal impact, even though it could seem less significant than other categories. Stories like this can be used to deflect attention from important conversations about immigration and integration and frequently serve as a diversion from more urgent problems. It's crucial to mention that these numbers are not mutually exclusive. There was considerable overlap in the topics mentioned by the participants because they were free to name as many as they could. This implies that fake news is a complex problem that has an impact on many facets of society and daily

life. The results emphasize the necessity of all-encompassing approaches to counter false information, especially in domains most pertinent to immigrant populations.

To increase media literacy among immigrants and the general public, specialized interventions that take into account the unique themes and issues that are prone to fake news might be developed. It is feasible to lessen the negative consequences of fake news and promote an informed and cohesive society by giving people the skills necessary to critically analyze information.

4.9 Challenges and Vulnerabilities in Navigating the Digital Information Landscape

When participants were asked about the specific challenges and vulnerabilities faced by the immigrant communities in Germany in navigating the digital information landscape, most of them swiftly pointed to language as the most significant barrier. This issue was consistently highlighted across various responses, underscoring the profound impact of language proficiency on their ability to access, understand, and evaluate digital information.

Participant 5 emphasized the difficulty of understanding German-language messages, saying, *"My first challenge is language, Language. Yes, it's a big challenge for me because, for example, maybe during the days I received some messages on my phone and all of the messages are in German. So I cannot understand if this message is right or wrong."* Another participant who reflected this feeling was Participant 9, who said that it can be challenging to traverse news sources and assess their reliability when one's language proficiency is limited. With her statement, *"The first main challenge for me is always language because I don't know German at all yet,"* participant 4 effectively summed up this hurdle.

Even those who are proficient in German, like Participant 7, find it easier to consume news in their native language, which complicates their ability to assess local news sources' credibility: *"The primary challenge is the language barrier. Although I speak German, it's easier to consume news in Turkish. This can sometimes make it difficult to gauge the credibility of local news sources."* Participant 6 reinforced this sentiment, explaining, *"The biggest challenge is the language barrier and knowing which sources are trustworthy."*

Beyond language barriers, participants also pointed out difficulties related to unfamiliarity with the local media landscape. Participant 8 noted, *"Unfamiliarity with the local media landscape are significant challenges,"* while Participant 2 highlighted the importance of identifying trustworthy sources: *"Knowing which sources are trustworthy."*

Interestingly, technological literacy was also mentioned as a significant challenge, particularly by older participants. A 50-year-old business owner, Participant 7, shared, *"I'm not too well- technology educated so sometimes when I have to check something online I face some challenges."* This indicates that, in addition to language proficiency, technological skills play a crucial role in how immigrants navigate the digital information landscape.

These difficulties when combined can result in serious weaknesses. Language-challenged immigrants may find it difficult to evaluate the reliability of the material they come across, which leaves them more open to false information and fake news. Their capacity to make wise judgments regarding their lives in Germany may therefore be impacted by this. Language limitations, for instance, may result in miscommunications regarding crucial legal obligations or public statements, which could put additional strain on people or complicate legal matters.

Furthermore, immigrants may not know which sources to trust due to their unfamiliarity with the local media landscape, which makes them prone to fake news. This may contribute to feelings of alienation and loneliness, among other wider societal repercussions. As Participant 8 pointed out, *"Unfamiliarity with the local media landscape are significant challenges,"* suggesting that without proper guidance or education, immigrants might rely on less reliable sources of information.

The technological literacy gap further exacerbates these issues. Older immigrants may not have the skills needed to navigate digital platforms effectively, leaving them more vulnerable to misinformation. Participant 7's admission, *"I'm not too well technology educated so sometimes when I have to check something online I face some challenges,"* highlights a critical area where support is needed.

These challenges illustrate the multifaceted nature of the vulnerabilities faced by the immigrant communities in Germany. Addressing these issues requires targeted interventions. Language support programs can help bridge the communication gap, ensuring that immigrants can understand and critically evaluate the information they receive. Media literacy education is also crucial, equipping immigrants with the skills to identify trustworthy sources and navigate the complex media landscape. Additionally, providing technological training can empower older immigrants and those less familiar with digital tools to access and utilize online information effectively.

Language hurdles, lack of familiarity with reliable local news sources, and disparities in technology skills all have a significant impact on how immigrants in Germany use digital information. These difficulties make it difficult for them to get correct information and make them feel vulnerable and alone.

4.10 Effects of the Challenges on Integration, Perceptions, and the Ability to Critically Evaluate Online Information

Exploring how the challenges faced by immigrants impact their integration, perceptions, and ability to critically evaluate online information reveals a complex interplay of factors that hinder their smooth transition into German society. The responses from the participants shed light on these issues, illustrating the profound effects of fake news and language barriers on their daily lives and broader societal integration.

4.10.1 Effects on Integration

Many participants underscored the pivotal role that language barriers and misinformation play in creating obstacles to their sense of integration and connection within German society. Participant 8 poignantly captured this sentiment, stating, *"These challenges create a barrier to feeling fully integrated and informed. This can occasionally make me feel alone since I don't feel like I'm totally engaged in the world around me."* Their inability to comprehend and successfully interact with local concerns is made worse by their lack of access to trustworthy information. Participant 7 elaborated on this concept by emphasizing how fear and mistrust might be made worse by false information. He explained, *"It can create unnecessary fear and distrust if we believe negative and false stories about Germans. This can hinder integration and create a sense of isolation. They create barriers to fully understanding and engaging with local issues."* This statement emphasizes how false narratives can deepen divisions, making it increasingly difficult for immigrants to build meaningful relationships and trust within their new communities.

Participant 6 further elaborated on the issue, noting that misinformation contributes to a persistent sense of doubt and uncertainty, particularly regarding local laws and regulations. *"They make it harder to fully integrate because there's always a level of doubt and uncertainty about the information. And since I depend on this information to inform myself about the laws and regulations of Germany, it makes it difficult for me."* This struggle to obtain accurate and clear information can lead to misunderstandings and significantly hinder the process of building trust and relationships within the community, as Participant 3 pointed out: *"Misinformation can lead to misunderstandings and hinder the process of building trust and relationships within the community."*

Participant 5's experiences underscore how misinformation can erode trust. He noted, *"But for the people that they trust everything easily, hearing this kind of fake news makes them not trust everyone in Germany, in this country. Maybe they have a bad feeling about the country because of this fake news."*

Additionally, Participant 5 highlighted a specific challenge related to communication with older Germans: *"Here in Germany I cannot integrate and communicate with people, especially the elderly. I never can talk with them because they are mostly talking in German, not English."* This comment highlights the critical need for language support and social integration programs that are sensitive to different age groups and their unique challenges.

4.10.2 Perceptions of Societal Issues

Another important topic of debate was how individuals' opinions of societal issues were affected by disinformation. As stated by Participant 8, *"These challenges can skew perceptions, making issues seem more or less severe than they actually are."* This misrepresentation may have a major influence on immigrants' views on and responses to various social issues, influencing their attitudes and behaviors.

In the absence of credible information, it is easy to misjudge the gravity or nature of societal concerns, according to the first participant, who claimed that it is also easy to misjudge the importance of these difficulties. *"This poor decision-making can cause misunderstandings and obstruct constructive involvement in community issues."* To better elucidate this point, Participant 6 described how fake news might skew people's perceptions of societal concerns, sometimes making them appear worse than they are. *"They have the ability to distort my perception of society's concerns, sometimes exaggerating how bad they actually are. Even though I may feel that the law is severe against me, my perspective would change if I could understand it and had access to the appropriate facts."* This emphasizes how important it is for immigrants to have accurate and easily accessible information to establish realistic and knowledgeable opinions about their new society.

Misinformation can also polarize perceptions, making society issues appear more serious or polarizing than they are, as highlighted by participant 7: *"They can distort my understanding of societal issues, sometimes making them seem more polarized or severe than they actually are. This distortion can hinder constructive dialogue and informed decision-making."* This divisiveness not only distorts people's perceptions but also undermines community cohesiveness and communication, making it difficult to tackle society problems in a cooperative manner. Determining the truth can be challenging, which can exacerbate tensions and cause a community to become divided, making it harder to promote collaboration and understanding between people.

4.10.3 Ability to Critically Evaluate Online Information

A noteworthy theme that surfaced from the conversations was the capacity to assess internet content critically. The participants discussed how these difficulties have increased their caution and diligence when it comes to fact-checking. Participant 8 said, *"I become more rigorous in checking information and occasionally cautious and skeptical as a result of them. I usually take extra time to look up reliable information and cross-reference sources."* This strategy is necessary to create a strong mechanism that separates reliable information from lies, which is important in a time when disinformation is widely distributed.

The impact on the methods adopted for analyzing information was also mentioned by Participant 4, who said, *"They make me more cautious and thorough in evaluating information."* Being more vigilant is essential for safeguarding oneself from false information and navigating the confusing digital information ecosystem. Building a critical and educated viewpoint on internet content requires the capacity to double-check information, look for different viewpoints, and rely on reliable sources.

This means that immigrants' integration, perceptions of societal concerns, and capacity to critically assess online material are all impacted by the difficulties they encounter in Germany, especially those pertaining to language obstacles and disinformation. Fostering a more inclusive and knowledgeable immigrant community requires addressing these issues through focused support programs including language instruction, media literacy training, and community integration projects. These measures will not only help immigrants navigate the digital information landscape more effectively but also enhance their overall integration into German society, promoting mutual understanding and social cohesion.

4.11 Information Needs and Preferences of Immigrant Populations in Accessing Reliable and Trustworthy News Sources

Upon examining the information needs and preferences of immigrant communities regarding obtaining reliable and credible news sources, some significant themes surfaced. Participants emphasized the need for fact-checked information, plain reporting, dependence on reliable and expert sources, multilingual support, and broad news coverage. These components are essential to making sure immigrants have access to reliable and easily understandable news that meets their specific needs and keeps them informed in their new surroundings.

The participants identified the availability of multilingual news sources as one of their top needs. For many immigrants, the language barrier continues to be a major obstacle that prevents them from accessing

trustworthy information. Participant 5 effectively expressed the need for this, pointing out that one of the main issues facing Germany is the lack of support for other languages, such as English, in the majority of online resources, which are only available in German. This emphasizes how important it is to have bilingual materials to guarantee accessibility and inclusivity for non-German speakers.

Participants also underlined how crucial it is to have access to thorough and trustworthy news sources. They expressed a preference for well-established news sources and academic journals known for their credibility. Participant 8 shared that she prefers well-established news sources and academic journals known for their credibility, highlighting the importance of reliable and comprehensive news. This preference underscores the need for in-depth reporting that covers a wide range of topics and provides thorough analysis. Participant 6 echoed this sentiment, stating a preference for well-established, reputable sources and news that is straightforward and fact-checked. The focus on uncomplicated, fact-checked news demonstrates a need for precision and clarity, which are essential for fostering consumer trust in the information ingested. Trustworthy sources guarantee that the news is true and presented in an understandable way, which is crucial for people who might not be fluent in the local tongue. Access to expert analysis and reports from credible organizations was another significant preference. Participant 7 emphasized this, noting their preference for well-established news outlets with a reputation for thorough fact-checking. They also value access to expert analysis and reports from credible organizations. This indicates a need for informed opinions and in-depth analysis that goes beyond basic news reporting, allowing immigrants to gain a deeper understanding of complex issues and aiding in their ability to make informed decisions.

The preference for fact-checked news was repeatedly highlighted as essential. Immigrants rely heavily on the integrity of news sources to provide accurate and verified information. Participant 6 mentioned their preference for well-established, reputable sources and news that is straightforward, and fact-checked. In a similar vein, Participant 7 emphasized the significance of reputable news organizations with a record of meticulous fact-checking. To make it simpler for immigrants to understand and trust the news they consume; clear reporting is necessary. This is linked to the material's clarity and simplicity.

The opinions of immigrants in Germany are influenced by the reputation of the news source itself. Participants repeatedly stated that they preferred news sources with a solid reputation for dependability and thoroughness. This choice is further supported by Participant 7's remark, which highlights their preference for reputable news organizations with a record of meticulous fact-checking. Relying on reliable sources lessens the possibility of coming across false information, especially for immigrants attempting to make their way through a foreign and frequently unfamiliar information landscape.

From the findings above, the information needs and preferences of immigrant populations in accessing reliable and trustworthy news sources revolve around multi-language support, comprehensive coverage, reliance on reputable and expert sources, and the importance of fact-checked and straightforward reporting. Addressing these needs is crucial for helping immigrants stay informed, integrated, and confident in the information they receive. Providing accessible and reliable news in multiple languages, from credible sources, and with expert analysis will significantly aid immigrants in navigating the digital information landscape and foster their integration into German society.

4.12 Strategies immigrants employ to verify information and protect themselves from disinformation.

When asked about the strategies they employ to verify information and protect themselves from disinformation, participants offered a range of methods demonstrating their initiative-taking and diligent approaches to navigating the complex digital information landscape. These strategies varied in their specificity and focus but collectively highlighted a multifaceted approach to discerning credible information from unreliable sources.

Participant 5 emphasized a thorough and systematic approach to verifying the credibility of information. They begin by checking the validity of websites through various platforms such as Instagram, YouTube, LinkedIn, and Facebook. A critical part of their strategy involves looking for validation icons on the website's footer, which serve as indicators of the site's legitimacy. If these icons are absent, Participant 5 withholds trust. She stated, *"First, I try to reach their website. And for each website, as I told you, there are some validation icons in the footer that if they have those icons, it means that this is a valid website. And if I don't find those icons in the footer, I don't trust them."* Additionally, they scrutinize the website's LinkedIn profile, assessing the date the organization joined LinkedIn and the number of followers and comments on their posts. Participant 5 added, *"The date that they join LinkedIn, if for example, new dates, the recent date that they join, maybe it's not so trustable and the amount of their followers, you know, the comments of the people under their posts, something like this. And after validation of LinkedIn, I try to reach them on Facebook, not Instagram, because Instagram is not so important for this kind of, for example, company, something like this."* This participant's approach underscores the importance of cross-referencing and validating the digital presence of information sources across multiple platforms to ensure authenticity.

Participant 8 focuses on cross-referencing multiple sources, checking for academic references, and evaluating the credibility of the author or publication. She explained, *"I cross-reference multiple sources,*

check for academic references, and look at the credibility of the author or publication. These strategies help me filter out disinformation and stay informed with accurate news." This approach highlights the importance of triangulating information to ensure its accuracy. By consulting various sources and academic references, Participant 8 aims to filter out disinformation and stay informed with accurate news. This strategy underscores the value of diversified information sources and the reliance on academic rigor as a benchmark for credibility. Similarly, Participant 10 employs cross-referencing with multiple sources and checking the credibility of authors or websites as their primary strategies. He stated, *"Mostly cross-referencing with multiple sources and checking the credibility of the authors or websites are my main strategies."* This approach is consistent with the methods described by Participant 8, reinforcing the significance of multiple verification points to ensure the reliability of information.

Participant 9 adds another layer to the verification process by checking the publication date and looking for corroborating evidence from official statements or academic reports. She said, *"I cross-reference information from multiple reputable sources, check the publication date, and look for corroborating evidence from official statements or academic reports."* This strategy not only cites multiple trustworthy sources but also emphasizes the significance of information timeliness and confirmation. Participant 9 confirms the accuracy and timeliness of the material by checking the publishing date, and further verification is added by corroborating statements from government agencies or scholarly publications. Participant 7 introduces the use of fact-checking websites and tools to verify dubious claims. He mentioned, *"I also use fact-checking websites and tools to verify dubious claims."* Fact-checking tools provide an accessible and efficient means to quickly assess the veracity of information, particularly in a digital landscape where misinformation can spread rapidly. This strategy complements the more labor-intensive methods of cross-referencing and checking credibility by offering a quick preliminary check to identify potential falsehoods.

Participant 1 adopts a more direct approach by turning to government websites to verify suspicious information. He said, *"When I find them suspicious, then I will quickly run to government websites to check."* Government websites are frequently seen as trustworthy and authoritative sources of information, especially when it comes to matters of official declarations, policies, and regulations. This method emphasizes how crucial it is to look for information from main, reliable sources to guarantee correctness and dependability.

In general, the methods employed by the participants to confirm information and shield themselves from fake news show a thorough and initiative-taking approach to navigating the world of digital information. Participants show a thorough and diverse approach to identifying reliable information by using

fact-checking tools, reading government websites, cross-referencing several sources, looking up academic references, assessing the reliability of writers and publications, and using fact-checking software. These tactics emphasize how important it is to be diligent, to diversify, and to use credible sources to counter misinformation and guarantee that people have access to accurate and trustworthy news.

4.13 Fake News Detector

All the participants indicated that they would be willing to utilize a fake review detector, which indicates that there is a strong need and interest in having such a tool. This answer implies that there is a general understanding of the difficulties caused by fake reviews as well as the possible advantages of using a fake review detector.

The advantage of conserving time is one of the main themes that emerges from the responses of the participants. Several participants noted that having a reliable tool would save time, indicating that their current strategies for verifying the authenticity of news is time-consuming and cumbersome. The efficiency provided by a fake review detector would streamline this process, allowing users to quickly assess the credibility of reviews without extensive manual research. One participant emphasized, "Having such a tool that is reliable would save time and provide peace of mind," underscoring the dual benefit of efficiency and reduced anxiety regarding the authenticity of information.

The tool's ability to prevent the spread of false information was noted as another important advantage. The participants understood the need of a fake review detector in preventing the spread of misleading information, which is a major problem in the current digital environment. The technology has the potential to enhance the trustworthiness of the online environment by limiting its consideration to verified and legitimate evaluations alone. As an illustration of this, one participant said, *"Yes, I would be extremely interested. A tool like this would be really helpful in confirming information fast and stopping the spread of false information."*

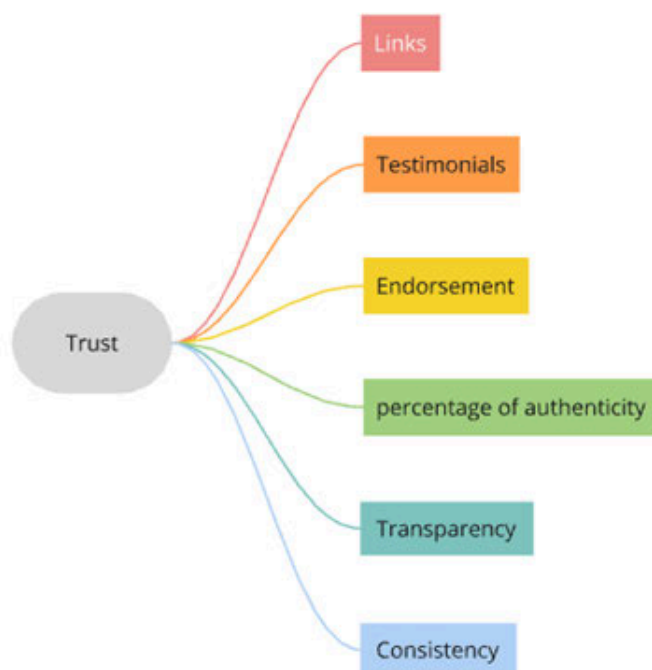
Participants also indicated that they wanted information to be verified quickly. Because internet interactions happen quickly, there is a need for systems that can quickly and accurately determine the reliability of content. A fake review detector that can deliver quick verification would align well with the participants' expectations and usage patterns, making it a valuable addition to their digital toolkit. A participant noted, *"It would be a helpful resource to quickly verify information and avoid the spread of misinformation,"* which encapsulates the need for both speed and accuracy in information verification.

Furthermore, participants expressed an interest in tools that offer explanations for their assessments. This indicates a desire for transparency in how the tool operates and arrives at its conclusions. Providing users with clear explanations can enhance their trust in the tool and improve their understanding of the criteria used for verification. While this specific benefit was not elaborated upon in the provided responses, it is a logical extension of the desire for reliable and trustworthy information tools.

Overall, the participants' responses suggest a strong positive reception towards the concept of a fake review detector. The anticipated benefits: timesaving, avoidance of fake news spread, quick verification, and the provision of explanations - highlight the practical and psychological advantages such a tool could offer. This feedback indicates a readiness and eagerness among users to adopt tools that enhance their ability to navigate the digital information landscape more effectively and confidently.

The enthusiastic response to the fake review detector underscores a significant opportunity to address a prevalent need among users. The creation of a tool that lives up to these standards might enhance users' online experiences and strengthen the foundation of a more reliable digital ecosystem. This analysis emphasizes how crucial it is to create tools that are not only practical but also easy to use and transparent in their workings.

Fig. 2: Trust for a fake news detector



The responses to what would make participants trust the results provided by a fake news detector as shown in Fig.2 reveal several key themes such as: meaningful links, user testimonials, transparency, endorsements from credible sources, consistency, accuracy, and percentage of authenticity. These themes highlight the multifaceted nature of trust in digital tools and the sophisticated expectations users have for such technologies.

It has been determined that transparency is essential to trust. The participants conveyed a wish to comprehend the fake news detector's verification procedure. According to Participant 10, *"Transparency in the verification process and endorsements from credible institutions would make me trust the results."* This implies that consumers demand understandable, concise explanations of how the detector establishes the veracity of data. By making the procedures and criteria visible to users, transparency will demystify the process and boost their trust in the outcome.

Credible sources' endorsements were also often referenced. According to the participants, support from respectable news outlets or institutions would increase their level of trust in the instrument. Participant 6 highlighted the significance of receiving endorsements from reputable news organizations or institutions. *"Such endorsements would serve as a form of validation, signaling that the detector has been vetted by respected authorities in the field of information accuracy."*

User testimonials were another important aspect mentioned by participants. They expressed that hearing positive feedback from other users would enhance their trust in the tool. Participant 4's quote captures this sentiment well: *"If you have like, both transparency and third-party confirmation and some other people saying like, yeah, I'm using this tool for some time already. And it's given me very good results. I would say that, yeah, like, then this tool is probably working"*. This indicates that social proof, through testimonials and reviews, plays a critical role in building trust among potential users.

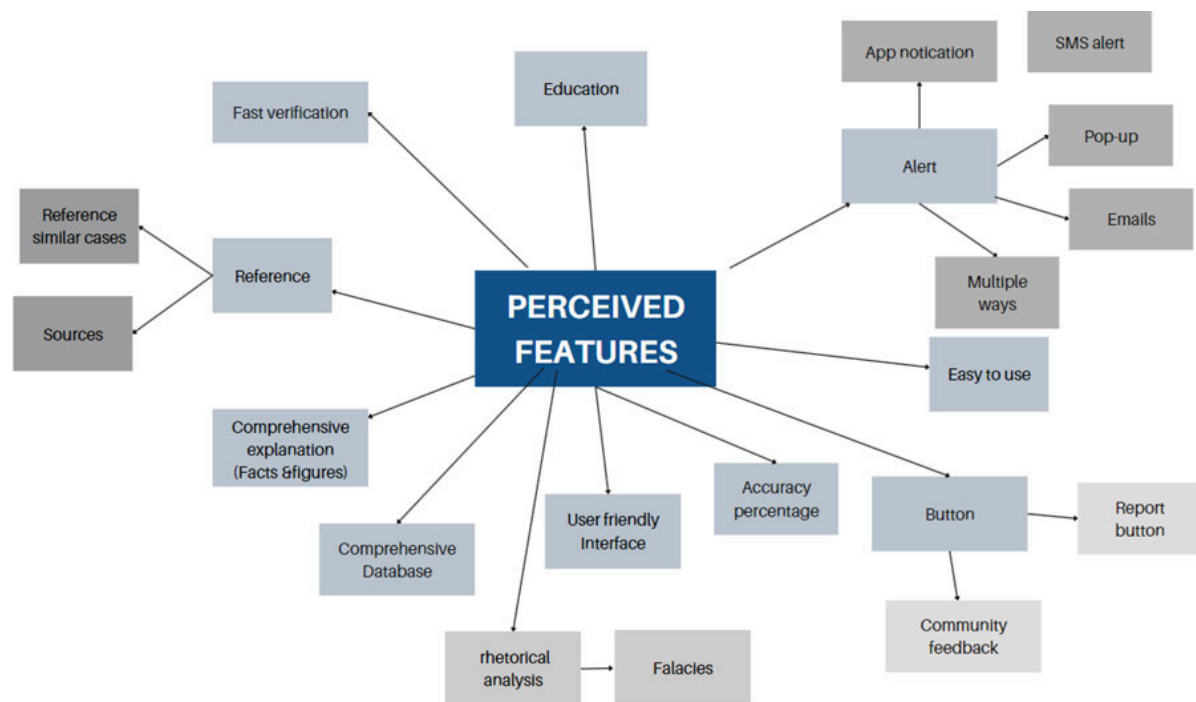
Consistency and accuracy were highlighted as fundamental to trust. Participants need to see that the detector consistently produces accurate results over time. Participant 5 touched on the nuanced nature of trust in AI technologies, suggesting that providing a confidence level or percentage for the trustworthiness of information could be more believable. *"Maybe this kind of AI assistant can have a percentage of, for example, if this website is 70% trustable, 30%, I am not sure about that, but I can give you some details that you can go and research by yourself more"*, Participant 5 said. This approach acknowledges the limitations of AI while empowering users to make informed decisions based on the provided data.

The analysis of participant responses highlights a comprehensive set of criteria that are essential for establishing trust in a fake news detector. Transparency, endorsements from credible sources, user

testimonials, consistency, and accuracy are all critical components. By addressing these needs, developers can create a tool that not only detects fake news effectively but also earns the trust and confidence of its users. This trust is vital for the widespread adoption and effectiveness of the detector in combating misinformation.

4.13.1 Desired features of a fake news detector

Fig. 3. Perceived features of fake review detector



When participants were asked about the desired features of a fake review detector, they provided a wealth of insightful and practical ideas. These suggestions highlight the multifaceted approach needed to effectively combat misinformation and ensure the tool's effectiveness, usability, and trustworthiness. The features they mentioned, as depicted in *Fig.3*, encompass education, fast verification, comprehensive explanations with data, references to similar cases and sources, a comprehensive database, a user-friendly interface, accuracy percentages, community feedback and reporting buttons, ease of use, multiple alert mechanisms, among others.

Participants emphasized the importance of education within the tool. They suggested that the detector should include a section dedicated to educational resources on how to spot fake news and improve media literacy. This highlights the participants' recognition that combating misinformation requires not just

detection but also equipping users with the skills to identify fake news independently. One participant noted, *“A section for educational resources on how to spot fake news would make the detector a valuable tool for all users.”* Another added, *“I think it could include educational content on how to identify fake news and improve media literacy. This would keep people informed about fake news.”* This educational component is critical because it empowers users to become more discerning consumers of information, thereby reducing the overall impact of fake news in the long term.

Fast verification was another critical feature identified by participants. They expressed a desire for the tool to provide real-time analysis and alerts for breaking news stories flagged as potentially false. This feature would help users stay promptly informed about dubious information, allowing them to react swiftly to prevent the spread of misinformation. *“Real-time analysis and alerts for breaking news stories that are flagged as potentially false would also be beneficial”* one participant proposed. In the digital age, when information moves quickly, prompt verification is crucial to preventing widespread disinformation.

Several participants emphasized the importance of thorough explanations. They requested that the tool include thorough justifications for each news item's bogus flag, along with numbers and data. Transparency would make the tool's methods more comprehensible and verifiable, which would increase confidence in its assessments. *“I would also be interested in seeing like maybe some explanation of how this tool is working,”* a participant went on to say. *“If it yields a result, it might also provide an explanation, like why is this decided or why it thinks the result is right or not.”* Detailed explanations are vital because they demystify the tool's workings and provide users with the rationale behind each decision, fostering trust and credibility.

References to similar cases and sources were also deemed essential. Participants suggested that the detector should link to credible sources that debunk the news and provide reference points for users to verify information. This feature would enhance the tool's credibility and provide users with additional resources to corroborate the findings. One participant stated, *“Links to credible sources that debunk the news.”* Providing references not only validates the tool's findings but also serves as an educational resource, guiding users to reliable information sources.

Another element that participants felt was essential was a broad database of vetted sources. They thought that the correctness and dependability of the instrument would be supported by a large and trustworthy database. *“Having a comprehensive database of verified sources,”* as one participant put it, is important. A thorough database makes sure the tool has a wide range of data to work with, which improves the precision and dependability of its evaluations.

A robust user-friendly interface was found to be necessary to guarantee the tool's accessibility and usefulness. The participants emphasized the simplicity of use and adaptability of the tool to users with different educational backgrounds and levels of language proficiency. *"Everyone should be able to use the tool regardless of their level of education or language proficiency,"* said a participant. It is crucial to make sure the interface is accessible and user-friendly to guarantee that the tool is widely used and efficiently utilized by a range of user groups.

It was also suggested that an accuracy percentage option would be helpful, suggesting that users would value the tool knowing the degree of trust in the tool's assessments. This feature would provide users with a nuanced understanding of the tool's conclusions and allow them to make informed decisions based on the provided data. One participant suggested, *"There should be detailed explanations of why something is flagged as fake, along with an accuracy percentage."* Providing an accuracy percentage adds a layer of transparency and allows users to gauge the certainty of the tool's assessments.

Participants also suggested the tool should have a community feedback button and a report button. These features would allow users to report suspicious news articles and engage in discussions about the credibility of news stories. This interactive element would foster a collaborative environment where users could help each other identify and understand fake news. One participant emphasized, *"In a fake news detector, I would like to see a feature that allows users to easily report suspicious news articles for further review."* Another added, *"Additionally, integrating a community feedback system where users can discuss and provide insights on the credibility of news stories would enhance the tool's effectiveness."* Community feedback mechanisms not only enhance user engagement but also create a collective intelligence system where users can share insights and validate information collaboratively.

Participants also expressed a need for multiple alert mechanisms. They wanted the tool to be able to alert users through various channels such as app notifications, SMS alerts, pop-ups, and emails. This feature would ensure that users receive timely updates and can stay informed about potential misinformation. A participant mentioned, *"The tool should alert users through app notifications, SMS alerts, pop-ups, and emails to ensure they stay informed in multiple ways."* Multiple alert mechanisms cater to different user preferences and ensure that essential information reaches users promptly, regardless of their preferred communication channel.

The participant insights highlight how important it is to include openness, accessibility, and user involvement in the tool's design to ensure that it meets a variety of user needs and effectively mitigates the harmful impacts of misleading information.

B. Participant Co-Design

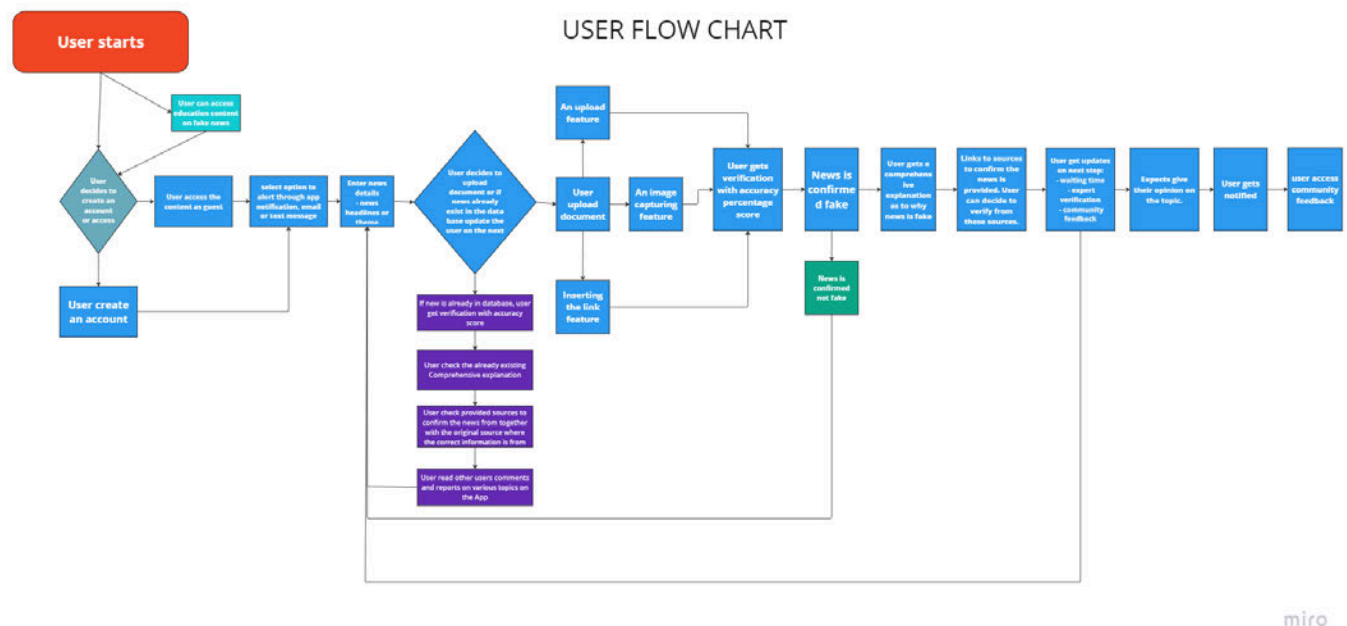
The co-design workshop aimed to gather insights and collaborative input to design a fake news detector tailored for immigrants in Germany. Participants, including various stakeholders, engaged in brainstorming, and developing features for the proposed application, revealing key themes and innovative ideas. We had a total of 7 participants, 3 females and 4 males with ages ranging from 25-35. These participants had different occupations, 2 from the IT Risk and Management field, 2 from product design and management, one from a marketing field and two students. These participants were all immigrants, hailing from different countries including Brazil, India, Pakistan, Ghana, Cameroon, and USA, who have come to either study and or settle in Germany. The co-design workshop generated a rich dataset from various activities, including participant discussions, brainstorming sessions, and the creation of user flows. Data collection involved capturing notes from group discussions where participants shared their experiences with fake news and the challenges they encountered in identifying it. Ideas for the fake news detector's features and functionalities were gathered on sticky notes during the brainstorming sessions. Visual representations of user flows, illustrating the steps and interactions within the app, were also created by the participants. Additionally, feedback from discussions where participants prioritized features was recorded.

Fig 4. Design features



During the brainstorming section, participants suggested features such as multi-language support, integration with trusted news sources, user-friendly interface, community reporting, and educational resources on identifying fake news as indicated in *figure 4*.

Figure 5. User Flowchart



A visual representation was created by participants in a form of user flow chart as indicated in *figure 5*, illustrating the steps and interactions within the app. The user flow highlights the need for a clear onboarding process, simple navigation, verification steps, feedback mechanisms, and easy access to educational resources. Common steps included user registration, news submission for verification, viewing verification results, and checking community and expert's feedback.

4.14 Key Components of the User Flow Chart

Initial User Interaction: The flow chart begins with the "User Starts" phase, where users can choose to create an account or access the app's content as a guest. An additional option is provided for accessing educational content on fake news, aimed at raising awareness and understanding among users. This dual-access approach was designed to encourage user engagement without necessitating immediate registration, thereby lowering the barrier to entry.

Decision Point - Account Creation or Guest Access: Users have the flexibility to either create an account, which may unlock more features, or proceed as a guest. This decision point is followed by an option for users to select their preferred method of receiving notifications (app notification, email, or text message), ensuring they stay informed about the verification process.

Input and Verification of News Details: Users are prompted to enter details such as news headlines, the source, and the channel. If the news topic is already present in the app's database, users receive an immediate verification score and a comprehensive explanation, along with access to additional resources and community feedback. This database-centric approach leverages pre-existing verifications to expedite the user experience.

Additional Verification Methods: For news not found in the database, the flow chart outlines multiple options: users can upload documents, use an image-capturing feature, or insert a link to the content. These features were suggested to accommodate various forms of news content and enhance the app's versatility in handling several types of information.

Outcome of Verification: The verification process culminates in determining whether the news is fake or accurate. If the news is confirmed fake, users receive a detailed explanation and links to reliable sources for further verification. Additionally, updates on expert verification and community feedback are provided, keeping users informed and involved. For news confirmed as accurate, users are simply notified of the positive outcome.

Expert and Community Feedback: The flow chart emphasizes the role of community and expert opinions in the verification process. Users can access expert analyses, view community feedback, and contribute their own opinions. This participatory element not only enhances the app's credibility but also fosters a sense of community and shared responsibility among users.

4.15 Key Required Components of the Fake News Detector

User-friendly Interface:

The thematic analysis revealed several key themes. Participants underlined the necessity for an interface that is easy to use and intuitive, allowing people with distinct levels of computer literacy to traverse it with ease. This is in alignment with Calvo & Peters (2014) findings that a user-friendly interface is crucial in applications aimed at diverse populations with varying levels of digital literacy, as complex or cluttered interfaces can deter usage and reduce trust.

Participants identified interface components that would enhance user-friendliness, including clearly readable fonts that are large in size, intuitive iconography, a minimalistic design that avoids overpowering consumers with information, and an interface that is simple to use. They also stressed how crucial it is for the app's operations to flow logically so that users can proceed from one step to the next without difficulty or confusion. An interface that is simple to use is especially important for immigrants, who might not be as accustomed to digital technologies and who might also experience additional language obstacles. A user-friendly design would empower them to use the app effectively, thereby enhancing its overall utility and adoption.

Multi-language Support:

Another crucial issue that surfaced was language support, highlighting the need for the app to accommodate the linguistic diversity of the immigrant community. Participants highlighted that navigating fake news in a foreign language significantly adds to the challenge, and the availability of multi-language support would enhance their ability to use the app effectively. This entails making the news verification procedures and instructional materials available in the users' local tongues in addition to providing multilingual interface support for the app. This would address the language barriers many participants face and make the tool more inclusive. All participants suggested “*App should be multilingual*” as portrayed in *figure 4*.

These findings replicate the findings of Ross and Gao (2016), who emphasize the importance of accommodating linguistic diversity to improve user engagement and prevent misinformation. Their study found that users who are non-native speakers experience significant challenges when navigating app content in a foreign language, often leading to confusion or misuse. These findings resonate with our observations, where participants highlighted language as a barrier to fully understanding and utilizing app functionalities. By implementing multi-language support, mobile apps can not only enhance accessibility for immigrant communities but also promote inclusivity, ensuring that language barriers do not prevent users from accessing critical information (Ross & Gao, 2016).

Verification Methods:

During the workshop, participants suggested several methods for verifying the accuracy of information within the fake news detector. One proposed approach involved cross-referencing content with trusted and reputable sources, such as established news organizations or authoritative databases, to ensure the information's reliability. This method would ensure the reliability of the information by comparing it with established news organizations and authoritative databases. A few participants noted “*There should be an*

easy way to cross-check news with trusted sources, like a built-in feature that compares articles with verified news websites.”

The approach of cross-referencing content with trusted sources to verify information accuracy is supported by research in the field of misinformation detection. For instance, Ghadiri, Ranjbar, Ghanbarnejad, & Raeisi (2021) propose an automated fake news detection method that involves comparing latest information against a set of predefined reliable sources. Their study demonstrates that this cross-referencing technique enhances the accuracy of identifying false information (Ghadiri et al. 2021). By utilizing a network of verified sources, the app would provide users with a means to verify the accuracy of the content they encounter. This cross-referencing process would involve checking the details of an article or post against those reported by recognized and credible outlets. In doing so, the app would help users distinguish between accurate information and potential misinformation, thereby enhancing the credibility and trustworthiness of the platform.

Another method highlighted was the potential of community reporting, where users could collectively flag and review questionable content, leveraging the wisdom of the crowd to identify inaccuracies. Additionally, the use of automated fact-checking algorithms was suggested as a powerful tool for quickly and efficiently assessing the validity of information. These algorithms could analyze data patterns, detect inconsistencies, and provide immediate feedback on the credibility of content. The integration of community reporting and automated fact-checking algorithms is a recognized strategy in combating misinformation. These findings align with the findings of Pennycook and Rand (2019) in their study that explores the effectiveness of crowdsourced judgments in assessing news source quality, demonstrating that collective user input can significantly aid in identifying false information. Additionally, the findings of the survey by Thorne and Vlachos (2018) provide an overview of automated fact-checking systems, highlighting their role in efficiently evaluating the validity of information. Combining these techniques could give the platform a thorough and multi-layered approach to information verification, increasing its effectiveness in spotting and combating fake news.

AI-Based Analyzer:

The role of Artificial Intelligence (AI) emerged as crucial for initial fake news detection. Participants highlighted that AI could scrape news articles and provide initial judgments on their authenticity, suggesting that the AI system should continuously improve its detection accuracy through machine learning processes. A participant noted *“I think most of the points that the other participants listed over there are quite useful or something like that is very good to implement when detecting fake news. But I*

was also thinking that probably If we are using these kinds of features, probably it might be AI.” Another participant suggested *“Maybe a machine learning model that continuously improves detection accuracy”* Also *“Maybe an AI based analyser to analyze various sources/websites/news channels, that can judge fake news or verify it”*, as portrayed in figure 4.

This approach aligns with findings by Alghamdi et al. (2024), who demonstrated that machine learning models are highly effective for fake news detection, especially as they adapt over time to recognize new patterns. Incorporating AI in this way could enable our app to provide users with an efficient and evolving tool for assessing the credibility of news sources, establishing a foundation for trust and accuracy in initial detection stages.

Real-time Verification and Notifications:

Real-time verification and notifications were highlighted as essential features, allowing users to get immediate feedback on the news they encounter. Participants suggested the inclusion of a real-time verification feature within the fake news detector app. They emphasized that this capability would significantly enhance the user experience by providing immediate feedback on the credibility of the information encountered. This approach not only enhances user experience but also prevents misinformation from spreading by enabling users to make informed decisions swiftly. These findings align with the study results of Vosoughi, Roy, and Aral (2018) which emphasizes the role of real-time, automated fact-checking in combating misinformation, showing that timely verification can significantly reduce the likelihood of false information being shared. Automated fact-checking algorithms, cross-referencing news articles with reliable sources, and comparing the material to established databases would all be used in the real-time verification function to rapidly determine the information's accuracy. This instant evaluation would allow users to make informed decisions on the spot, preventing the spread of misinformation and enabling them to respond swiftly to potentially false information. The participants believed that this real-time aspect would be crucial in maintaining the app's relevance and reliability in the fast-paced digital landscape.

Participants suggested that users should have options to receive notifications about trending fake news and verification results through their preferred channels, whether app notifications, email, or text. One participant articulated, *"We can leave it open where you give the user the chance to select how they should be notified."*

The real time verification will take place and if there is any follow up that a user would still want to have the on news, like the community and expect responses, the user should be given the opportunity to choose

how they should be notified. One participant said *“Verify the news and you have gotten the accuracy percentage or you have gotten all the detailed information as to why the news is fake. And now you are okay and you move ahead. Then the experts will also come in and they will give their contribution on the news.”*

The concept of adaptive, user-centered design aligns well with findings by Liu et al. (2024), who demonstrate that adaptive UI/UX frameworks, which personalize interface elements based on user data and context, significantly improve engagement and satisfaction. By implementing similar adaptive features, such as allowing users to select preferred notification channels and providing real-time verification feedback, our app could dynamically cater to diverse user needs, enhancing overall usability and relevance. This approach ensures the app remains responsive to individual preferences, thereby promoting a more engaging and user-friendly experience in a fast-paced digital environment.

Community and Expert Reporting:

A primary focus was on source verification and community contribution. Participants emphasized the importance of verifying news from credible sources, suggesting that individuals from the news's origin area could validate its authenticity. Expert feedback was deemed vital, with experts from various fields registering on the platform to contribute to the news verification process after undergoing verification themselves. A participant explained, *"when someone says something, another person can also come in and counter if it's true, or if it's false, so I think with that, you will be able to check if what an expert is giving is true or not. So after the expert has given information, then other experts also have the chance of. Giving their feedback."* These experts are people who are qualified in their area of expertise. They will be given the opportunity to register themselves as experts during the registration process into the app. Their credentials will be verified before they are given the opportunity to give their opinion on news topics. This approach leverages the “wisdom of the crowd” to identify potential inaccuracies, drawing from the community’s collective judgment. In alignment with Mihaylova et al. (2018), which highlights the value of community involvement in misinformation detection, as it increases accountability and fosters a sense of shared responsibility among users, this feature would enhance the app's credibility, as users could see contributions from both experts and peers.

A community-driven approach, like platforms like Twitter, was discussed, where community members could counter-check and validate experts' feedback.

The idea of a community-based verification system was also proposed, enabling users, including immigrants, to contribute to verifying news items alongside expert inputs. One participant noted, *"So in*

the case of the app now, I think for. Maybe we can make it something like a community based app that there would be a feature where people can also ask questions. Aside from the experts, people like immigrants or you have a pool of immigrants on the app and people can also ask questions over there and those who have much information about it can also give out their input over there."

This approach offers a multi-dimensional method of verification, where experts validate information and community members can cross-check or challenge expert opinions, ensuring a balanced assessment of content. This approach aligns with findings by Starbird et al. (2014), who observed that community-driven verification, particularly during crises, effectively enhances information accuracy by combining expert analysis with community input. By incorporating both expert validation and user cross-checking, as seen on platforms like Twitter, our app could build a resilient, inclusive verification system. By integrating both expert insights and community validation, the app can create a resilient misinformation-detection system that caters to both everyday users and subject-matter specialists.

Media Literacy Education:

There was also a strong preference for incorporating educational resources within the app to help users understand how to identify fake news independently. One participant wrote that "*Educational content would be helpful. The app could include tips on how to spot fake news and why it's important to verify information*" as shown in figure 4.

Participants suggested incorporating a comprehensive media literacy education component within the app. They emphasized the importance of equipping users with critical thinking skills to navigate the complex digital information landscape. The proposed educational content would focus on several key areas to help users discern the credibility and accuracy of the information they encounter. These results are consistent with those of Mihailidis and Viotty (2017), who emphasize the importance of media literacy in encouraging critical interaction with digital content by empowering users to discern between reliable and false information.

One recommendation was to inform readers about the significance of confirming the author's qualifications and source. Participants highlighted the need for users to be able to identify whether the information is authored by reputable and knowledgeable individuals, is crucial for assessing its reliability. They proposed guidance on researching an author's background, affiliations, and previous work to ensure they are a trustworthy source of information. Educating users on essential media literacy concepts can create a more informed and discerning digital community, enabling users to assess information independently and contribute to reducing misinformation spread.

Another suggestion was to emphasize the necessity of checking news sources and using multiple sources to verify information. Participants discussed the importance of identifying reliable news outlets and cross-checking facts across various reputable platforms. This practice helps to identify potential biases, ensures a more balanced understanding of the news, and reduces the likelihood of falling prey to misinformation.

The distinction between factual news and opinion pieces was also highlighted by the workshop participants. They suggested that the app should help users recognize the difference between objective reporting and subjective commentary. This distinction is vital for understanding the intent behind the information and its potential biases, enabling users to critically evaluate the content's purpose and validity.

Furthermore, participants proposed that the app guide users on recognizing trustworthy website domains. They noted that certain domains, such as government websites ending with .org or .gov, typically indicate official and verified information sources. Participants emphasized educating users on the significance of domain endings and how they can serve as indicators of credibility. Topics including the telltale indicators of clickbait headlines, the effect of sensationalism on news consumption, and the ethical implications of disseminating unverified material were among the other recommendations. Participants suggested adding interactive tutorials, tests, and useful advice to provide a stimulating and interesting learning environment. In addition to aiding in the detection of misleading information, this comprehensive approach would give users the knowledge and skills necessary to assess the content they frequently encounter.

These suggestions support the findings of Wineburg and McGrew (2017), who discovered that teaching media literacy, which includes techniques like confirming sources, evaluating the reliability of authors, and identifying bias, improves users' capacity to critically assess material they find online. By including educational materials in the app, users would not only improve their ability to spot false information but also help create a more knowledgeable and astute online community.

Overall, the workshop participants emphasized that by integrating media literacy education into the app, the platform could foster a more informed and discerning digital community. Individuals would possess enhanced abilities to maneuver across the digital terrain, make knowledgeable choices regarding the news they take in, and make contributions to a more precise and reliable information network.

4.16 How to Improve Usability and Success of the App

Improve Detection Accuracy:

Participants suggested the implementation of a machine learning model within the app that would continuously improve detection accuracy over time. They proposed leveraging advanced machine learning techniques to analyze patterns in the data and refine the app's ability to identify fake news. This model would learn from latest information and user interactions, adapting to emerging trends and evolving misinformation tactics. By continuously updating its algorithms based on a growing dataset, the machine learning model would enhance the app's precision in detecting false or misleading content. Participants emphasized that this dynamic approach would ensure the app remains effective and relevant in identifying fake news in an ever-changing digital landscape. One participant noted *“Maybe a machine learning model that continuously improve detection accuracy”* as indicated in *figure 4*.

This dynamic approach aligns with research by Shu, Sliva, Wang, Tang, and Liu (2017), who emphasize that machine learning-based fake news detection models benefit from continual learning, allowing them to analyze patterns in data and adapt to evolving misinformation tactics. Similarly, Zhou and Zafarani (2020) discuss the effectiveness of adaptive algorithms in misinformation detection, noting that these models enhance accuracy by refining their assessments based on latest information and user interactions. By updating its algorithms with a growing dataset, the app could remain effective and relevant in the fast-paced digital landscape, offering users a reliable tool for identifying false information as trends and misinformation tactics evolve.

Comprehensive Dataset:

Participants suggested the importance of developing a comprehensive dataset to train the AI model used in the app. They emphasized that a robust and diverse dataset would be crucial for accurately identifying fake news and ensuring the AI's effectiveness. This dataset would need to include a wide range of news articles, verified information, and examples of misinformation across diverse topics and languages. By encompassing a broad spectrum of content, the dataset would allow the AI model to learn and identify patterns connected to both reliable and false information because it included a wide range of content. Participants emphasized that an extensive dataset like this would be crucial for teaching the AI to produce assessments that are more trustworthy and accurate, which would improve the app's ability to identify false information and give users accurate information. A Participant indicated in the features of the app *“A comprehensive Dataset to train AI model”* as indicated in *figure 4*.

This aligns with findings by Zhou and Zafarani (2020), who emphasize that a robust and varied dataset enables AI models to better learn the distinguishing patterns of credible versus false information. Similarly, Shu, Wang, and Liu (2019) discuss that comprehensive datasets improve AI performance by ensuring the model can adapt to diverse types of content and misinformation tactics. By training on a well-rounded dataset, the AI model could produce assessments that are more reliable and accurate, thereby improving the app's ability to identify and counteract false information.

Database Development:

Participants suggested incorporating a database feature within the app that stores verification analyses of news topics. This feature would allow users to benefit from previously conducted credibility checks. When a user verifies the credibility of a news item, the app would save the analysis and associated details in the database. Subsequently, if another user encounters the same topic, they can simply type in the subject matter, and the app will pull up the existing verification analysis. By streamlining the fact-checking procedure, this system would give users rapid access to trustworthy information without requiring repeated verifications. It would also contribute to the creation of an extensive database of carefully selected news items, improving the app's effectiveness and usefulness in the fight against false information.

Participants also suggested implementing a backend system that regularly pulls news from various reputable sources into the app's database. This automated process would continuously update the database with the latest news articles and information from trusted sources, ensuring that the app has a comprehensive and up-to-date collection of content for quick verification. By regularly refreshing the database, the app would be able to provide users with timely and accurate verification analyses. This feature would improve the app's overall user experience and dependability by streamlining the fact-checking process and enhancing its capacity to quickly cross-reference and validate news articles. Participants noted *“Backend - regularly pulling news from sources into the database for quick verification”* as indicated in *figure 4*.

This approach aligns with findings by Buntain and Golbeck (2017), who demonstrate that curated databases in misinformation detection systems can significantly enhance the speed and reliability of fact-checking. By allowing users to access a repository of verified news analyses, the app would streamline the verification process, reducing the need for redundant fact-checking. Additionally, participants recommended a backend system that regularly pulls updates from reputable sources, ensuring the app's database remains current. This continuous update mechanism, as suggested by Konstantinovskiy

et al. (2021), enables fact-checking platforms to maintain a comprehensive and accurate database, enhancing users' trust and the platform's effectiveness in rapidly validating information. By implementing these features, the app could improve its responsiveness and accuracy in addressing misinformation.

4.17 Concerns Raised about the Design and Suggested Solutions

Privacy and Security:

Participants in the co-design session underlined how crucial user security and privacy are. They expressed worries about the possible exploitation of personal data and the requirement to guarantee the safe handling of user reports and data. This aligns with findings by Acquisti, Brandimarte, and Loewenstein (2015), who underscore that user trust is strengthened by transparent data management and robust privacy measures, which are essential in any digital platform. The participant highlighted that safeguarding user privacy is essential to prevent any possibility of the information being exploited against them. This feedback underscores the necessity of implementing robust security measures and privacy protocols within the app to protect users and maintain their trust. This consideration is vital for the app's design and functionality, ensuring users feel safe when using the platform. This aligns with findings by Lomas (2019), who emphasizes that robust information governance frameworks and cybersecurity practices are essential to safeguard personal data in digital environments. Lomas highlights that effective cybersecurity and clear communication about data handling policies can significantly enhance user trust, making it crucial for digital platforms to prioritize these aspects. Incorporating these principles into our app's design, as recommended by participants, would address their concerns about data misuse and build a trustworthy, secure environment.

Moreover, data transmission and storage always carry some residual risk, even with the best security protections in place within the app. To reduce these dangers, safe data storage procedures and end-to-end encryption are crucial. User trust can be increased by having transparent data management policies that explain how data is gathered, used, and safeguarded. Along with guaranteeing compliance with privacy laws like the CCPA and GDPR, it's critical to take into account the ethical and legal ramifications of data gathering. This feedback aligns with findings by Romansky (2022), who discusses the necessity of implementing robust data protection measures in digital platforms to maintain user trust and comply with legal standards. Romansky highlights that adherence to frameworks such as the GDPR and clear communication about data management practices are crucial for fostering user confidence. By integrating these principles of secure data handling, transparency, and compliance with privacy laws into the app's

design, we can create a platform that respects user privacy and builds trust, addressing the security concerns raised by participants.

Accuracy and Bias:

Participants raised concerns about the accuracy and biases that may occur with using such an app, considering this app is expected to be used by a diverse group of people. The accuracy of the app's content verification is crucial for its credibility and effectiveness. Ensuring that the AI algorithms and datasets utilized are devoid of errors and biases presents intrinsic issues, nevertheless. An AI model is only as good as the data it is trained on, and if the training data includes biased information or lacks diversity, the model's outputs may also be biased. This could result in the app incorrectly flagging legitimate news as fake or failing to identify actual misinformation.

Furthermore, biases in the dataset or algorithm could unintentionally favor certain viewpoints or suppress others, leading to an uneven representation of information. This could undermine the app's objective of providing unbiased and reliable news verification. Addressing these issues requires careful selection of training data, continuous monitoring, and regular updates to the model. Involving diverse perspectives in the development process and seeking feedback from various user groups can also help mitigate the risk of bias.

These findings align with the findings in the research by Mehrabi, Morstatter, Saxena, Lerman, and Galstyan (2021) emphasizes that AI algorithms are highly dependent on the quality of training data, and if the dataset lacks diversity or contains biases, the model's outputs may reflect these biases. This could lead to the app inaccurately flagging legitimate news as misinformation or overlooking false information, compromising its credibility. Additionally, Balayn, Lofi, & Houben (2021) discusses how biases in datasets or algorithms can inadvertently favor specific viewpoints, creating an uneven representation of information that contradicts the app's goal of providing impartial verification. To address these challenges, it is essential to carefully select and diversify training data, involve diverse perspectives in the development process, and continuously monitor and update the model. Such measures would help ensure the app remains accurate, fair, and relevant to all users.

Misinformation and Disinformation:

One concern that was brought up concerning the expert validation was how the expert's contribution was going to be verified. In other words, how to confirm that what an expert is saying is facts or opinion. A few suggestions were made concerning verifying the experts' validation. One participant suggested

integrating artificial intelligence and machine learning algorithms which would verify the inputs of the experts. The system can flag an expert's contribution as being fake or automatically delete upon detection. Another participant also suggested integrating an upvote system where you can vote on the correct information. One participant noted *“Then I think another feature that could also help is that for people to be able to contribute to it, you could do something like an app vote. So app vote, usually the right information when you click on the app vote, it's going to bring it at the upper part of the your application or whatever that you're doing. If it's on a page, it's going to come at the first part of the page. But the ones that are down voted, it will go to the down page that people are not able to see that kind of information. So that way as well you could be able to use that to determine how people are reacting towards a particular news or not.”*

These findings align with findings by Kim, Tabibian, Oh, Schölkopf, and Gomez-Rodriguez (2018), who discuss the role of AI and machine learning algorithms in verifying content accuracy and flagging unreliable information. Integrating such algorithms into the app could allow the system to assess and potentially flag experts' inputs when they deviate from verified facts, thus enhancing reliability. Additionally, Buntain and Golbeck (2017) highlight the effectiveness of crowdsourced voting mechanisms in surfacing credible information while demoting content perceived as less trustworthy. By integrating an upvote/downvote feature, as suggested by participants, the app could leverage collective user input to prioritize reliable information, bringing it to the forefront of the app while pushing down content that receives less community support. This approach combines expert validation with community feedback to create a balanced and user-verified content hierarchy.

Censorship and Control:

Participants in the co-design workshop also expressed concern about potential censorship and control that could result from such a system. Concerns were raised that there is a potential concern that the app could be used as a tool for censorship or control over information. If the app's verification process is biased or manipulated, it could be leveraged to suppress certain viewpoints or promote specific narratives. This aligns with findings by Pasquale (2015), who argues that algorithmic systems, if not transparent, can inadvertently promote or suppress certain viewpoints, impacting public discourse and potentially influencing democratic processes. Similarly, Gillespie (2018) discusses the ethical challenges of content moderation, emphasizing that those who govern platforms hold significant power over the information landscape, whether by design or unintentionally. For example, if the app's algorithms or verification sources favor a particular political or ideological perspective, it could lead to the marginalization of

alternative viewpoints. This might have a major effect on public conversation, sway public opinion, and threaten democratic processes.

Moreover, the potential for censorship extends to the governance of the app itself. Those who control the app's infrastructure and algorithms could have the power to shape the information landscape, intentionally or unintentionally. The participants suggested ensuring transparency in the app's verification processes, providing users with insights into how decisions are made, and establishing independent oversight can help mitigate these concerns. It is essential to maintain a balance between combating misinformation and preserving freedom of expression.

User Trust and Adoption:

The development and preservation of user trust, according to the participants, is essential to the fake news detector app's success. Users may be unwilling to use an app if they believe it to be prejudiced, inaccurate, or an invasion of their privacy. Concerns about trust may stem from previous instances of data breaches, apparent censorship, or an opaque app store. To gain user trust, the app must demonstrate reliability, accuracy, and a commitment to protecting user privacy. This coincides with the findings of McKnight, Choudhury, and Kacmar (2002) which underscores that trust in digital systems is built through transparency, privacy protections, and a clear demonstration of reliability. Furthermore, this coordinate with Wanner et al. (2022) findings which highlights that transparency about how an app validates information, the sources it uses, and the criterion for assessing credibility is essential for fostering trust among users. Establishing transparency is essential to fostering trust. They recommended that the app make clear how it validates information, the sources it consults, and the standards it employs to judge the reliability of news. Additionally, providing users with control over their data and offering options for customization can enhance their sense of security and ownership. Regular communication, updates, and user engagement are also important for building a loyal user base. Without user trust and adoption, the app's potential impact in combating misinformation would be significantly diminished. By addressing these elements, the app can cultivate a loyal user base and achieve a meaningful impact in the fight against misinformation.

Misuse and Manipulation:

Concerns were raised about the possibility of misuse and manipulation of the fake news detector app. Since the app will be a community-based, expert app where users may share their knowledge on a news issue, bad actors may try to take advantage of the app's capabilities to disseminate false information or sway public opinion. For instance, they could flood the app with false information, creating noise that

obscures the detection of actual fake news. Additionally, there is a risk that individuals or organizations could manipulate the app's algorithms or datasets to promote their own agendas. These concerns replicate findings of Ferrara et al. (2016) which emphasizes the importance of implementing safeguards against coordinated disinformation campaigns, noting how bad actors may attempt to exploit platform features to spread misinformation or influence public opinion. Similarly, Marwick and Lewis (2017) discuss how algorithms and data sources can be manipulated to sway narratives, stressing the need for continuous auditing and transparent reporting mechanisms.

To mitigate these risks, the participants of the co-design workshop suggested the app must incorporate robust security measures and monitoring systems. This entails putting in place defenses against coordinated disinformation efforts, spam, and fake accounts. To guarantee accuracy and impartiality, the app's algorithms and data sources must be routinely audited. Furthermore, creating a transparent process for users to report inaccuracies or manipulations can help the developers quickly identify and address potential issues. Ensuring accountability and providing clear channels for redress can further protect the app from being misused or manipulated.

Integration into Design:

The prioritization analysis identified the top features as multi-language support, a simple and intuitive user interface, integration of trusted news sources for cross-referencing, a community reporting mechanism, and educational content on identifying fake news. Analysis of the user flows provided insights into the critical steps and interactions within the app, such as an easy-to-follow onboarding process to familiarize users with the app's features, clear steps for news verification, a feedback mechanism allowing users to report suspicious news, and easy access to educational resources and trusted news sources.

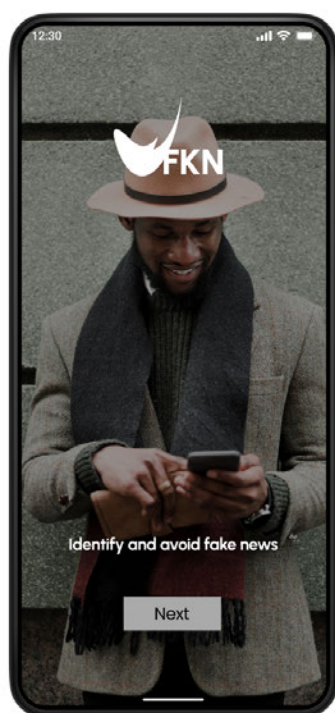
The findings from the co-design workshop were integral to the design and development process of the fake news detector. The identified themes and top-ranked features informed the app's feature set and user interface design. Insights from the user flows were used to structure the app's navigation, ensuring a seamless user experience. By grounding the design in participant feedback, the final tool is tailored to meet the specific needs and preferences of immigrants in Germany, enhancing its effectiveness and usability.

5. PROTOTYPE

Following the extensive Interviews and co-design workshop, the development of a fake news detector prototype was undertaken to address the issue of fake reviews, particularly focusing on the immigrant community in Germany. This section outlines the key features, functionalities, and design elements integrated into the prototype. The prototype is based on the needs and feedback gathered during the participant co-design sessions, aiming to provide a seamless experience in identifying and verifying fake reviews. Below is a detailed explanation of each page and its importance in guiding users through the app, alongside the rationale for the design decisions. A video of the prototype can be viewed [here](#).

Upon opening the app for the first time, users are greeted with a tagline, *"Identify and avoid fake news."* This serves as a clear statement of the app's mission, setting expectations from the outset. Research participants mentioned the need for clarity and transparency regarding the app's purpose to build trust among users, particularly immigrants who may already be skeptical of new digital tools. This tagline helps set a reassuring tone for first-time users.

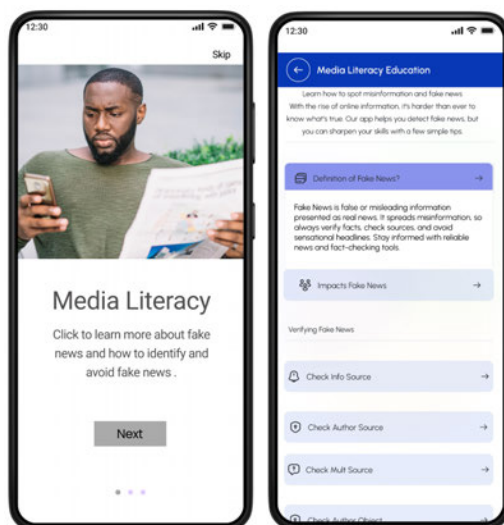
Screen 1 - Tagline



The next page provides essential information about fake news and how to avoid it, a feature emphasized during the co-design workshops. Many participants highlighted their need for better media literacy,

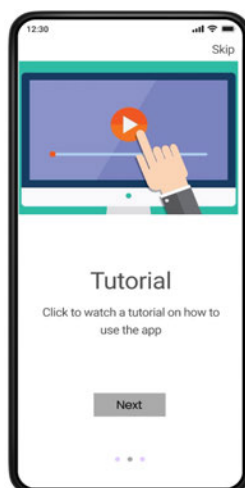
particularly in navigating misleading information online. The option to skip this page, placed in the top right corner, respects user autonomy—a critical point raised during interviews where participants expressed the desire for flexibility in how they engage with educational content.

Screen 2 - Media literacy



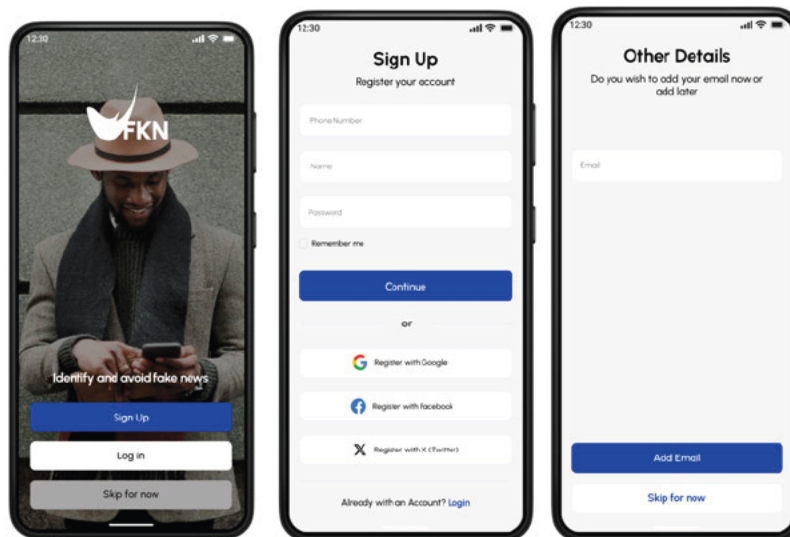
Users are then directed to a tutorial on how to use the fake review detector, with the option to watch or skip the tutorial. During the workshops, several users requested easy onboarding processes, while others preferred the ability to explore the app independently. This dual option caters to both preferences, ensuring a smooth introduction for beginners while allowing more experienced users to proceed directly to the main functionalities.

Screen 3 - Tutorial



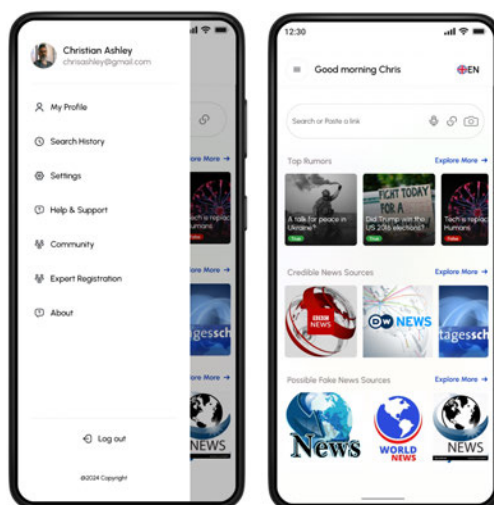
The app offers multiple ways to sign up, including with a username and password or via social media accounts such as Google, Facebook, or Twitter. This flexibility aligns with the feedback from participants who emphasized the importance of easy account creation without unnecessary barriers. Those who prefer to avoid linking their social media accounts can sign in with traditional credentials, maintaining a balance between convenience and privacy. Users are then given the option to provide their email or phone number for notifications—a step that is also skippable to accommodate different privacy preferences, which was a concern voiced during the interviews. The user can also decide not to sign up and proceed directly to the home page by clicking “Skip for now”. However the user can always sign up by clicking on the “my profile” button in the menu and will be taken to the sign up page.

Screen 4 - sign-up page



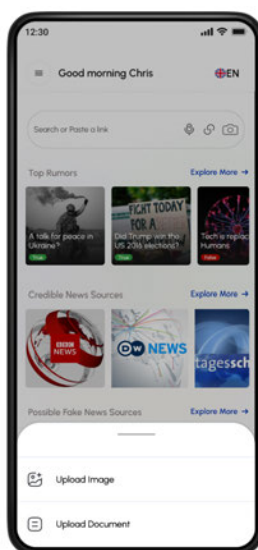
Upon reaching the homepage, users can access a variety of tools and settings via the main menu on the left. The menu offers options to modify their profile, view search history, change settings, get help and support, engage in community chats, register as an expert, or log out. Each of these options was designed based on feedback that users value control over their app experience. For example, community chats and expert registration address the need for credible peer interaction and expert opinion, which are important to users who rely on community validation when verifying news.

Screen 5 - Home/Landing page



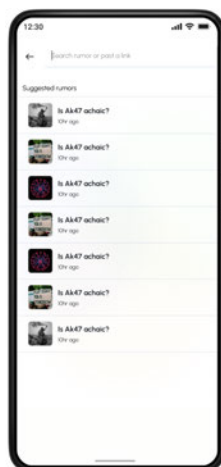
The landing page allows users to check the credibility of a news article through multiple options: pasting a link, typing a keyword, transcribing speech via the microphone, or uploading an image or document. This diversity of options was integrated based on the workshops where participants discussed the need for multiple ways to verify information depending on their access to the news (e.g., video, text, or social media posts). The ability to use voice transcription or upload images makes the app more accessible for users with different levels of digital literacy or media formats.

Screen 6 - Fake News check



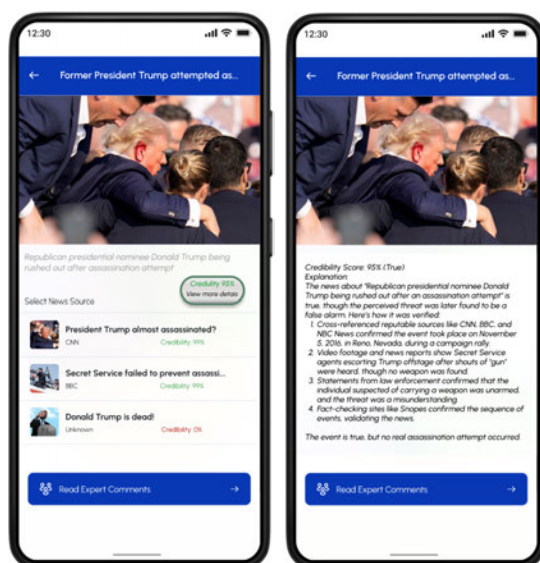
Clicking on the search box suggests trending rumors that users may also be interested in. This feature addresses concerns raised about staying updated on viral or trending misinformation, especially among immigrants who may not have access to local news or platforms where such information circulates. Including this feature ensures that users can stay informed about current disinformation topics relevant to their communities.

Screen 7 - Trending Rumor



When a user searches for a news item, they are presented with several options, showing the media outlet that posted it and a credibility score ranging from 0% (highly incredible) to 100% (highly credible). Users appreciated a straightforward, transparent evaluation of news credibility during the interviews. The credibility score directly addresses their need for clear, understandable indicators of trustworthiness, simplifying the decision-making process for those who may struggle with more complex assessments of truth.

Screen 8 - result and credibility Scores



Clicking on a selected news item provides a breakdown of why it is considered credible or not, including expert opinions and user comments. This feature was a direct response to participants' desire for deeper insights and explanations behind credibility ratings. Many expressed trust in expert analysis but also valued user engagement. To promote balanced discussions, expert comments can be upvoted or downvoted, encouraging accountability and highlighting valuable contributions. This interactive feature fosters a sense of community and credibility, which participants noted was crucial for their confidence in using such an app.

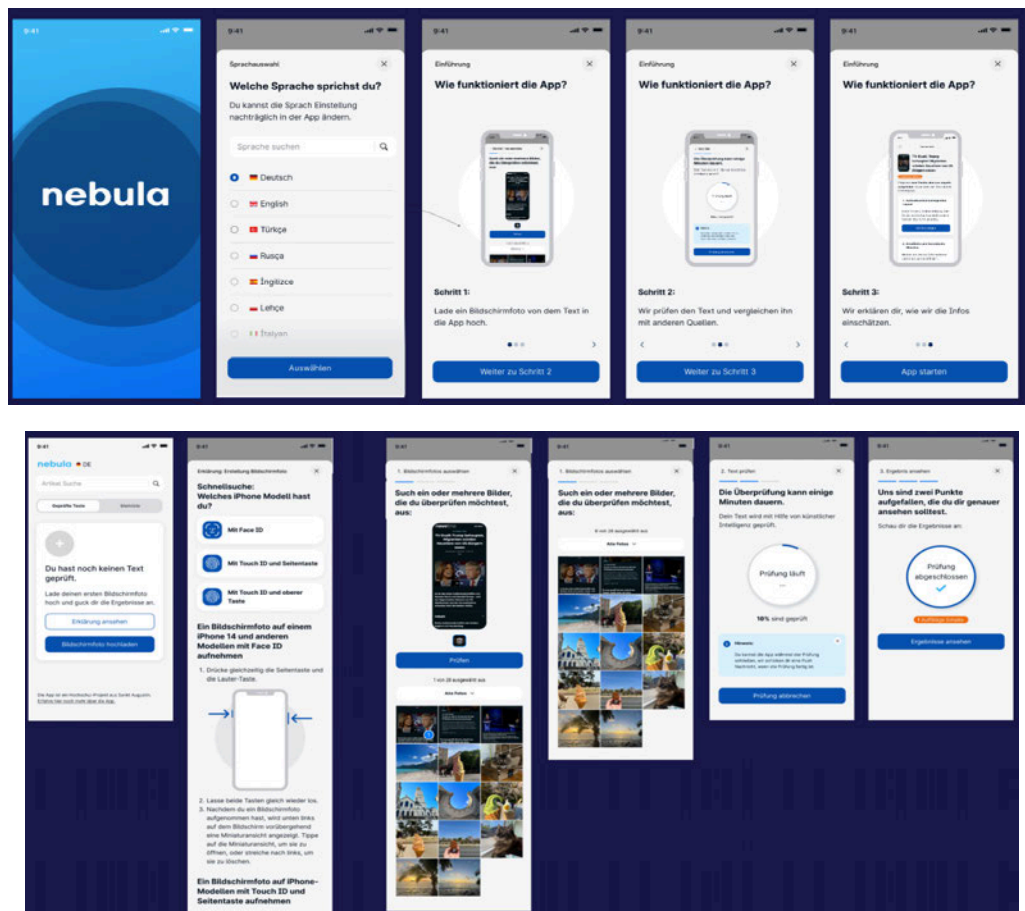
Screen 9 - Expert Opinion and Voting

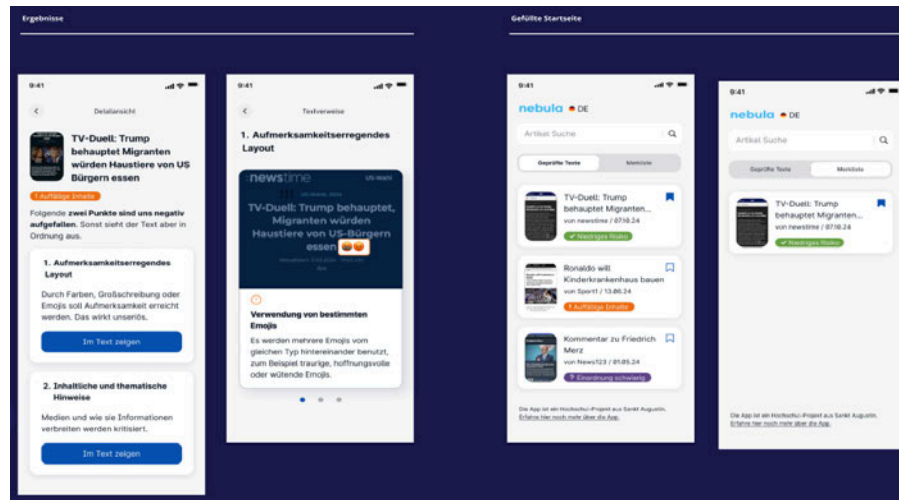


5.1 Usability Testing

Since our master thesis is a part of the broader NEBULA project, and the project team had just released their first prototype just around the time our prototype was ready, we decided in consultation with our supervisors to conduct a usability study for both prototypes. This approach will allow us to gather comparative insights, thereby enriching our understanding of usability across both designs within the project framework. The screens from the NEBULA prototype as presented to the Participants are shown in *screen 10*.

Screen 10 - NEBULA Prototype screens





The purpose of the usability testing was to evaluate how simple or difficult it was for users to interact with the app's interfaces, complete key tasks, and engage with its core features. We recruited eight individuals in total—three from the interview section, two from the co-design session, and three new participants. To guarantee a representative sample, these participants were made up of 4 males and 4 females with different cultural backgrounds. Their duration in Germany ranges from one to six years and all of them had a bachelor's degree. Webex video conferencing was used to conduct the sessions, with each lasting between forty-five minutes and an hour. Every participant finished a predetermined series of assignments, which included: *Exploring the onboarding page, exploring the Home Screen, navigating the Menu button, locating the Search feature, using News verification tool, checking result of the verification tool, exploring Community and expert interaction, and their overall satisfaction with the interfaces.*

After each task, participants participated in a brief interview to gauge their satisfaction with the app's design and navigation. We also asked if they had any recommendations for improving features or navigation, as well as their willingness to use the app. During the session, participants were observed closely, and key metrics such as task success rate and time to completion were recorded. Additionally, participants were encouraged to “think aloud” to share real-time feedback on interface elements.

The feedback gathered from these sessions was synthesized to identify elements that users found intuitive, as well as common areas of difficulty. This input informed both immediate adjustments to the prototype and longer-term recommendations for improving the user experience. The tables below present the task specific metrics for our study prototype and that of the NEBULA prototype.

Table 2 - Task specific metrics from study prototype

Task	Success Rate	Average Time	Key Observations
Exploring the onboarding page	95%	1min	Users found the onboarding very informative and straightforward.
Exploring the Home Screen	90%	1 min	Users found the home screen visually clear
Navigating the Menu button	90%	2 mins	Main menu layout was generally intuitive; users suggested making “Check Credibility” more prominent
Locate the Search feature	97%	0.5 min	Most users easily located the search feature. Some comment it looks just like that of google signaling affordance were taking advantage of.
Using News verification tool	80%	2 mins	Link-pasting was intuitive; some users found image upload slow.
Checking result of the verification tool	70%	6 mins	Users easily and interestingly took much time to read the results and the reason why they are considered fake.
Community and expert interaction	80%	5 mins	All Users curiously checked this button out to find out what it entails.
Overall satisfaction	80%	N/A	Users were generally satisfied with the interfaces of the prototype

Table 3 - Task specific metrics from NEBULA prototype

Task	Success Rate	Average Time	Key Observations
Exploring the onboarding page	93%	1 min	Users found the onboarding simple and straightforward.
Exploring the Home Screen	95%	2 min	Users found the home screen visually clear and liked the bookmark option.
Locate the Search feature	97%	1 min	Was very easy since it is clearly visible on the landing page
Using News verification tool	80%	4 mins	Screenshots were easily uploaded but participants wanted to upload other file types which was not possible.
Checking result of the verification tool	80%	10 mins	Users curiously checked the results for more details. The breakdown such as the emojis and text capitalization was particularly interesting to participants.
Overall satisfaction	85%	N/A	Overall Users were very satisfied with the app and found it very intuitive.

5.2 Findings from Usability Testing

The usability testing demonstrated that, overall, both apps were visually appealing and intuitive, receiving positive reactions from users who appreciated the concept of a tool for detecting fake reviews. The feedback indicated a high level of satisfaction with the interface design and the primary functionalities of both prototypes. However, a notable difference in time taken to complete tasks was observed between the two apps. This variance was primarily attributed to the interface language of the NEBULA prototype, which was only available in German.

Given that most participants were immigrants with limited German proficiency, many needed additional time to read and understand the app's instructions. Some even used translation tools to complete tasks, which contributed to delays. We anticipate that in a high-fidelity prototype with multilingual support activated, this language barrier would be minimized, enabling users to navigate the app more efficiently and with greater ease.

The positive and negative feedback, as well as suggestions for improvement, are summarized in the tables below, providing insights into areas where the app performed well and aspects where enhancements are needed to better meet user expectations.

Table 4 - Study prototype

Features	Positive Feedback	Suggested improvements
Onboarding	<ul style="list-style-type: none"> - Clear tagline: The tagline <i>“Identify and avoid fake news”</i> helped users understand the purpose of the app right from the beginning. - Users liked the fact that they can still learn about the app under the “About” section of the main Menu even if they skip at the onboarding page. 	<ul style="list-style-type: none"> - Guided tours should be added to tell users about the various buttons.
Navigation and layout	<ul style="list-style-type: none"> - Users were generally happy about the fact that they could easily locate their search history under the main menu. 	<ul style="list-style-type: none"> - Users should be able to bookmark or choose some search results as their favorites. - There should be an option to change the user’s language easily and not only at the onboarding page.
News verification Tool	<ul style="list-style-type: none"> - The diverse options to upload(voice recording, links, text,image and document) give users unlimited options. - The explanation on why a news item is considered fake ensures maximum transparency. - Users were generally excited about the credibility percentages. 	<ul style="list-style-type: none"> - Adding scan to the upload options will enhance experience by allowing them to capture and check the credibility of physical newspapers. - The upload button should be changed for easy affordances. - Provide a guide on how to make screenshots or upload documents since not all users are experienced users.
Community & expert interactions	<ul style="list-style-type: none"> - Users were happy with the forum citing it will help them share insights, validate information collaboratively, and foster a sense of trust and community support. - Users were excited that they 	<ul style="list-style-type: none"> - There should be a robust system of verifying experts.

	<p>could read expert opinions on situations for free.</p> <ul style="list-style-type: none"> - Users feel a sense of inclusiveness since they can upvote or downvote expert opinions. 	
Others		<ul style="list-style-type: none"> - Logos of endorsed news media will maximize trust. - There should be info buttons(i) to give details about the various buttons on the interfaces.

Table 5 - NEBULA prototype

Features	Positive Feedback	Suggested improvements
Onboarding	<ul style="list-style-type: none"> - The welcome page gave users a clear idea of the purpose of the app. 	<ul style="list-style-type: none"> - There should be an option to learn about the app if users skip at the onboarding page. - Guided tours should be added to tell users about the various buttons. - Give a clear and communicative tagline.
Navigation and layout	<ul style="list-style-type: none"> - The language button on the home page gives users the flexibility to change the language at any time. - Easy to find bookmarked searches. 	<ul style="list-style-type: none"> - It will be more intuitive if all the upload options to check the credibility of news are placed on one page for users to choose from rather than getting different options based on what you choose. - Users should not only be able to easily locate bookmarked searches but their search history.
News verification Tool	<ul style="list-style-type: none"> - The scan option to upload gives users the flexibility to directly check the credibility of newspapers. - Users were generally happy about the guide on how to make screenshots on the various iphone models. 	<ul style="list-style-type: none"> - More options to upload images and documents is desirable. - Option to search by using the link of the news source. - The guide on how to make screenshots should be extended to include Android.

	- The explanation on why a news item is considered fake ensures maximum transparency.	
Community & expert interactions	N/A	- A community forum on the app would enable users to share insights, validate information collaboratively, and foster a sense of trust and community support in identifying and avoiding fake news.
Main Menu	N/A	- Main menu will provide Users with easy, centralized access to all key features and settings, improving navigation and user experience.
Others		<ul style="list-style-type: none"> - Logos of endorsed news media will maximize trust. - There should be info buttons(i) to give details about the various buttons on the interfaces. - Help and support buttons are needed so users can easily receive help and contact the App Administrators for support.

5.3 Analysis of Usability Testing

The usability testing for both the study and NEBULA prototypes provided valuable insights into how well the app features resonated with users and highlighted areas for improvement to enhance user experience. Key findings as presented in the tables above are discussed below,

Onboarding and Initial Engagement:

Users appreciated the clear tagline of the study prototype “*Identify and avoid fake news*” which effectively communicated the app's purpose from the outset. The option to learn more about the app under the “About” section was positively received, suggesting that users value having flexible access to foundational information (Davis, 1989). However, users requested more guidance at the onboarding stage, recommending a guided tour to explain the various buttons and functionalities within the app, which

aligns with usability principles that emphasize reducing cognitive load for new users (Nielsen, 1994). In the NEBULA prototype, users suggested that the welcome page should incorporate a clear tagline and an option to revisit onboarding information if skipped initially.

Navigation and Layout:

Both prototypes were generally intuitive in navigation, with participants particularly pleased to find search history easily accessible under the main menu. Yet, users recommended additional bookmarking features to help them save relevant search results, an enhancement that could increase personalization and user engagement (Kujala et al., 2013). The NEBULA prototype's home page offered a useful language button, enabling seamless language changes at any point, a feature that should be extended to both prototypes to accommodate the linguistic diversity within immigrant communities. Additionally, consolidating upload options for news verification on one page would make the navigation process more intuitive, following guidelines that suggest consolidating related functions to improve efficiency (Shneiderman & Plaisant, 2010).

News Verification Tool:

The news verification tool, featuring multiple upload options such as text, images, voice recordings, and links, was highly valued by users in the study prototype. Users felt this diversity provided flexibility, while credibility percentages enhanced transparency. However, users suggested adding a scanning option to allow direct uploads from physical newspapers, as well as refining the upload button to improve its affordance and usability, which is crucial for enhancing perceived control in app interactions (Norman, 2013). In NEBULA, users appreciated the scan option for instant verification of physical documents but noted that guides on making screenshots should be extended to include Android devices. Providing clear instructions on technical steps aligns with findings that clear guidance improves task completion rates (Lazar et al., 2017).

Community and Expert Interactions:

The community and expert interaction feature was highly regarded in the study prototype. Users valued the ability to validate information collaboratively, upvote expert opinions, and gain insights through expert commentary. According to prior research, such social and expert validation fosters trust and builds community resilience against misinformation (Del Vicario et al., 2016). Users recommended incorporating a verification system for experts to enhance credibility further, while NEBULA users specifically suggested a forum for collaborative engagement.

Additional Functionalities

Users in both prototypes indicated that logos of endorsed news sources would enhance trustworthiness, as they provide a visual cue for credibility (Morrison & Anglin, 2006). Both groups also requested info buttons to clarify the function of each button on the interface, and help and support features for easy access to assistance. A centralized main menu was suggested for NEBULA, which could streamline user navigation and contribute to a smoother user experience (Nielsen & Molich, 1990).

The findings indicate that integrating the study prototype's features, along with user-suggested improvements, would significantly enhance the NEBULA prototype's usability, transparency, and accessibility. By implementing these changes, particularly in areas of navigation, expert validation, and community interaction, the NEBULA fake review detector has strong potential to become a successful, user-friendly tool for misinformation detection. Usability-focused enhancements grounded in established design principles (Nielsen, 1994; Shneiderman et al., 2009) and informed by direct user feedback will be key to fostering an inclusive and impactful experience for diverse immigrant users.

6. CONCLUSION

6.1 Limitations of the thesis

While this study provides valuable insights into the experiences and challenges faced by immigrants in Germany regarding navigating fake news, several limitations must be acknowledged.

First, our study involved a total of twenty-five participants across interviews, co-design workshops, and usability testing. However, these participants do not represent the full spectrum of the immigrant population in Germany. Also, due to the specialized nature of the topic—fake news and media literacy—only a select group of immigrants showed interest in participating. As a result, we relied on purposive sampling, which limits the generalizability of the findings. The insights gathered reflect the perspectives of those who were available and interested in engaging with the topic, which may not be fully reflective of the broader immigrant experiences.

Again, all our participants had a minimum of a diploma-level education. This introduces a potential bias, as the experiences and challenges of highly educated immigrants may differ from those of less educated or uneducated immigrants, who might face additional barriers in understanding and evaluating fake news.

Thus, the findings may not fully capture the range of experiences within more vulnerable or lower-educated immigrant groups.

Lastly, the study's scope was limited to qualitative methods, which allowed us to explore participants' perceptions in depth but may lack the broader, more quantitative insight needed for general conclusions. Future studies with larger, more diverse, and representative samples could strengthen the validity and reliability of the findings.

6.2 Recommendations for further research

Given the limitations of this study, several avenues for future research are recommended to expand upon the findings and address gaps identified during the research process.

Future studies should aim to recruit a larger and more diverse sample of immigrants, including those from different educational backgrounds, socioeconomic statuses, and regions of origin. This would allow researchers to capture a wider range of experiences and challenges, especially among less educated or uneducated immigrants who may face additional barriers in identifying and avoiding fake news.

While this study used qualitative methods to gain in-depth insights, future research could incorporate quantitative methods, such as surveys with larger, more representative samples. This would help in determining the prevalence of specific behaviors and beliefs among immigrants regarding fake news and media literacy, making findings more generalizable to the broader immigrant population in Germany.

Additional research should explore the technological and language barriers that less tech-savvy and non-native speakers face when engaging with digital platforms aimed at detecting fake news. Understanding these barriers could inform the development of more accessible and user-friendly tools tailored to immigrants who may struggle with digital literacy.

Given that immigrants come from diverse cultural backgrounds, future research could investigate how cultural differences affect the perception and response to fake news. Such studies could explore whether certain immigrant groups are more vulnerable to specific types of misinformation and how cultural factors shape their trust in media sources.

Further studies could focus on testing and improving the fake news detection tools. By conducting usability testing with a broader range of participants, researchers could gather insights on the effectiveness of the tools in real-world contexts and make enhancements to improve their accuracy, accessibility, and user experience.

6.3 Conclusion

This study set out to investigate the challenges faced by immigrants in Germany when navigating the digital information landscape, particularly in identifying and avoiding fake news. Through a combination of interviews, co-design workshops, and usability testing with twenty-five participants, we gained valuable insights into how immigrants perceive and engage with digital misinformation. Our findings contributed to the development of a user-centered prototype, the fake review detector, which integrates media literacy, diverse news verification methods, and user-friendly design features aimed at enhancing the ability of immigrants to critically evaluate news sources.

While the prototype is a step forward in addressing the challenges of fake news, the study's limitations must be acknowledged. The reliance on convenience sampling and the participation of only highly educated immigrants means that the results cannot be generalized to the broader immigrant population in Germany. Many immigrants with lower education levels, limited digital literacy, or less access to reliable media may face additional barriers that were not fully explored in this research. Thus, the need for further studies involving more diverse and representative samples is critical to gaining a fuller understanding of the varied experiences of immigrants across different demographics.

Nonetheless, this research has emphasized the importance of tailoring solutions to the specific needs of marginalized and vulnerable groups. The incorporation of flexible features in the prototype, such as multiple ways to verify news and access expert opinions, directly responds to the preferences and concerns of the study participants. In particular, the findings underscore the value of media literacy in empowering immigrants to take control of their interactions with online information, fostering greater resilience against misinformation.

Future research should build upon these findings by conducting longitudinal studies to assess the long-term impact of media literacy interventions, expanding on the technological and language barriers faced by less educated or digitally inexperienced immigrants, and testing improved versions of the fake news detection tool in real-world scenarios. By doing so, we can better equip immigrant communities with the tools and knowledge necessary to navigate the increasingly complex digital ecosystem.

In summary, this study makes a meaningful contribution to the ongoing efforts to combat fake news and support vulnerable populations, highlighting both the challenges and potential solutions to improving digital media literacy among immigrants. As misinformation continues to affect public discourse and social cohesion, particularly within immigrant communities, empowering individuals with the right tools and educational resources is essential for promoting informed engagement with the digital world.

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APPENDIX A - Interview Guide

Introduction:

- Briefly introduction
- Briefly explain the purpose of the interview(to explore perceptions, experiences with fake news and strategies related to navigating the digital information landscape and dealing with fake news.)
- Assure confidentiality and anonymity in the final report.
- Obtain informed consent to record.

Demographic Information:

- Gender:
- Age:20-25, 26-30, 31-35
- Level of education:
- Country of origin:
- How long have you been living in Germany?
- Mother tongue:
- Current occupation and main activities

Media consumption habit:

- How do you primarily access information? (Online sources, Print media, TV/radio, Social media, family and friends)
- What are your main sources of news and information? (Specific websites, TV channels, newspapers, social media platforms, friend & family)
- How often do you access news from these sources?
- Do you prefer news from your home country or from German sources?
- Reasons for preference
- How do you verify the credibility of the news you consume? (Cross-referencing, trusting specific sources, consulting friends/family)

Understanding of fake news:

- *Are you aware of fake news?*
- Have you ever encountered news that you later found out was false or misleading?
- *If yes, what was the experience?*
- How did you realize the news was fake? (eg, Fact-checking, noticing inconsistencies, receiving corrections)

- What impact did the fake news have on you or your community?(eg. Emotional response, changes in behavior or opinions, community tensions)

Navigating News and Fake News:

- How do you inform yourself about the news?
- How do you determine which information sources are trustworthy?
- What do you do when encountering information that you find dubious or misleading?
- How do you discuss or verify news information received from friends or family?

Impact of Fake News

- Do you think fake news affects the immigrant community differently than other groups?
- In what ways?
- Have you noticed any particular themes or topics that are more prone to fake news targeting immigrants? (e.g., health, politics, immigration policies)
- How do you feel fake news has influenced public perception of immigrants in Germany?

Research Questions Specific to Fake News Challenges:

- What specific challenges do you face in discerning truth from fake news in your stay in Germany?
- How do these challenges impact your integration into German society?
- How do they influence your perceptions of societal issues?
- How do they affect your ability to critically evaluate online information?
- What are your information needs and preferences in accessing reliable and trustworthy news sources?
- Can you share strategies you employ to verify information and protect yourself from disinformation?

Design questions:

- Would you be interested in using a tool that detects fake news? Why or why not?
- What benefits do you expect from such a tool?
- What key features would you like to see in a fake news detector? (eg: Real-time detection, source credibility scores, alerts for suspicious news, detailed explanations, etc.)
- How would you prefer to receive alerts about fake news?(eg: Email notifications, mobile app alerts, browser extensions, etc.)
- What level of detail would you like in the explanation of why a news article is flagged as fake? (e.g., "This article appears to be fake") vs. Detailed (e.g., specific reasons like the source's history, content analysis, lack of citations)
- What would make you trust the results provided by the fake news detector?(e.g. Transparency about detection methods, third-party validation, user testimonials, etc.)

Feedback and Improvements

- Have you used any similar tools in the past? If so, what was your experience like?
- What did you like or dislike about them?
- How would you measure the success of a fake news detector?(eg: Accuracy, user satisfaction, increased trust in news, etc.)
- Do you have any additional suggestions or features you think would be useful for a fake news detector?

Conclusion

- Thank the participants for their valuable insights.
- Questions or additional comments.

APPENDIX B - Interview Transcription

PARTICIPANT 1

Interviewer

Welcome again to our section. Thank you. Can you please, for your demographic data, can you please share with us? We know your name, but can you please share with us your age range, if it's possible?

Participant 1

I'm between, I'm in my late 20s. Late 20s. So between 20s, 30s, 30s, it's fine.

Interviewer

Yeah. Okay, thank you. And your country of origin is Ghana.

Participant 1

Yeah

Interviewer

Yeah. Okay, thank you. How long have you been living in Germany?

Participant 1

One year.

Interviewer

Okay, and what is your mother tongue?

Participant 1

English or Twi? Please, which is which? English or Chi? Chi, yeah. Okay, thank you.

Interviewer

Thank you so much.

Can you share with us your current occupation?

Participant 1

Okay, so I'm a compliance analyst with Comteas Genbihar, which is a subsidiary of Commons Bantu.

Interviewer

That sounds interesting. Okay, thank you. How do you primarily assess information? Do you use online? Do you use print media, radios, how?

Participant 1

Okay, so mostly online and I think social media, not social media, but what should I even say? I think you had a list, it's about three or so. So mostly online. Okay, okay. But I use more of the media, yeah, media, yeah, yeah.

news agencies yeah okay so your main sources of information are the online and then the yeah most especially online okay and how often do you assess this information am i every day uh daily yeah daily

Interviewer

okay thank you and do you prefer now you are living in your news from your home country?

Participant 1

I do both because I'm in Germany and I need to know what's currently going on because I'm an immigrant and I need to know what revolves around me and I can't rule out news also back home so I need to know what's also going on back home and be abreast with what's happening there. It's my country of origin and I can't just...Refute at any point in time news coming from there. Yeah. I guess that's yes.

Interviewer

Okay. Thank you. And so, for example, the news in Germany, once you assess the news in Germany, how do you verify the credibility of such news?

Participant 1

Okay. So it depends on where it's coming from. The kind of. The news agency, because mostly I know this news agency, the probability of having a fake news would be very less compared to any other social media accounts or bloggers or something. So mostly I use the DW news, which is a trusted German media organization. So mostly that's where I access most of my news from. Yeah. And aside that too, from within the Ghanians, because we are mentioning both Ghana and Germany.

Mostly with Ghana, mostly I use the City News because I trust most of their sources. So it's not just based on presumptions. Yeah, yeah, so mostly trusted news agency, which is within the, trusted news agency, yeah.

Interviewer

So you have City News agencies that you call trusted.

Participant 1

Yeah, yeah.

Interviewer

So do you verify information from these agencies or because they are trusted you don't verify

Participant 1

it depends because mostly they would have sources to back whatever news or claims they are making so Once they put out those information and you know every every every news agency would want to protect its credibility and how do we call it? The kind of name they've built is based on credibility. So once they are not very credible, we wouldn't be able to assess your news. We wouldn't come onto your platform to assess because whatever we know is the news you're putting across isn't something suitable or fake. So they protect their credibility. So before they put out a news there, they need to make sure that the research has been done well, cross checks have been done well. We can't say entirely that it's 100% concrete or trusted, but mostly we can see, yeah, the probability of they put in a bit authentic news or information out there is very high. Okay, thank you for this answer.

Interviewer

Earlier on, you mentioned that you listened to these trusted agents, just so to prevent fake news. So that means you are actually aware of fake news.

Participant 1

Yeah, I'm exposed to fake news as well.

Interviewer

Okay, and have you, you are exposed to fake news, so can you share with us one or two experiences with fake news?

Participant 1

Oh, I think, I think it's mostly social media. Where mostly, I think maybe there was a, what's the name?

The figures that are being put out, or I wanted to use the mass words, but it just didn't work out. Okay.

Yeah, yeah, yeah, yeah, yeah, yeah. So the quantitative, so yeah, are not right, maybe. I think on immigration, I think one of the applications and stuff, I think the news, the blogger, actually, because it was the social media, so the blogger putting out that information. wasn't right. I think for me, I was privy to the information because I knew it from the government's website. And once the government published, they are actually giving out that information. And we also have that information from the government. So once the blogger was making that claims that this and that information has been made by this country or that, and I had to find out from the other, the government source. I realized that there were some inconsistencies and I think there's some element of fake news in there. So, and people are misinformed based on

what the person is putting across. So once you don't do the cross check, you may be working out whether fake news, not knowing the entirety or having a comprehensive view of what is actually being put by the government rather than what the blogger is putting out here.

Interviewer

Okay, that sounds interesting. So meaning in most cases, when you hear of an information, or when you come up with an information and you are not sure about the credibility, you have to cross check with a reliable source. That's what it means.

Participant 1

Yeah, if it's going to have an impact on me, but most of the news that social media, I don't think I put much, I attach much importance to it, because Mostly I don't think it's much relevant to me, but the ones that are really relevant to me on immigration news that I think would have high impact yeah. So yeah, I need to cross check to know, yeah, to have a findings to it. Yeah.

Interviewer

Interesting. Yes, you mentioned impact. So let's talk about impact. Do you think the fake news affects, in Germany, do you think fake news affects the immigrant community differently from? the native speakers.

Participant 1

Oh, okay, so yeah, I don't know. I don't know for I can't speak from the context. But to reassure you because I haven't really engaged Germans on the impact of fake news on them. But we can have a common ground. If it is wrong, can I think it has some level of influence over you. You wouldn't be okay. So today, let's see, fake news has been popped out that sorry to say I'm on immigration. And we saw currently there, I think one thing that went viral, that was in the media waves was this IMD on immigration stand sent.

Should it be a fake news? I think we will panic a bit because their stance on immigration was a bit very harsh. I think they were having with that idea of torturing those who are not Germans out of the country. So if let's say in that case, if that appears to be fake news and we have it as trust, we begin to trust that that's the actual news, I think I'll be a bit panicked because I'm in Germany and apart from trying to build a career and the staffs, I think is trying to build and see see Germany as a very conducive environment to build all this, to build a future. I think I'll be, I'll panic a bit. Yeah. So, so I think it will have a, it will have a, it will have a very huge influence on me. Yeah.

Interviewer

So you think fake news actually affects the immigrant community differently from the native Germans or it depends on the topic.

Participant 1

Yes, it depends on the topic. And yeah, and it's really too. So it's, yeah, yeah, yeah. That's what I'll say, yes.

Interviewer

Okay, so if it depends on the topic, then have you noticed any particular topics or teams where you think, oh, on this topic, there is a lot of fake news and I have to be careful. Can you think of any such topic? A topic which is fake news and, sorry. That's a topic that there is a lot of. Controversies, people are circulating a lot of fake news around it.

Participant 1

Oh, I'm yet to maybe I've come across but if not really I need to I need to recall. Yeah, yeah, I need to recall.

Interviewer

Okay, that's fine. And in your opinion, how would you say that fake news has affect with the immigrants our perception about the German community in general?

Participant 1

Okay, so it's I think with the fake news, it makes you see the Germans without having to get close to the Germans or maybe having experience or getting to know any of the Germans. I think you carry this stereotypes around. I think some may be true, some may not actually be true. It's based on whoever, whoever you meet. So in the context of fake news, I think

It gives you a perception about them. On the reality, it may be different. So unless maybe you experience it, then you get to know actually, if it's confirmed the fake news or it invalidates that fake news, yeah.

Interviewer

Okay, and in the other way around, how would you also say that fake news has made Germans perceptions about we immigrants?

Participant 1

I think it makes MCS more different because I... Well, okay, so on the reality they've been exposed to, I would say mostly what they've been exposed to isn't, what do you say fake news, but not the entirety of information that they come across or they get privy to. So it's just one section of the information that they get privy to. So it's make them conclude on.

immigrants as someone coming to from coming from a place where you know things are really hard with the awards no place to stay no economic um they are not really improved the economy the economy is bad and yeah they are here to they are here for a living and you know there's all sort of bad perceptions that they have over immigrants so

If they are not exposed to the right information, they will carry information that may not be right. Because some even have that perception that even Africa is one country. And they live on trees. There are so many, I think, wild lives there. So it's based on the information they are exposed to. And to some extent, that information may be true, but I think once they come, they get to experience actually what was being put across wasn't really so. It's just a section of it, of that, yeah.

Interviewer

Okay, that sounds very

interesting, thank you. And what specific, you said you have been in Germany for one year, so what specific challenges do you face in descending truth from fake news?

Participant 1

Oh, truth from fake news? Mm-hmm. I mean, it depends on the topic. Mm-hmm. So you could give us an example of a topic and how. Because one thing is news regarding, okay, most of the news that I descend, it's mostly from these news agencies, so I don't really see any presence of fake news in there

it cuts across what you see in this news. Let's see, DWC, it's in the other news agency. And there's this, you find the same thing in there. So they all speak about the same topic. It's just, yeah. So it's just a cross check. I don't know if that answers as well, but. It's, yes, it really answers as well.

Interviewer

It sounds interesting because it means if a team or your company cut across. that it means you believe is it's not fake. Is that what you meant?

Participant 1

Yeah, one, the part that is the where it's

coming from, and having to have it. I'm having to having it or seeing the scene is present in the various news agencies meaning there's that element of trust in there. So, yeah. And as I mentioned earlier, the credibility is at stake. So for you to have it across. Yeah. And I think on news like immigration, as an immigrant, I'm much more interested in that. So for that, I would do much finding. But the other news that I think wouldn't be relevant to me that much, just to be privy with it, but I don't think because it influences me that much. So I'll do much. Yeah, I'll do much research on it. Yeah.

Interviewer

Okay, so that means you really don't have challenges in descending fitness from truth news in Germany.

Participant 1

Yeah, but maybe from Ghana or yeah. From Ghana you don't have challenges. Yeah, because in Ghana you need to run cross-checks and you need to you need to do much research to be able to get the findings well because it's always trying to sell trying to get a traffic jam on trying to get much traffic on your page. So most information that are being carried or that have been put across are not really authentic. It was just for the traffic, just to have the numbers and that's all. So yeah, for Ghana, yeah, not to tarnish my country, right? You would do a lot of math checks, but here you will not do so much. Okay.

Interviewer

That sounds Interesting. Well, so will you actually be interested in getting a tool to detect, to help you detect fake news?

Participant 1

Yeah.

Interviewer

Why would you be interested in such a tool?

Participant 1

Yes, to be exposed to the right information because we all know what fake news does.

Having a tool that will help detect those fake news. Yeah, what it would be much helpful So once you know, this is fake, you don't pay much attention to yeah, you don't waste my time on it And that is your stress Less prone to panic and you know, yeah, so

Interviewer

Okay, so apart from getting a tool that will actually help you do you have any suggestions of Another strategy that can also help you in detecting fake news?

Participant 1

Another strategy is apart from getting a tool. I do. Can you think of any other strategy? That's why I mentioned it depends. Maybe it's, it will depend on the individual that has to do much cross check. Because sometimes if, if the information comes, you need to know where the source, you need to know. So let's say on immigrations like this, you need to go to the government's website to verify, to know actually if it is the truth or not. So mostly we may, some individuals may just take in the information and just have it at a test, but some also try to do the cross-check to know if it's actually true or not. So having it to... that to let's say maybe give us that reference or site sources as to where we can get the actual news from. So having a tool of that sort to move the paramount. Yeah. And yes, you just mentioned references.

Interviewer

What are some benefits you would expect from such a tool? I think one of the benefits you've mentioned is references. What are the benefits you are expecting from such a fake?

Participant 1

I think that would be the feature, the reference would be a feature. Okay, then the benefit you are expecting, you would expect from such a tool. Not to waste my time on any fake news because I would be able to know if the tool is actually functioning right. We know that, okay, this is the fake news, they pointed it out, they provided a source. they provided references or something that's overrides that fake news, then meaning it's something trusted. So yeah, so it's, it's, it's, it's, it's going to be helpful. I wouldn't lie. I wouldn't lie to you. Yeah, it's going to be helpful. So one of the key benefits you expect from such too is it's not wasting much time. Yeah, it's really wait much time and

Yeah, reliable information is going to be is going to be gotten will be gotten from that. So from that too, so.

Trust is being ensured in here. So it's built as trust here. Okay. And how does, how that, how do you build or how do we build such trusts? Okay. So the trust has been built when I think once you have a source, so let's say I spoke about immigration and once you have that source so it points out that, okay, this one is a fake news. They provide a source.

So when you go to the government websites, you check and actually it's consistent with what's the two providers, then meaning that trust has been established in there. So, okay. Yeah. Okay.

Interviewer

Thank you. And then the features you mentioned references, what are some other features you would also want to see on such a tool?

Participant 1

Giving us a detailed explanation. So I think it would be a cross checking something or something to pop it up like, I know, let's say in Compliance, you have something like a red flags. Yeah. So something to show or I think I saw the question and score something like a score scoring this year. But I think a red flag will also be helpful. Yeah. Flag this as a fake news.

Interviewer

Okay, yes, thank you. So for the pop-up or the red flag, how would you expect this pop-up via email or just a pop-up in the app or through a browser extension? How do you expect this pop-up to be shown to you?

Participant 1

I think in the mail. For me, I check my mails. I think every two hours or something, I check my mails or something. So for me personally, for me mails will work for me.

Interviewer

Okay. Okay. Thank you. And then you mentioned detailed explanations also. So how detailed explanations how might detailed explanations do you want?

Participant 1

Yeah. So we should know the description we should know we should have to talk about detailed so you should cite the fake news and try to invalidate it that this is actually fake. This is not. Yeah. So a detailed explanation will be helpful. So as detailed as this, so that we get to know that actually it's a fake news. Okay.

Interviewer

Okay. And you mentioned earlier that in order for you to trust such a, such a device or such a tool, it should be able to provide references that you can cross check.

Participant 1

Yeah.

Interviewer

Okay, that is fine. Thank you. Have you in the past used such a tool?

Participant 1

Use a fake news detector? No, no. Yeah, honestly, no.

Interviewer

Okay. And do you think you would like such a tool?

Participant 1

Yeah, definitely. Okay. So then again,

Interviewer

How would you measure the success of a fake read of such a tool?

Participant 1

The success of it?

Interviewer

For example, someone say, oh, WhatsApp is very successful because I can speak to my loved ones all the time. There is real time communication. So in this case, how would you measure the success? Should it be about the accuracy? Should it be about the user interface, about user satisfaction? or about your trust for the device, or how would you just say, oh, this tool is very successful as compared to other tools?

Participant 1

I think it's based on accuracy and how consistent that information is. So once the information you are providing is very accurate, with time the trust is being built in. Okay. Yeah. And you just grow your portfolio. So yeah, so with time.

I think once the trust is built, you invite more individuals in. As it generates, it becomes successful. So yeah. OK, that's and that is a value you guys like. That is a value is given. So the more you build a trust, the more you give us the accurate information, you build a trust. Sweet value. It becomes successful. So.

Interviewer

Okay, so apart from trust, apart from accuracy, apart from detailed explanations and references, do you have other suggestions for us to include or to consider in developing or designing such a tool?

Participant 1

Um, not yet, but once I think you go live with it with time, we will know how to, we will see where the H is, where we need to move. Yeah.

Interviewer

Okay, thank you. And so, yes, with time when we go live, our intention for this study is to gather your views, your ideas, your opinions, so we can come up with such a tool in the near future. And will you...think or would you be interested when we finally have such a tool? Will you be interested to be involved in usability testing or in testing the features of such a tool?

Participant 1

Yeah, I'll be interested. Yeah, you can enroll me. Yeah, you can reach out to me. Okay. Okay. Thank you so much for your invaluable insights. We really appreciate it.

Interviewer 2

Okay, so you said that the. The explanation explanation should be given. As to why the news is considered as fake. So, imagine if someone has no idea about what fake news looks like, and. These parameters, or these points as I've been given. How would the person understand. Do you think it would be advisable to maybe have a section in the app where there's a form of Educative information about what a fake news is, how it looks like, how to identify it. I don't know if my question.

Participant 1

Yeah, I understand. Because I think as part of the given out that detail explanation would want to you'd want to cite this as a fake news.

And in giving out that explanation, you tell us why it's a fake news and what makes it a fake news. So then you try to also bring out things that will help point it out as a fake news. So that's what I mentioned, if you have sources to back it. So if it's a fake news, and I go to that source to confirm, it will show it, it will actually tell me that the information that was. The detailed explanation as to why is the fake news is consistent with the source that The government source or where the wherever that information is coming from So if there's a consistency then meaning we can rule out that's fake news that came up So I think what you mentioned also what's for the first time is what? The section that you'd show that okay. This is fake news. They're probably just been pointed out that makes it a fake news. So I think it depends on how the tool is going to be designed. But that's, yeah,

it depends on how you guys would develop the tool. Yeah, but as you mentioned also, there's an education needs to be also provided on that. But it is still based on how you point out as a fake news.

And I think you said that you trust some new sources because of the popularity. Yeah, but don't you think that those sources. If they mistakenly put out a false. Information, it could spread out really fast because. Like, yeah, kind of. Yeah, yeah, yeah, yeah, because.

And that's why mostly before they come up with the the the telecast any of that or broadcast any of that information, they need to do cross checks to actually get a findings before they put it out because they can't put their reputation on the line without having to confirm those information.

It can just be based on presumptions that you put across. else with time you are just soiling your reputation and no one who access the news you put across. So it's just like a bank. A bank wouldn't put its reputation at stake. If there's a presence of a fake news or anything that will put its reputation down, I think the bank will go down. So just like You also go down because no one is going to trust any information that you put across. Any information is very vital. We all feed on information every day. So any news you put across, you should make sure that you come back. You have it confirmed. Mostly when you don't have it confirmed, they need to do a cross check. They need to reach out to where actually it's happening or where actually the news is coming from. So if there's a correspondent or there's any contact person to verify all of those information. Yeah.

Interviewer

Okay, so thank you so much again, brother, the cost. We really appreciate it.

Participant 1

Welcome.

PARTICIPANT 2

Interviewer: Please could you state your gender, your age, level of education and country of origin?

Participant 2: Okay, gender, okay. Male, age 30, country, Ghana.

Interviewer: And what level of education?

Participant 2: Okay. First degree, I would say, yeah.

Interviewer: So how long have you been in Germany? Or how long have you been living in Germany?

Participant 2: Roughly four and a half years now. Four and a half years.

Interviewer: And what's your mother tongue and do you speak any other languages?

Participant 2: My mother tongue is Twi and I speak English and German.

Interviewer: Okay, and what is your current occupation and main activities?

Participant 2: Currently, my student life has ended. As I'm going, veterans, more like working students. Participant 2: 0 hours a week and yeah.

Interviewer: Okay, so I'll move on to the next topic. And this has to do with your media consumption habits. So how do you primarily assess news and information?

Participant 2: I'll say 70% is through the media and the rest probably from friends or my social group. Maybe family as well. Yeah, family and friends will be the rest 30%. So the majority is from the media.

Interviewer: Okay. And what are your main sources of news and information?

Participant 2: In terms of media, one of the main tools I use is Twitter or X. I don't put it that way. And sometimes, searching on other news platforms like BBC or CNN. But most of the time, I get my information from X.

Interviewer: Okay. And how often do you assess news from these sources?

Participant 2: Difficult to tell or probably quantify it, but I would say almost every day, if I want any updates, whether politics or economics, entertainment, most of the information I gather is from X, but it's quite difficult for me to quantify it number of hours to it.

Interviewer: Okay, and do you prefer news from your home country or from Germany or from German sources? And if yes, what are the reasons for your preference?

Participant 2: Because I'm a Ghanaian and at the same time currently living in Germany, I prefer getting information on news from both countries. And when I say both countries, when it comes to their sources, anything related to German, I prefer to use German related sources. But when it comes to Ghanaian based news, probably from other platforms which are Ghanaian related or as I said early on from family or friends to gather information. So I get information from both German and Ghanaian based sources.

Interviewer: Okay, moving on. And how do you verify the credibility of the news you consume?

Participant 2: It's a bit tricky when you talk about credibility. Because the source may or may not be compromised, but sometimes based on their goodwill or the kind of image they have in the public eye, I tend to lean on them to be a reliable source. As an example, Let's say, DW from German based information or getting news or updates from German related issues. Definitely a source that you can rely on. Or, for instance, when you go to Ghana, or when I try to get information or updates from gun related stuff. News platforms, like my journal, are quite credible. So, whether it is Interviewer:00% authentic. It's a bit difficult to tell, but based on their goodwill, I can lean on such information platforms.

Interviewer: Okay, so if I get you right, you said that your trustworthiness in the new source, Sometimes depends on the credibility of the organization or the kind of image they do have?

Participant 2: Okay. I mean, based on Decades of experience and yeah, how, how they fully run their stuff for possibly decades, I can rely on the kind of information that they put out there.

Interviewer: Okay. so how do you discuss or verify news information received from friends or family?

Participant 2: Can you please throw more light?

Interviewer: Okay, so probably. Since you are here and probably your family might not be here, your family might be in Ghana and they would share information. On what is going on in Ghana with you. So, how do you verify this news that you receive from your friends and family that are not coming directly from the new sources that you stated. Maybe you might receive some news from your family concerning some issues going on in Ghana or even here. So how do you verify such information that you receive from your friends or family?

Participant 2: It's a bit difficult, you know, but sometimes, let's say, if it's about a company, I try to maybe going to the websites of that company just to verify if they've put any public release in regards to that issue. Or if it's about a personality, I try to look out for any press release from that personality to either verify or say anything about the issue. So irrespective of what information is coming from, I try to, if possible, go to the root cause or who or which organization the information is about, sorry, the news is about to verify that, you know. It's a media house, probably from their main website, just to be extra sure. And if it happens to be about someone that I personally know, then I try to reach out to that person to verify that kind of information I've heard, if it's true or not.

Interviewer: So, moving on now, I'm going to ask you a few questions about your understanding of fake news. Are you aware of fake news?

Participant 2: Yeah, sure. I'm aware of fake news. And have you ever encountered some news or some news sources or some information that you later found out that were false or misleading? Yeah, a couple of times.

Interviewer: Okay, and what was the experience like?

Participant 2: Yeah, I do remember, I think back in the early days in Ghana, there was one news circulating around that there was one, I don't know, was it a rock or a stone or poor, I don't really remember like Interviewer:00 percent but basically it was more like something from space coming to planet Earth and yeah about cosmic waves or something. It was a bit difficult to I was a bit terrified, you know, not verifying if it was true or not. But in between, I still see those kind of news that there's something like cosmic rays and it's harmful. You just switch on your phones and other devices, you know, just not to be a victim of such a cosmic ray. So definitely such news. As I speak now, I know they are fake news. And back then, it was a bit difficult for me to draw the line if it's really true or something fake. So that's maybe my share of fake news that I've experienced so far.

Interviewer: OK. And how did you realize that the news was fake, is it true for checking, noticing inconsistencies or you receive the correct news?

Participant 2: Honestly speaking, back then I didn't verify, but after that incident, I think we looked it up on Google, and I think there were a couple of feeds and other platforms that people shared such information, and the comments that came in were like, yeah, it's like, it's never happened. They've had similar stories and all that. So, as at that particular moment, I didn't verify, but as the days went by, I realised, yeah, looking up such news on Google. On Google, I realised other people have also been victims of such news and that made me realise it wasn't as authentic as it's supposed to be. Let me put it that way. change in behaviour or opinion? Yeah, It was more like fear because the news was capturing, like, if you don't switch on any device, then definitely you wake up and probably something bad has kind of happened. So the focal point of such news was more fear, you know? Instilling fear in us, I would say.

Interviewer: Okay. And do you think fake news affects the immigrant community differently than other groups?

Participant 2: From where I'm currently living and the kind of environment I do for myself, yes, but back home in Ghana, I wouldn't have seen it from the immigration point of view, but where I do find myself geographically, I think it might have some kind of, some kind of immigration impact. So I'll say yes.

Interviewer: So let me rephrase that question again. Do you think fake news affects the immigrant community in Germany differently than the other groups as in the non-immigrants or the citizens?

Participant 2: Yeah, yes.

Interviewer: Okay, in what way?

Participant 2: For instance, let me start with the language barrier. Let's say you see this news circulating. It's in English, you know, but wherever the news is coming from, probably from the original source in German. And because maybe one or the other, we're not cognizant or comfortable with the language. We tend to rely more on the English version and probably by the time we rely on the original news source, which is in German, has the real facts. Probably it will be too late. And because it's easier for us to understand and read in English, we tend to probably rely on the English version, which probably could be the fake news. So I would say from a language perspective, yeah.

Interviewer: Okay. And having noticed any particular themes or topics that are more prone to fake news targeting immigrants? It could be in terms of politics, health or immigration policies.

Participant 2: Probably to be in the direction of immigration related stuff because I think recently I saw, I don't know if it was a blogger or something, but. It was about the new immigration, the new immigration rules with regards to the number of years that's the number of years needed to really. Apply for a German passport and with that. The data wasn't consistent because I later on discussed a friend of mine who happens to be a German and I mean, he had a fact, he sent me a couple of sites like German sites and I verified those facts from the English blogger. So with that, I think that answers the question.

Interviewer: And how do you feel fake news has influenced public perception of immigrants in Germany?

Participant 2: But because it's fake news, whatever kind of information is circulated if it's about a bad image about a country, then definitely it creates a bad image in the eyes of immigrants. For instance, just an example, if there's a news circulating about racism and there's no fact related to that, then definitely it's going to create a bad perception about the Germans in the sight of immigrants, you know, so if the news circulating Being fake news is about the negative sides of Germans and definitely is gonna create a bad image in the in the in the minds of immigrants. Yeah

Interviewer: And how do you feel fake news has influenced immigrants' perception of the native Germans?

Participant 2: Okay, so if I understand you correctly, the first question is from the perspective of immigrants and the second question is from the perspective of Germans, right?

Interviewer: Yes.

Participant 2: Okay, from immigrants, I think when the Germans get fake news about immigrants, for instance, let's say. I don't know, there's something ongoing. There's something going on in Ghana. And probably let's say a hunger strike or a farming or whatever, probably not the truth being painted about Ghanians or let's say Africa, then definitely they don't verify the kind of information about Africa. They will probably have it at the back of their minds that maybe the majority of Africans are behaving that way or the majority of Africans are going through this kind of hardship or these things about Africa are how Africans react in certain ways. So fake news from the perspective of Germans about immigrants in a bad way can definitely have effects on how the Germans see immigrants in Germany. Likewise, fake news about Germans in the eyes of immigrants also has an impact. For instance, if maybe there's a fake news about the new laws about immigration rules or new laws about students in Germany, then definitely it's gonna paint a bad image about them. I don't know if I've answered your question.

Interviewer: Yes, yes, you've answered my question. So what specific challenges do you face in discerning truth from fake news in your stay in Germany?

Participant 2: I would say language barrier maybe because maybe sometimes I'm super lazy to go to the original source and probably okay not lazy but because I'm not that comfortable with the language I tend to rely on maybe English bloggers or

English vlog related information rules or probably I feel reluctant to go to German websites which have the facts and the figures to verify for myself. So maybe language barrier, I would say.

Interviewer: Okay and how do these challenges impact your integration into German society?

Participant 2: Yeah, let me start with the fake news. If the fake news painted a wrong image about Germans and definitely integrating with them will be quite problematic. So, I wouldn't feel welcome to really get into the system. That's one. And the other side is language. Probably if I'm not comfortable with the language or I'm super lazy to learn the language or I'm so struggling to really find myself on the language sets and not and definitely integrating with them. Language plays a role in every culture. So it will also be a big blow for me integrating with them.

Interviewer: Yeah. And how do they influence your perception on societal issues?

Participant 2: Yeah, if the fake news is more like they don't care about me, then definitely I also wouldn't care much about societal issues, even though it's stupid because it's an environment I do find myself in currently. So, if I'm being insensitive about what's going around around me because of fake news and definitely in the long run, it's also having a negative influence on how I'm going to integrate myself into society. It's more like a coin of two sides, you know? So, garbage in, garbage out.

Interviewer: Okay. And how do they affect your ability to critically evaluate online information?

Participant 2: Unfortunately, from the perspective of fake news, it's going to cloud my judgments. And it will be very difficult for me to tell the stuff which are true and the stuff which are not true. And probably I'll be skewed towards the facts which are false. And that will definitely have a negative influence on how I see the Germans or literally how I see the system, the kind of system that I live in. So it's going to cloud my judgement. Yeah.

Interviewer: Okay, so you stated that, language barrier is one of your main challenges. And so how does the language barrier being your problem or your challenge affect your ability to critically evaluate online information?

Participant 2: Yeah, for language barrier, Okay. I mean, with technology, sometimes you can translate directly from the website using the browser. Once enough is realised with some of the Internet or company websites, there is some information, even if even with the translations, they still, they still, they still present the information in German and there are some links that you cannot access in English. But as some, sorry, there's some, there's some facts. Or some information you cannot access from the company websites in English. So with that's definitely if. These links, or these parts of the websites that could probably be of help to me, cannot be translated to English, then definitely that'll be a hindrance for me to verify whatever I'm looking out for.

Interviewer: And what are your information needs and preferences in assessing reliable and trustworthy new sources?

Participant 2: Could you please throw one light on that?

Interviewer: Okay, what do you need or what do you think will be the best solution for you in assessing reliable and trustworthy news sources?

Participant 2: For instance, if it's an article or report, maybe the name of the person with a short view about the person. No, but like, there's some information, but any additional information about the writer wouldn't be bad. And if it's from a blogger the blogger can always insert a link to verify the information from the original source. So I think these steps could be maybe a solution in verifying how reliable an information can be or a new source can be.

Interviewer: Could you share with us some strategies you employ to verify information and protect yourself from disinformation? Do you have any particular strategies that you use?

Participant 2: Yeah, as I said, if a block has information about the new immigration rules in Germany, after showing everything and here's my perspective about the new immigration rules. They can be a link added to maybe the original source of the information if it's coming from the German immigration office, if it's coming from the Finance ministry's office, if it's coming, wherever the information is coming from, he or she can attach the Related link to it. So, after reading everything, let's say, if it's in English, I can verify for myself, or I can go straight into the original source. That's one point. And another means another means, I think that's the only option I can think of, a means of verifying the information.

Interviewer: Okay. And we are now moving on to the design. So after we are done with everything, we are going to design a fake news detector that will help in detecting fake news. And would you be interested in using a tool that will help you to detect fake news. Why or why not?

Participant 2: Yeah, sure, I'll be glad if there's a tool that can help detect fake news. And the reason being that, yeah, to save me the stress of being troubled, being misinformed. Or probably having such a bad prejudice based on some fake news I've read a couple of years back or based on a fake news I came across some time ago. Yeah.

Interviewer: And do you have any suggestions or another solution other than a tool to detect fake news?

Participant 2: At the moment, I cannot think of any other option.

Interviewer: Okay. And what benefit do you expect from such a tool? Like, what benefits do you expect from the fake news detector? Fake news what? What benefits do you expect from such a tool? If you are to have a fake news detector, what benefits do you expect from it?

Participant 2: Yeah, as I said, definitely the tool will help with verifying the credibility of your news. So, being not misinformed also plays a major role. So definitely I'll feel whatever I'm being fed with from the main media stream is, quote unquote, authentic and the information and facts that I can rely on, you know, in making some decisions. Yeah.

Interviewer: Okay. And what key features would you like to see in such a news, a fake news detector? Example, it could be real time detection, source, credibility score, alerts for suspicious news or detailed explanation. What key features from your perspective, what key features would you like to see in such an effective detector?

Participant 2: Yeah, attaching the source would be one important aspect. And also, like, with detailed explanation with all the facts, with all the figures, to prove the points. And probably on, how do you call this? Yeah, a detector, as you mentioned earlier on, a detector that's okay, this link, information coming from this source could be a threat and maybe can be misinformed, it wouldn't be bad as well. So the source. A detector for misinformation and definitely a comprehensive explanation with all the facts and figures. Wouldn't be bad.

Interviewer: And how would you prefer to receive alerts about fake news? If you could have this fake news detector, let's say in the form of a mobile app or anything, how would you prefer to receive alerts about this fake news? About fake news?

Participant 2: Probably can be a simple add-on. I do the add-on on my browser, and once I click on the link, there will be a pop-up information like, yo, watch out. Or just a normal add-on on my Google Chrome or Explorer just to give me the heads up that this website or this information from this source could be a threat to misinformation. Yeah.

Interviewer: OK. And what level of detail would you like in the explanation of why a news article is flagged as fake?

Participant 2: Yeah, one, maybe the source quoted is wrong. Two, if it has no, if it has no, how do you call it? credible media house back in it or if basically it has not happened at all. For instance, there's an election going on in a different country and they've not pronounced the final verdict, but there's this news circulating that person A or person B has won. Then definitely from the notification it will be like, no, let's say country A, the election is still ongoing. So there's no way person A or person B has been declared a president or I don't know. Yeah.

Interviewer: And what will make you trust the results provided by the fake news detector?

Participant 2: Hmm. Good question. Let me think. So, let me give you some pointers on this one. Example, could it be the transparency about the detection method Or a third party validation or user testimonials. I think I'll buy the idea of the user testimonials. Because recommendations are what's what people are also sharing online there based on how that's, based on how that helped, that wouldn't be bad in the perspective of the testimonials. And of course, the transparency could also be another factor because I feel I know what's happening on the other side and I can somehow rely on the news or the source of the news. So maybe transparency and user testimonials wouldn't be bad.

Interviewer: Okay, so moving on, I'm going to show you. Some, let's say the first stage of the design. Going to show it to you and ask you a few questions.

Participant 2: That's quite interesting. Yeah, that's a nice initiative.

Interviewer: Okay, so have you ever used any similar tool in the past and if so, what was your experience?

Participant 2: Unfortunately, I haven't. I haven't.

Interviewer: Okay, so how would you like to measure the success of a fake news detector?

Participant 2: The success?

Interviewer: Yes, example in terms of accuracy, user satisfaction, increased trust in users.

Participant 2: I think I'll start with the satisfaction of the end user, because at the end of the day, the goal of the set up is to help the end user to really verify if an information or a new source is fake or not. So based on the ranking, the rating, or the testimonials from the end user, We can probably, it can be a KPI for measuring the success of the fake news detector. Yeah. And maybe the second point could probably be, maybe, maybe it's accuracy. Because once the end user is satisfied, meaning it's accuracy or level of accuracy is quite a top notch. You know, so this, this could be. One of the KPIs in measuring the success of that fake news detector, I think.

Interviewer: Okay, and do you have any additional suggestions or features you think would be useful for. For our fake news detector?

Participant 2: Yeah, I'm just thinking from the perspective of. An add on instead of downloading the whole app on the phone or laptop, you know. If there could be an add on feature on a browser. So immediately you tap on the link, then it gives you the feedback or maybe the accuracy percentage in regards to the information being authentic or not. So maybe an add-on could be an alternative. I don't know how doable that option will be, and I don't know how practical that could be, but an add-on could also be a solution in detecting fake news. If you are to have the add-on, apart from the detection, do you have any other requirement or any other features you wish that could be added to the add-on? Another feature.

Interviewer: So you want the add on to just read the accuracy of the news if it's fake or not and give you the. Probably the breakdown of what makes it fake or what makes it.

Participant 2: Exactly. Okay. And maybe share additional information about the number of people who have had similar. I don't know. No issues, but, found themselves in a similar position with regards to the same fake news related website. So more statistics related feedback from the add-on as well.

Interviewer: All right. Thank you very much for your time. That is all for this interview. We really appreciate your contribution.

PARTICIPANT 3

Interviewer: Okay, so, um. Would you give me a brief Information about your demographics, your age range, your level of education, country of origin, language spoken and how long you have been in Germany?

Participant 3: Okay, so I'm 24 years old. I'm currently in university. I'm from Albania and I have arrived here in Germany at the end of 2018, so more like the start of 2019. My mother tongue is Albanian and I speak English and German.

Interviewer: Okay. And I believe that you are still a student, right?

Participant 3: Yes.

Interviewer: Okay. So how do you primarily assess information? Is it through online sources, print media, TV, radio, social media?

Participant 3: No. I've noticed, especially on social media, there is a lot of misinformation. If I can name any apps, for example, Twitter, TikTok, especially TikTok. What I've noticed is that, for example, they take pictures from, like, let's say I'm going into the crime scene right now. A crime happens years ago, happened years ago, so they take bigger pictures of that crime and they make up fake news, for example, as if something happened this year and they presented it as something else. I think it is very damaging, especially if you're like a relative who was affected by that issue. So it's not only about fake news. How it affects other people.

Interviewer: Okay. Okay, so, so then what are your main sources of news and information?

Participant 3: My main sources of news would be, for example, since I'm in university, I have a teacher that provides us with good resources for getting accurate information. So for example, when it comes to actual things that are researched and highly scientific, there's this website called ResearchGate. I think that's... I can look it up. I think it's called ResearchGate. Yeah, I think it's a very, very good website, highly professional, you know, you cannot just read the paragraph, you know, a lot of researches that they do are very detailed. I think it's great. It's a, you, I mean, it's not like for news specifically, but I think you can learn, learn a lot of things about our world, current state, past state, and you know, you don't have to overthink if it's real or not. Also, get minder or just, you know, Google in general, but also. You never know, but I think the chances of misinformation through Google strictly are kind of low, I think.

Interviewer: Okay. So then what about news when it comes to news, do you have a specific website or a TV channel, do you get your news from family and friends?

Participant 3: No, I'm not really interested in news, to be honest. What I see on Twitter sometimes, but, you know often I don't really believe it straight away. It has to be like, uh, like, a well known News.

Interviewer: Okay. And, uh, so how often do you assess the information sources that you stated? How often do you assess them? Like, is it daily, weekly, monthly?

Participant 3: I mean, for example, if you engage on Twitter, depending on what you follow and other people's algorithm, what they bring on your timeline, it's like daily, honestly.

Interviewer: And do you prefer news from your home country or from German sources? And if you prefer like, either of them, like, what are your reasons for your preference?

Participant 3: I think in my country, the news focuses mostly on negative things, I rarely see anything positive, honestly. And just the... I think it really affects your... the way you perceive the world. Because I know that there are also good things happening, but only focusing on the negative things, it's not good at all. Usually, for example, in my country, there is... I don't know how you say it in English. Maybe rubric? Or is that not a word? Err... Rubric? No. My country... Well, this sounds like a foreign word, so I thought it's the same in English. Like, okay, for example, you have news and it's like...

Let's say 20 minutes long, the 15 first minutes are just negative things. And five minutes in the end are like positive things, but I don't think they balance each other at all. Okay, okay. So, okay. So I like focusing more on foreign news. Also, I remember there was a psychology professor saying that your mother language is related to emotions, but the other languages that you speak, second, third, they are not really connected to emotions, so they don't really affect you as much. The words don't really affect you as much as the words in your mother language. So I think that's the reason.

Interviewer: So does that mean you balance, okay, from what you said, then it means that you focus more on international news. Other than your home country's news. Okay, okay. And how do you verify the credibility of the news that you consume? Do you do cross referencing or do you trust the sources that you take the news from?

Participant 3: No, no, not straight away. If it's coming from like, let's say a regular person, if that's a normal word to say, a regular person, I don't believe it straight away, you know, because it's not a reliable source. If it comes from a media outlet, it's more reliable, but still what I do to verify it for example, let's say the title of the news is very, it's written very... Like all the information. So there was this informational video that I saw about a psychologist who had made a theory and he had told his colleagues and none of them believed him. It was about creating geniuses. Like, you don't have to be born a genius, you can be made, but starting from early childhood. And so he made this experiment to prove his theory through his three daughters regarding chess. So when his daughters grew up, they were all three chess masters. So that to me didn't sound very true. So I started looking up on YouTube and the way I verified it is if many YouTube videos had the exact same title, so that means that it wasn't something, it wasn't a lie. I think if it was a lie, if it wasn't true, then maybe the titles would have indicated that at least.

Interviewer: Okay, so does that mean you look for other sources to confirm if the news is true or not?

Participant 3: I do, for example, because I saw this was a post on Twitter originally from a random person. So I was like, I don't really believe that. So I looked it up on YouTube, but Yeah, okay.

Okay. And the news and information that you receive from your family and friends. How do you normally Verify the credibility of the news?

Participant 3: First of all, it depends on how it sounds, realistic or not. Okay. Second of all, if I'm interested in finding out more about it or... If it doesn't really sound realistic to me, and if it's not something that I'm interested in, then I don't really care about figuring it out. Okay. ...the truth of it. But if it's true, then, for example, I can verify through zone. I forgot the word. So basically just shows where guests that are highly professional in a specific field talk about that situation. I think that's very reliable.

Interviewer: Okay, and are you aware of fake news?

Participant 3: Yes, yes, of course.

Interviewer: And have you ever encountered news that you later found out was false or misleading?

Participant 3: Yes, I have.

Interviewer: What was the experience like? The experience, so how did you encounter the news and what was your reaction when you later found out that it was false?

Participant 3: I think you just gather these instances and after a specific period of time, you stop believing immediately things on the internet. So from that point on, you are more careful and you don't really trust things right away. So I think it affects your trust maybe, but not on a huge level. And yeah, You are more prone to second guessing, I think.

Interviewer: Could you share with me one experience of how you encountered fake news and how you went about it?

Participant 3: OK, I have to think, trying to.

Interviewer: Yeah, yeah, yeah, it's okay. It's okay. If you cannot think of anything now. And so how did you realise that the news was fake?

Participant 3: Okay, for example, like on Twitter, this happens all the time. And especially when they misuse pictures. And it's often quite... Well, it varies. So sometimes it's just annoying. But sometimes it can also be kind of insensitive to people. So I think it's on a spectrum, you know, it depends on the emotions that you, the emotions that awaken you, when you see fake news, it's not like a specific one. There are many emotions involved, for example, from, wow, I can't believe I fell for that or... Because, for example, you believe a specific news, and then you find out that it's fake news. And then the first time that you heard the news, you start thinking, you know, that wasn't even logical. That wasn't even that didn't even make sense. So why did I believe it straight away? So start second guessing yourself.

Interviewer: So you did fact checking or you noticed some inconsistency in the news that made you realise that all this news is fake?

Participant 3: Yes. If you, okay, I remember growing up for many years thinking that human beings, you know, use only 10% of the brain because that's like something I've seen a lot of reports on it, So I think that could be considered as news or... And this year only, I realized that actually human beings use 100% of their brain. So. That was very surprising to me.

Interviewer: Okay. And what impact did the fake news have on you or your community? Was there some kind of emotional response or did it change your behaviour or your opinion?

Participant 3: I think that the more you absorb, the more fake news you absorb, the more your perception on life changes. So you can go on about your life having a completely different perception from reality and how that affects you. You know, it can be, you can have many responses, I think it's not something specific.

Interviewer: And do you think that fake news affects the immigrant community in Germany differently than other people?

Participant 3: Yeah, I do think so.

Interviewer: Okay. And in what ways?

Participant 3: For example, it can make you perceive a specific country since you are not native in it and you don't know much about it. It can make you perceive a whole entire country and the people in it in a wrong way. It depends on the news. If you focus only on the fake news or um, let's say the negative, uh, fake news, uh, I think it can make you feel like targeted in a society. But then if you take the same person and you, you show them only positive news, and that can be reliable. You know, I'm taken to exact opposite. And I think the answer would be completely different and how you position yourself in that foreign society will be very, very different.

Interviewer: Okay, and have you noticed any particular topics that are prone to fake news and targeting immigrant? It could be an area of health, politics, immigration. Like, have you realized anything like that?

Participant 3: Okay. So, for example, about Germany, I think Because I've noticed other foreigners say this too, so I think it's not only in my country. There is a different perception of Germany, like it's like a utopia, you know, like nothing bad happens. And it's like the perfect world, perfect place to be in. Not world, perfect place to be in. But then, so like if you have... If you have been constantly faced with those type of news, then you come here in Germany and then you perceive it differently, you know, because no country is perfect, obviously. So, it really does affect what you have known so far, your knowledge about the country you're in. And also you start noticing that your perception of that country changes, but the people from your country are still in the old mindset that you used to be into. So you can see, you can also compare yourself to who you were in the past and now and how you used to think.

Interviewer: How do you feel fake news has influenced public perception of immigrants in Germany?

Participant 3: I think the way that media portray the news, the way that they handle it, and also the demographic that consumes the media, for example, on Twitter, you can see a lot of liberals. So whenever there is negative news focusing on immigrants, there are always people who are like Please don't generalize, you know, very positive response. But if you go on some YouTube channels where the demographic is mostly right, people or let's say conservative conservatives, and there are bad news about immigrants, then immigrants are very targeted.

Interviewer: Okay, and what about when you take it the other way around and. Has fake news influence immigrant perception of the native Germans.

Participant 3: Yeah, it could be it could be the other way around too. I'm trying to think of fake news, Because you know, I was thinking lately, for example, the right this year was second place. So a lot of immigrants felt uncomfortable with it. And the people immediately started to stereotype everyone in it. Everyone that supported the right as a Nazi. I think that that's insane.

Insane conclusion, especially because I think also the word Nazi has a different connotation, but for Germany, you know, the Nazis were very, very extreme, you know, they were killing people. So I think the term is very. Very strong to use. Okay. Okay. And what specific challenges.

Interviewer: Do you face any challenges in identifying fake news from the truth?

Participant 3: Sometimes yes, because I don't know how to research properly and where exactly can I find that specific information? Sometimes you see news and If you look it up, you don't find any information about it. So you are you are left with this you know, with this news that you don't know if it's true or not.

Interviewer: How has these challenges impact your integration into the German society? Does it have any effect on your integration?

Participant 3: So the fake news for Germany where it has made me feel like a little bit targeted as an immigrant, you know, but also on the other side. I think it is polarising people and putting them against each other. There are absolutely people who are on the extreme ends of this spectrum. So from the immigrants that feel great here, to the other side.

Interviewer: So you mentioned that. Sometimes you are unable to find sources to confirm that the news you are consuming is fake or if it's not fake. So how. How has it affected your ability to critically evaluate online information since you are unable to find the right sources to confirm, how has it affected your ability to evaluate online information, and the credibility of online information?

Participant 3: Yeah, I don't absorb anything anymore. So if it's something that I really care about, then I go do research about it. But If it's something that doesn't sound interesting, or if it's something that I think that I'm going to forget anyway, and it's pointless to verify if it's true or not, then I just drop it.

Interviewer: So, what are your information needs and preferences in assessing reliable and trustworthy sources? Like you said, sometimes you are unable to find the sources. So. What do you think that if you are able to get or if you are able to have access to it to be able to help you in assessing reliable and trustworthy sources?

Participant 3: For academic stuff, that, okay, let's say you got some news and this news belongs on a specific field of life, let's say, I don't know, economics, then I like researching about this specific news on YouTube, but only the channels where professionals on that field are working and highly recognized professionals. The more recognized the better. And also I think it's great because in instances where even the professional can be wrong and spread fake news, like the comments can call things out, you know. Also like media that don't censor the public, you know, because in a lot of YouTube chats because when I say YouTube, you know, I also mean news news channels. All of you can find, you know, YouTube is like TV. Now I don't really watch TV. I watch YouTube. I don't trust the media that uh, lock the comment section, because I think they can spread misinformation super easily that way.

Interviewer: Okay, so from what you just said, can you share some strategies you use to verify information and protect yourself from this information? What strategies do you employ?

Participant 3: I think the best way would be to gather some specific platforms or websites that are that seem reliable or that you have tested before, you know, so your trust in them grows by the time because if you have, let's say, if you know like a channel and you have never had a bad experience of fake news with them, then you are more, you're more trusting towards it. So, I think it would be great to just gather media that you have, uh, you have talked to people about it, for example. And the people have the same information as you.

Interviewer: And would you be interested in using a tool that can detect fake news?.

Participant 3: Yes, yes.

Interviewer: And why would you be interested in such a tool?

Participant 3: Because like I said, it affects the way you perceive the world, whether you want to admit it or not, it really starts to affect the way that you see the world. I think a lot of this fake news is made just to awaken bad feelings, bad emotions, just to gain clicks. So that really, but you know, that has an impact on you. So for example, the tool on Twitter, Community Notice, that the fake news is called out and corrected. I think that that is great. I think that's one of the best things, not only about them, but for a lot of social media, they should also do this.

Interviewer: Okay, and do you have any suggestions for another solution apart from the tool that detects fake news?

Participant 3: I would say starting to call out people, not only people, but also media, any news channels, YouTube channels, whatever and also to not immediately trust the fake news, but for example, if you know someone who knows a lot about the fake news that you just heard, just you can talk to them. There are many ways I think.

Interviewer: Okay, and what key features would you like to see from the fake news detector, what key features would you like to see on it?

Participant 3: I don't understand the question.

Interviewer: Okay. So let's say we are creating fake news detector in the form of an app or a plugin or an add-on. What features do you think would be good to add to such a tool?

Interviewer: Okay, so, for example, let's see. We can mention fields in life, areas in life that have the most fake news, so we can change the perception of those fields in the public. And I think, you know, calling the media out would be great, just mentioning which media has the most misinformation and fixing the misinformation. I don't think maybe, you know, those media outlets might feel targeted, you know, and lawsuits might start, but I think if you have a point then they cannot do anything about it. They should be more careful and not spread fake news. Okay, so if you are using such a tool. Another thing I would say is putting statistics, how prone people are to believe in fake news and. So that people start thinking maybe I'm in this percentage, like, maybe, maybe I should be more careful. So, you know, just also raise awareness in people.

Interviewer: How would you prefer to receive alerts about fake news?

Participant 3: I think for me it would be, for example, reading the title of that news and having like a symbol next to it, let's say like a red dot or something. Okay. You understand that is fake news. And then for example, you can click on the dot to get more context about it. Or if it's news that you don't really care about, you know, at least, you know, that it's fake, so you don't, you know, you just move on because it's something that interests you, but also you don't get, because, you know, you can read something and it gets, it gets, it can sticking your mind, you know. So I think having that symbol. Kind of filters out.

Interviewer: And what level of detail would you like in the explanation of why the news article is flagged as fake, like you said there should be a red dot that this news is fake. So when you click on it, what information are you expecting to be over there as to why the news is being flagged as fake?

Participant 3: I think nowadays people don't have much time. So I think just like a paragraph for the main, giving the main information that this news that you got is fake and what actually happened is this, this, this. And also make like an arrow that you can click down, grain arrow under the paragraph that you can click. And then it gives, it opens up even more the full text, you know? So, okay, you click on the red dot and a white page appears with letters above. And the rest of the page is blank. But then it has an arrow under so you can click on the error and the full page is completed with more information and context. I mean, so examples. Of see the news. So, you can learn more about that specific area that, oh, wait, there's even more fake news that I thought about this.

Interviewer: And what would make you trust the results provided by the fake news detector? What will make you trust the results?

Participant 3: That's a great question, actually. For example, you can put the for scientific things, it's easier thing, because you can just cite resources. Because you know, in scientific researches, like I said, it's not allowed to just lie. But for other news it would be great if the app that you're making has gathered information and has filtered it out. You can say that the amount of because for fake news, for example, you have a version of the news and then another version to you know. Yeah, yeah. So you can mention like, the amount of this version of this. You don't know which one of them is the accurate one, but the news that you are presenting is fake. But you don't know what is the actual truth. You can say like that. Okay. So, if I get you right, it will depend on the transparency about the detection method. Yes, that would make you believe that the results are true. Yes.

Interviewer: So, have you used a similar tool in the past?, have you used, like, a similar tool that detects fake news?

Participant 3: Only the community notes on Twitter. And I think, I really think it's great.

Okay, and what do you like or dislike about the community tool on Twitter?

Interviewer: Okay, do you like anything about it that you think that if we can incorporate it in our in our to help us.

Participant 3: What I like and dislike about it, yeah?

Interviewer: Yes.

Participant 3: So when it comes to disliking it is that sometimes it's not fast enough, you know, so you have already absorbed the fake news, but you get a notification like some days later that, you know, the tweet that you read was not true, it was fake news. So I think if it could be more, you know on time it would be, and also the, like, you can read the, okay. You can read on your timeline, a quote tweet from a tweet with a community note under it, so it slips, you know, you don't, you don't pick it up. Like you have to click on the actual tweet and then scroll down and then see the community note. So I think just putting like a symbol on the fake news up, let's say the name of the media outlet, I would think you would spot it right away, that it's not real, it's fake.

Interviewer: Okay. So if I get you right, you think a real-time detection will be better?

Participant 3: Yes.

Interviewer: Okay. How would you measure the success of a fake news detector? Will it depend on the accuracy, the user satisfaction or the increased trust in in-leaves how would you measure a success rate?

Participant 3: But I can only say that based on myself, I would really like something like that. But I think it depends on the way people use media, for example, people in their 50s, 60s, like they believe anything, anything, even, you know, especially with AI now, it's crazy. Yeah. And they don't seem to care much about the reliability of it. So I think it really depends on the demographic that you are catering to. If you have the right demographic, I think it would be successful.

Interviewer: So in your perspective, like the demographics would determine the so if you get people who use it because they are more conversant with technology, then they will be satisfied with it.

Participant 3: Yes.

Interviewer: And lastly, do you have any additional suggestions or features you think would be useful for a fake news detector?

Participant 3: For example, like when you post, when you post, when you make a post about fake news, you can add an option to add comments down, but only for more informative comments from users, from, you know, random people. Because I think, I think the internet gathers a lot of people who have random knowledge about random areas. Let's say for example you are a professional at Let's say mathematics, okay? And you read fake news and let's say you are very good at mathematics and you are a professor in university like that. So you can add your own comment for more information and you can provide reliable news under the comments too. But also not keep all the comments, filter out the fake news that the comments provide. So it's like fully only reliable news.

Interviewer: Okay, so in terms of using a fake news detector or using an app that will help you detect fake news, if I get it right, you said we should incorporate a comment section where people can put their comments there. People who have had the same experience can put their comment there. If I get you right?

Participant 3: the people who are, who are highly professional on that specific topic regarding the fake news. So they. So they have a lot of information about it and they know exactly what's true and what's not. So what you can do for example is to have some verified users. Let's say a person joins this app and they show you proof of their academic achievements. Let's say you have like a Physician, okay, this is someone who knows a lot, you know, specific field and they have access to the comments section, for example.

Interviewer: Okay. All right. Thank you very much. This was very insightful.

PARTICIPANT 4

Interviewer: Thank you. And just so you know, the recording will only be used for the purpose of our master thesis and nothing else. So confidentiality is highly, highly, highly assured.

Participant 4: Okay.

Interviewer: Okay, so we will start with some demographics. And please, what is your gender? And then what is your age range? Can you give us your age range? Maybe 20, 25, 25, 30, 35, 40.

Participant 4: I'm 23 now. 23 now.

Interviewer: Okay, thank you. And the level of education is a master's degree. Is that right?

Participant 4: Yeah, I'm currently doing my master's.

Interviewer: Okay, and please, what is your country of origin?

Participant 4: Russia.

Interviewer: And then what is your mother tongue?

Participant 4: Russian

Interviewer: Okay. Thank you. And how long have you been living in Germany? If I may ask?

Participant 4: Um, now for eight months, I think.

Interviewer: Okay. And we know you are a student because you mentioned, but apart from being a student, what is your current occupation or other main activities? If I say.

Participant 4: Now I'm only a student.

Interviewer: Okay, okay, thank you. And how do you primarily assess information?

Participant 4: Um, it depends on which information, but I think we're talking about news since it's a topic.

Interviewer: Yes, news.

Participant 4: Yeah. Um, I'm not reading news every day. Okay. So when I want to read something, I go to different channels, mostly on telegram. Okay. Because yeah, I think mostly I'm reading News channels from there and sometimes I think also seeing some news on TikTok and on Instagram because I'm following some specific news channels, but I'm not going there like on purpose. So I'm not every day like, okay, today I want to look at the news in TikTok or in Instagram. Usually I'm just seeing them randomly on my feed and that's it. Okay.

Interviewer: Okay, thank you. So mostly you use social media.

Participant 4: Yeah.

Interviewer: Okay, thank you. And how often do you assess this information? Is it daily? Is it weekly? Is it hourly? How often if you have an idea?

Participant 4: I think, like, randomly, I'm seeing some news every day, but it could be on purpose. Maybe, maybe like twice a week.

Interviewer: Okay, thank you. And do you prefer, yes, you are in Germany for eight months, do you prefer to still listen to news from your home country or you are used to the German system and you listen to news or get information in the Germany and not from your home country?

Participant 4: I'm reading news both from Germany and from Russia. And I have different channels for that.

Participant 4: And I think even for Germany, I even have like channel of Russian repatriates that is being in Russian. So it would be easy for me to read it. But I think I'm mostly still reading news from Russia and from Germany.

Interviewer: OK. And do you have any special reason for still reading news from Russia whilst you're in Germany?

Participant 4: Well my country where I'm from, my whole family is there and plus you know that the situation in Russia is very not very nice, yeah not so stable, it's very nice. So I'm reading news mostly not because of the interest. I would say that like for Germany I'm reading news because of my own interest, but Russian news I'm mostly reading not because of the interest but just to...Just to see what's happening in the country, just to see if it's getting worse. And it is. But yeah, it's like mostly being worried about people who are still there.

Interviewer: Yeah, I understand. I understand the situation. OK, and so when you listen to such news, how do you verify the credibility of such news?

Participant 4: I can say mostly I am not really thinking about If it's true, no, it's really. Yeah. Okay. But like, it also depends on the news. So like, usually I'm like, reading specific channels, which I chose on my own. So I believe that these channels are providing me with reliable news that they're not going to post something fake on purpose. But sometimes it happens that someone is posting something that was not verified yet and they didn't do it on purpose. And usually it happens with some very, very loud news, like something that happened and everyone's in shock. And if I'm reading something and I'm feeling like, wow, I don't quite believe it, then I think I would... go somewhere and try to search in another sources to see who else is talking about that. And maybe try to verify their tools or something. Okay, but if you feel this can be true, then you really don't verify. I mean,

mostly, I'm not verifying. I'm verifying them by choosing specific channels. Like, it's rather like I'm verifying them before, so I'm verifying the channels I'm using. And then I'm like, okay, then this channel is good. I think I hope they're going to provide.

Interviewer: Yeah. I understand that. I know how that feels. Yeah. And so when you listen to such, when you listen or read such news, do you mostly discuss with your loved ones as well? Do you mostly share the information with your loved ones as well? Or you just keep it to yourself?

Participant 4: Uh, it also depends on the context. Sometimes, for example, when something interesting happens, I like to share with someone when something that really worries me happens. I also like to discuss it with someone. But sometimes, like, some, some news, I don't want to share with someone because something very disturbing. Okay. Again, like, in the context of my own country and political situation there, I understand that, like, Everyone is reading news almost every day. Everyone is stressed. So sometimes I prefer if even if I really want to discuss that, I'm like, OK, maybe not today, not this one, because I know that everyone is already in stress because of this. So it's not OK. Yeah.

Interviewer: Yeah. OK, well, that sounds interesting. And are you aware of fake news in general?

Participant 4: Yeah.

Interviewer: OK. And have you from by experience and content news that you later found out that, oh, this was false and misleading.

Participant 4: Oh, yeah, it happened with me sometimes, but I think so far I can't name any specific event. Okay. But I know that it happened.

Interviewer: Okay, but you know you have encountered it, but you can't share the experience. That's fine. Thank you.

Interviewer: But so Without even sharing the experience, do you still remember how you realized this news was fake?

Participant 4: I remember one time I just found something, didn't quite believe it, started Googling it and looking at what sources are publishing it, seeing that the sources are not very reliable. So someone is using not very reliable sources. And I was like, okay, maybe I don't have to believe it. Maybe I should not believe it because it doesn't sound very nice from the start and the sources they're using are not very reliable. So let's be careful with it. Also, I think last time, I remember one last one time, I remember last time when I saw something that turned out to be fake, a channel that posted it themselves said after that, like, yeah, sorry, we believed this source at first, but then it turned out they lied to us and posted it.

Interviewer: Oh, okay. That's bad. Okay. And so for example, from your experience and from your country, can you think of any impact or any effect fake news has had on the community, or even on you?

Participant 4: Well, I would say that Maybe for me, it didn't have that much impact. I know that sometimes some people can use fake news for their own purposes to create a bad image about someone or something. They want people to have bad image about. And yeah, maybe use it in creating a bad reputation for someone. Yeah, so sad.

Interviewer: Yeah, I know it's very sad. OK, so now let's come to Germany specifically. Do you think fake news affects the immigrant community in Germany differently than the native speakers in Germany?

Participant 4: Um. I never really thought about that, but I think that people who are like, fresh immigrants are not very accommodated in the country yet. And who don't know the language really well yet. I think they're more vulnerable than people who are native in this country. Or, for example, immigrants who are here for a long time already and who knows the language and who knows the country. So, like, new people that are only coming in here. Not very accommodated. I think they're more vulnerable. And that also comes within use. So maybe it's like easier in general for someone to use their conditions to lie to them and to use it for their own goals.

Interviewer: Okay. Okay, interesting. And have you noticed any particular themes or a particular topic that is more prone to fake news?

Participant 4: In Germany, no.

Interviewer: Okay, but in Russia, you noticed something?

Participant 4: I mean, as I said, sometimes, for example, like in politics, people can use fake news. Yeah, like as a way to create bad image of their opponents, and etc. etc. Also, it happens a lot, not only in Russia, but like in general with some celebrities, someone posting some gossip, just to affect their reputation. It's very common in every country. I know.

Interviewer: Okay. And how do you feel fake news has influenced the public perception of immigrants in Germany?

Participant 4: Oh, that I can tell because I'm not here for a long time. Okay. Actually, I haven't even like, I haven't even seen the example of like, really big event with fake news in Germany yet. Germany yet. Yeah, I mean, for sure it happened at some point, but it hasn't affected me or someone around me yet.

Interviewer: OK, that is fine. And so in assessing information in Germany for your time being here, do you face any specific challenge in assessing information in Germany? Is something the barrier?

Participant 4: There are some challenges, but I wouldn't say that there's like creating a really big boundary. For example, of course, the first main challenge for me is always language because I don't know German at all yet. Yeah, I still can use translator if I don't understand something, sometimes I can always ask my German friends for advice and they're really helpful with that. Yeah. So there is a challenge, but you work around it anyways. I think for younger generation, it's a little bit easier because like we know how to use internet. Yeah. Especially if you have like a lot of people you know in here, also like your connections can help you. Okay. And the internet can help you.

Interviewer: Okay. Thank you. And so then. Even on the language, do you think the language impacts your integration into German, into the typical German society?

Participant 4: I think, yeah, I think language is kind of wanted. In every country, and I mean. From my own experience. You can kind of survive in here even without knowing the language. I mean, I've been living here for 8 months and I still don't know German fully. But you can still accommodate and. Yeah, but. It is still important. And especially if you want to integrate in the country and stay here for longer, I would say the language is very important.

Interviewer: Okay. Okay. And so do you think I think you said it earlier on, but I just want a confirmation. Do you think the language being a challenge actually affects how you can critically evaluate and online information? You said you use translations to spaz, do you think?

Participant 4: It's always accurate. It is not always accurate. That's why I'm very careful with the line translators actually. Yeah, sometimes I'm like... By this point, I already know some German, sometimes I can understand some parts without translating, but still like I'm translating and I'm trying to evaluate each part, like original text and translation and see like... Something here doesn't seem right and then I'm translating the specific piece of information and seeing if it's translated right or not. But like, it comes not only to the news. I think in my experience, mostly with some documents I'm dealing with. Yeah, and for the news, I think I don't read news in German often only when someone is sending me something on purpose. And mostly I'm reading German news, either in English or in Russian, like in the channels that already have a Russian or English translation.

Interviewer: Okay, okay. Okay. Thank you so much for your answer. And what are your information needs and preferences in assessing reliable information? And by information needs, I mean, some people require special visual aids to assess information, some requires hearing aids, some has special needs. Do you have any of these kinds of special aids?

Participant 4: No, I don't have anything. Okay, thank you.

Interviewer: And would you be interested in using a tool that helps you to detect fake news?

Participant 4: I know that there are already some tools like that, but I really never used them. Okay. Maybe one day I would like to try something like that. I also know that there are some generators of fake news, which is also very funny. Maybe one day I will try it. But I think so like right now I don't have a very, very big need of it.

Interviewer: Okay, so you have not used it because you've not had the need for it. No. Okay. But not because you don't want to use it.

Participant 4: No, I don't have anything against this kind of tool. So I think it's nice that people are creating something like that.

Interviewer: So apart from getting a tool that helps us to detect fake news, do you have another suggestion or an idea that you think can also help to detect fake news?

Participant 4: I have some ideas so far.

Interviewer: Okay, thank you. And so if we are to come up with a fake news, a tool, as I said earlier on, that helps us to detect fake news, what benefits do you expect such a tool to give you?

Participant 4: I think it may be faster and more convenient to use. And for example, if you're trying to take it on yourself. Yeah. Yeah, I think speed and convenience are the main points. So like you don't have to do it on your own. You just use the tools that is already doing everything for you.

Interviewer: OK, so this should be more automatic and it should be able to do everything. OK.

Participant 4: But I would also be interested in seeing like maybe some explanation of how this tool is working. And maybe if it gives me a result, maybe also some explanation, like why is this decided of why it thinks the results is right or not.

Interviewer: Yeah. Okay. Okay. So if I heard you right, you need it. It's first of all has to be very fast and it should be self sufficient enough to do all the analysis for you and then it should give you more like a guide on how to use the tool and also a details on its results.

Participant 4: asking the tool to be like, probably super quick, super fast and super automated. I'm just saying that like, if we're comparing like using a tool to detect fake news and doing it on your own. Yeah, is a tool like, yeah, I think it would be more convenient. And yeah, and just like, you know, just to have the proof that this tool is really worth it. Efficiency is really worth it. Then like, I would say that, yeah, I need some explanation, maybe on the page with this tool, but I'm like, when I'm using it for the first time and the creators that give me the explanation, like, hey, here's like the algorithm, the tool is using. So I would see that this tool really is better than doing it on my own.

Interviewer: Okay. Yeah, that sounds interesting. Thank you. And so if the tool is giving you this information, it's giving you everything you wish for. And then in your course of using the tool, the tool wants to alert you that this information you are looking at is fake news. How do you expect the tool should to inform you about it? Do you want an email alert? Do you want to just pop up in the tool? Do you want a browser extension that you have to type and use another tab? How do you want it?

Participant 4: I think the first thing I'm imagining is like, maybe I'm posting a link to some specific news into this tool, and then this tool show me like the answer, if it's fake news or if it's true, or maybe like saying that like, yeah, probably, like maybe not saying it is 100 percent. Sure, that yes, this is fake. Maybe say like, hey, yeah, this is a possibility. So this specific information can be not very reliable and maybe show some. Proves why this tool think so.

Interviewer: Okay. So you want to be able to put the link into the tool and the tool will do all these analysis for you. Yeah, I see. Okay, yes, that is fine. Thank you.

Interviewer: And so if the tool is able to do all these analysis for you, what will make you have enough trust for the tool to be sure that, oh, this tool I trusted in. If it says it's fake news, then it's fake news. Is there something you think will make you trust it? For example, do you... Will you consider other users, other testimonials from other users, or will you consider the transparency and breakdown of how it considers this news as fake? Or do you want third party validations? What will make you trust such a tool?

Participant 4: I think all of that.

Interviewer: Okay. Interesting.

Participant 4: I mean, if you have everything, like, if you have like, both transparency and third party confirmation and some other people saying like, yeah, I'm using this tool for some time already. And it's given me very good results. I would say that, yeah, like, then this tool is probably working. Maybe also my own experience, maybe, like, if I'm using it already for a long time and I'm seeing that, yeah, it shows results I'm satisfied with and I would say, yeah, then I'm glad that I'm using this thing.

Interviewer: Okay. Okay. Thank you. And you said earlier on that you have not used any similar tool, any fake news detector in the past. Yes. And you've not used it not because you dislike them, but because you don't have the need for them. Okay. Thank you. And so we shortly spoke about the trust, but now I want to talk about the success. For example, people say, oh, this app is very successful. This app is just a failure. How would you measure the success of a fake news detector? Is it really because of accuracy, because of the number of users that have subscribed to it, because of increased trust? I mean, what comes to mind?

Participant 4: I think mostly accuracy. I mean, accuracy shows that the thing is working well. Yeah. Sometimes there are some tools that doesn't have a lot of users, but still work good. So I would say that's successful. Okay.

Interviewer: Okay. Okay. Thank you so much. Yes, I think this brings us to the end of our interview. But then do you have additional comments or suggestions or anything you would think it will help us in our analysis and in our thesis?

Participant 4: No, I just hope you will succeed with your thesis.

Interviewer: Thank you. Thank you so much. So yes, as I said earlier on, we want to the goal of our thesis is to create a fake review detector, like a tool or a mobile app. And then, but we wanted it to be very useful. So we decided to gather your views and opinions. So we will incorporate it and then makes it more usable. So now that you've given us your valuable ideas, we will analyze it device development. And so in the few months to come, if we are able to design our tool, will you be interested to maybe have a look at it and test it and give us more feedback on usability on your preferences and test?

Participant 4: Yeah, sure.

PARTICIPANT 5

Interviewer: Thank you. Yes. And just so you know, your, the transcription would just be used for the purpose of the interview and nothing else. Okay. Thank you again. So now we start with the demographic information. Your gender is female? I'm sure.

Participant 5: Yes.

Interviewer: Okay. And your level of education?

Participant 5: I'm a master's student and currently I am in my third semester In the field of HCI.

Interviewer: Okay. And your country of origin is?

Participant 5: Iran. Is Iran.

Interviewer: Okay, thank you so much. And how long have you been living in Germany?

Participant 5: Around one year and a half, I immigrated to Germany.

Interviewer: Okay, thank you. And what is your mother tongue?

Participant 5: Persian. Farsi. Farsi.

Okay. And apart from that, which other languages do you speak?

Participant 5: Persian is my mother tongue and then my second language is English. And now I am in the process of learning German. But in Germany, I mostly speak in English. English.

Interviewer: OK, thank you. And your current occupation apart from being a student, which we know you are, which other occupation are you currently involved in?

Participant 5: Now I have a part-time student job in a company in Munich and I am a UX designer there.

Interviewer: Okay, okay. Oh, that's interesting. Thank you. So if I may ask, how do you primarily assess information? Do you use online media? Do you use TV? Do you use radio, social media?

Participant 5: How? For which kind of data you mean?

Interviewer: It depends, any information you want, in case you want to inform yourself about a situation, how do you go about it?

Participant 5: First, I usually never check the news, something like that. At the first step, to be honest, when I need specific information, I first try to reach some of my close friends that I have and then ask my question from them and I try to ask from several people. If they answer, all of them are the same, the same information, so it seems it's trustable and it's correct information. But sometimes, you know, most of the time, for some information, I get several different answers from people. So in this case, I try to go to some valid websites, some valid resources, online resources or even for example, I don't know, contact with official people, something like this to make sure about the responses.

Interviewer: Okay, interesting. Yeah, so your primary source of information or way of assessing the information is through families and friends and then if you need further clarification then you go online. Okay, thank you. And then if you are supposed to seek which media do you use? Your telephone, the web browser, how do you access this? Do you use your computer? Do you use your mobile phone?

Participant 5: I usually, mostly I use my laptop for this kind of information. depends on what kind of information I need. For example, I need some information regarding my university, so I try to go to the official website of the university. Or if I need some information about, for example, renting a home, for example, I try to reach the official website. I don't try to, I never trust some information in any kind of website in Google. First, I try to find a valid website, not every kind of website, because I am, I believe that not everything in the Google in the search is correct. Yes.

Interviewer: Okay. Thank you so much. So by using the online media as a way of assessing information, how often roughly, I know you can't be very accurate, but roughly how often do you assess this information?

Participant 5: I don't get your question.

Interviewer: And for example, you said you use, you access information mostly from official websites or from other websites. So roughly how often, how frequently do you assess this kind of information?

Participant 5: You know, since I immigrated to Germany, everything is new here for me. So every step that I want to go, everything that I want to do. I have not enough information about them. So everything, for everything, I have lots of questions, something like this. Maybe it's part of my daily routine. Daily, okay, okay. I can relate. But everything is unknown for me. These

countries, new for me, I don't have enough information about the law, lots of things. So maybe it's kind of daily for me to try to search and validate information for every matter of my life.

Interviewer: Okay, okay. Thank you. Thank you so much. And so now, yes, you mentioned that you moved to Germany and you are still new in Germany. So how do you still prefer information from Germany or news in general from Germany? Or do you still prefer news? Do you still prefer to listen to news from your home country?

Participant 5: Do you know news about what? About anything, about what is happening in the world, about anything. Personally, I don't follow all the news, especially about politics, I don't know about everything, about religion. I don't follow the news that is not necessary for me at this point in my life.

Interviewer: Okay, so you don't listen to general news, you listen to specific news you have.

Participant 5: Exactly. For example, some of my friends always follow Instagram accounts related to the latest news, something like this. Yeah. These news affect their mind, their emotions, and it's kind of loading for them. So because of that, because I have lots of other things, other problems in my life now immigrants, so I try to not follow general news that are not important for me now.

Interviewer: Okay, that sounds interesting. Thank you. Are you aware of fake news?

Participant 5: Yes. We also had some courses during my master's in my first semester related specifically to fake news in the online and digital world. Oh, okay. That sounds...

Interviewer: Very interesting. Okay. So personally and in your personal life and growing up, have you ever encountered a news that you later realized, oh, this was fake?

Participant 5: I encounter several times for fake news but I never be there for example. I miss one word. Let me translate it. A victim, yes. But I will never be a victim of their news. I will understand about it as soon as possible.

Interviewer: Okay, so you mean if you... yes fake news comes your way but you don't fall victim for it.

Participant 5: Exactly. For example, during my daily life, I receive lots of emails with fake news. For example, in Germany, I have a kind of insurance. And in my daily life, lots of fake emails come to me and motivate me for, I don't know, some rewards from my insurance. But these emails are fake emails. Maybe they want to, you know, convince me to give them some money for some things, but I never trust them.

Interviewer: That sounds interesting. So you said you mostly don't fall victim to it. So what is your strategy? What is your secret? How do you mostly easily identify this is fake, this is not fake?

Participant 5: You know, because for several years, maybe more than 10 years, I am only 27 years old, but for more than 10 years, I started working, especially online world. Okay. And I have lots of connection and network with my colleagues, my friends, and I saw from my friends that they are victim of some fake news, maybe some news that provide them some intensive and grab their trust for some, for example, a big amount of money. So when I saw them from my friends, it makes me as a person that don't trust to everything, every kind of information. So whenever, for example, something come to me, some information, I don't know some incentive, like I don't know recently, an application, a gamification come up for digital currency that if you try to collect, for example, 1 million currency at the end of the month, we give you, I don't know, \$500. And most of my friends try to play with this game to grab, to collect this amount of currency. But there is no valid people, valid websites, or I don't see any valid company for them even. Then I want to make sure about the kind of news. First, I try to Google them. And I try to find some valid resource website and not every website because each website has a specific information in the footer that you can find out that it's a valid website or not. Or I try to check their history, their LinkedIn, their customers. I try to connect with their customer, with their employees, with their manager. And see that it's really, it's a real company that's spread this kind of information or not.

Interviewer: Okay. Interesting. So for you, it is just by experience. You have all the experience and the skills to identify even information.

Participant 5: I research a lot for every kind of... Okay, nearly everything. Okay. That's a good strategy. Wow. Okay, so... You know, some people... It's a boring thing for some people to go and take time, consume time for research and try to understand if it's right or not. They want quickly... They don't want to take time for that. But I think...in nowadays because you know the fake news the discontest things are increased a lot so we should pay attention more on.

Interviewer: okay yes thank you and on the people that do not take their time or depend to research and to check the credibility of the information whether it's fake or not um can you give us some or can you suggest or think of some impact these fake news will have on them or have had on them over the years?

Participant 5: I think at the first step, these fake news has some emotional effect of them because such as the example that I gave you about the currency. Yes, the currency, for example, they have a good optimistic view about the currency and they think, okay, after one month, I get about \$500 and even they make a decision how he or she wants to pay this amount of money and that after one month that they see nothing happen, no money, nothing, it's kind of a bad emotional effect on them and it's in line term I believe that maybe it's take their confidence, their motivation, something like this at the first step.

Interviewer: Okay. Thank you again. And you mostly don't inform yourself about news that are not so important to you. But you said if you mostly do research. So in your research and in finding out the credibility of information, how do you determine that all this source is trustworthy, this source looks fishy? How do you differentiate between them?

Participant 5: Yeah, for example, at the first step, I try to reach their website from all of the different platforms like Instagram, YouTube, LinkedIn, Facebook. First, I try to reach their website. And for each website, as I told you, there are some validation icons in the footer that if they have those icons, it means that this is a valid website. And if I don't find those icons in the footer, I don't trust them. And next, if I find their website and it's a valid website, then I go to other online platforms. LinkedIn. Firstly, I try to reach their LinkedIn. The date that they join LinkedIn, if for example, new dates, the recent date that they join, maybe it's not so trustable and the amount of their followers, you know, the comments of the people under their posts, something like this. And after validation of LinkedIn, I try to reach them in Facebook, not Instagram, because Instagram is not so important for this kind of, for example, company, something like this. Yeah, but yes, some strategies like this.

Interviewer: That is, yeah, this is a good, a very good strategy, a very smart one. So when you try to do all this research and somehow you feel, well, this information is fake, how do you discuss this with friends and family members to be able to convince them that this information is actually fake?

Participant 5: You know, it's really hard. This approach is really hard for me that I try to convince others to accept that this kind of information is not trustable because people because I personally am not a person that I'm have to say. I personally say introverted people. It's hard for me to try to convince people. I try to tell my close friend, my family, one time, two time, three time, but after the third time, when people don't want to accept something, I don't try to convince them. And you leave them to their fate. Exactly, I give up.

Interviewer: Okay. Okay, that sounds interesting. Well, you tried it.

Participant 5: But for example, in social media, I have a considerable amount of followers on Instagram. And I always try to make my followers aware about fake news, especially the recent gamification, the currency one, because I see that it's a trend now and everyone try to play games with this currency. But I make myself responsible to make my followers aware through sharing some stories, some posts and tell them that these are not true. You can see their history, something like this. But again, I saw some people that know you are not, you're not correct. Right. Yeah.

Interviewer: People will always be people. Okay, so back to Germany, our research context. Do you think fake news affects the immigrant community in Germany in a different way from the native Germans?

Participant 5: Yes, because most of the immigrants have not enough knowledge about most of the things, for example, about Germany. We don't have enough information about laws, about everything in this country. So I believe that most of the people try to fool us, cheat us with the help of our lack of information about, for example, the law of Germany. And for example, maybe my German friends don't accept something because they are aware of everything. But we as immigrants have not enough information, so we can be cheated easily, easier than native German people. So I think we are one of the most important targeted users for the people who want to cheat in Germany.

Interviewer: Okay. Okay, interesting. And then on lack of information and immigrants being a specific target for fake news, in what topics do you think that these fake news, most fake news, surrounds around? And for example, maybe in issues of immigrants, in issues of childbirth, in issues of Think of a particular topic that you think, oh, on this topic, there is a lot of fake news and you need to do a lot of research about it. Fake news, eh?

Participant 5: I never think about it. But I think fake news can be in some topics that may be more related to immigrants. It depends on the immigrants. For example, you may as a student. So the fraud or try to cheat you around the news around the student matters or you. immigrant as I don't know as a job for for job not for students so it depends on you make it as which kind of topic

Interviewer: And how in your own opinion do these challenges affect the integration of immigrants into the German society? I mean how do you feel that fake news has influenced the public perceptions of Germans about immigrants?

Participant 5: You know, from the time that I immigrated to Germany, hopefully I don't be a victim of fake news or something like this. But for the people that they trust everything easily, maybe this kind of fake news or cheated in the line time, maybe it makes those people not trust everyone in Germany, in this country. Maybe they find a bad feeling about the country because

maybe this fake news, this brother is not related to Germany at all. But because those immigrants live in Germany and everything is new for them. And in the long term, long term, when they cheated a lot, maybe they find a bad feeling about this company. So they cannot integrate in this society. Maybe they must immigrate for the second time to another country. So maybe it prevents people from integrating with other people in the line term, not for all the people, only for the people that trust everything easily, every news, everything.

Interviewer: And back to you specifically, and what specific challenges do you face in discerning truth from fake news in Germany, in the context of Germany?

My first challenge is language. Language. Yes, it's a big challenge for me because, for example, Maybe during the days I received some messages on my phone and all of the messages are in German. So I cannot understand if this message is right or wrong. There is some link in these messages. I never click on those links because I believe that every kind of link that you receive from unknown numbers is kind of fake or maybe I receive some letters that I cannot understand so the language barrier is the most important challenge for me. Yes, only language.

Interviewer: OK, thank you. And how does the language barrier impact your integration into German society?

Participant 5: Because if language is a barrier anywhere in Germany where everyone or most people speak German, how does this language impact your integration into the society? You know, here in Germany I cannot integrate and communicate with people, especially elderly. I never can talk with them because they are mostly talking in German, not English. I can only communicate with my classmates because the majority of people in Germany, I don't know in restaurants, in coffee, especially in a small city like Siegen. Yeah. Like talk in English. So I cannot integrate very well during the city only in academic area in the university. So it's hard for me maybe to integrate with other people and communicate well. But in bigger cities easier. Yes, I experienced it several times that people are more welcome to communicate with doing English.

OK, so in smaller cities it's more difficult. Exactly, it's more difficult. And I never prefer to live when we don't have no German. It's a wrong thing to live in a small city like Ziegen. It's only suitable for two years of study. And after that...

Interviewer: Okay, so then I think you have even answered my next question because my next question was what then is your perception about these small cities or about your city and the societal issues? Do you have a different perception apart from you saying it's wrong to live here for two years? Do you have other perceptions because of the language because of your challenges? My challenges in small city you mean? No you're

Actually, it's your challenges with the language, but you now narrowed this down. The language is only a challenge or greatly a challenge because you are in a small city. Yes, because even in a small city, except the language barriers, there are no job opportunities, especially in English. Because finding English language jobs is more in bigger city, not in a smaller city. This is the other challenges for me.

24:39

Okay, so job getting a job is also a challenge. And also finding friends in a small city like Zigen that it's a university, it's a student city. The majority of people are adults or old people. So you cannot find friends only in university with your classmates because this is a student city and the majority of well and early. So maybe it's the

25:08

Another problem is finding German friends. German friends.

Interviewer: OK. Thank you so much for this. Do you have specific back to online information, assessing information online? Do you as an individual have special information needs, special accessibility needs when assessing information online?

Can you rephrase your question?

Interviewer: What do you have special information, special needs and preferences when assessing information on? For example, some people may have visual impairment and so they expect the information to be in a specific font size, specific font colors, maybe they want it auditory. Do you have any such kind of accessibility needs?

Participant 5: Again, the other accessibility is that I found it in Germany as a big challenge is that majority of the online resources in Germany only have German language, not other kind of language for example, English language. I don't expect to have Farsi, Persian language, but at least I accept that they have their online resources, their newsletter, everything has an English translation as well, but they don't have. So this is the other challenge for me. Okay. Accessibility. Yeah.

Interviewer: Okay, thank you. Another question is about design. So the aim of another aim of this whole study is to gather your information, your opinions, and then we will put it into designing technology. So my question is, would you be interested in using a tool to determine fake news in the near future?

Participant 5: Maybe an AI assistant even. Maybe an AI assistant, yes. Yeah, for example, everything that you search in the online digital world, this AI assistant made you aware. I think maybe we already have, I don't know of some AI system that makes you aware of every detail of, for example, one website that you search. This AI helps provide you with all the information about the data that this website builds, about the company that developed this website, some information like this, about the validity of this website. Maybe it can help everywhere, everyone. Quick information, there is no need to consume a lot of time to go and research about specific sources. This AI assistant can give us every information about even this AI assistant can go and explore every social media of a specific resource and collect all of them and give us a quick information maybe.

Interviewer: Okay. So, yes. So then some of the benefits you expect from this AI assistant is quick information?

Participant 5: Yes, research instead of me.

Interviewer: And so apart from the fact that the AI assistant should be able to research instead of you, what are other features you expect to see in this AI assistant?

Participant 5: The other thing that I expect is that for brothers that try to develop some online resources to spread some fake news, this AI prevents them. Maybe it may increase the level of security, some identity recognition, that not every person will be able to spread fake news in social media. This AI tool should work as a safe place, not everyone is allowed to be active in this area, maybe by increasing the security, something like security is of utmost importance to you.

Interviewer: Okay, thank you. And then back to security again, if the AI assistant in this case realized that well, there is some sort of fake news with this website or with this information. How do you expect the AI assistant to alert you? Will you expect a pop-up? Will you expect an audio? Will you expect an email? How do you expect the AI assistant to alert you?

Participant 5: OK, you know, from the accessibility point of view, I accept that, I expect that this AI has flexibility and has several ways to announce this kind of information to me. And as a user, I can select and personalize the way that I can receive this information. If I have a visual impairment, I prefer that this website send a voice to me maybe. OK. But if I am a text preferred person, I prefer to just maybe send me a notification in my laptop or even send me a notification in my cell, my smartphone. In general, I prefer that all of these ways be possible and I can select which ones. Which way you want. Or even all of the way, maybe the combination of them.

Interviewer: Okay, so yes, it should have more options. So the user would choose which one is convenient for you at a different time?

Participant 5: Yes, that is also right.

Interviewer: Thank you. And if it is having different ways to communicate to you as the user, what level of detail do you expect from this alert or from this warning? For example, should I say, Quanchna, this is fake? Or you want a detailed reasons why it is telling you it's fake, how do you want it?

Participant 5: Exactly. I really don't like, for example, I search a website and the AI assistant only tell me this website is not valid because it's not enough information that convince me. Again, I start to research by myself. So there is no need to AI assistant at all. I expect this AI that when it tells me it's a valid website or it's not a valid website, it provides me detailed information about the reason why it's valid. Because maybe for example, the date of developing this website is 10 days ago. So this can be a reason that it's not valid. Or if it's valid, because for example, this website, this company worked for maybe more than 10 years, works with some famous brands like Microsoft, Excel, or everything. Try to research every aspect, not just research those websites, maybe even all of the social media, I don't know, something like this, but I expect all kinds of detailed information, not just valid or not valid. Or even maybe because we all know that AI is not 100% trustable. Maybe this kind of AI assistant can have a percentage of, for example, if this website is 70% trustable, 30%, I am not sure about that, but I can give you some details that you can go and research by yourself more. I think it can be more trustable when this web, this AI assistant don't answer you 100% trustable or 100% not trustable. Maybe it can be a level of percentage. Yeah. That actually when this AI assistant doesn't have enough information, at least tell us that it's better you research more as a user.

Interviewer: Okay, so for you, in order to, you will trust such an AI assistant even much more when it's transparent enough and when it tells you percentage of information it is sure about and the percentage it is uncertain about?

Participant 5: Exactly because I suggest having an AI assistant but I personally don't have 100% trust to AI as well.

Interviewer: Okay thank you so much. So back to your past, have you in the past used such a tool before to detect fake news?

Participant 5: I don't try to validate fake news. I just try to validate some social media icons. OK. Not fake news, yes.

Interviewer: OK. And then did you like the tools you used to validate the social media icons?

Participant 5: Not much because as I told you, that was not convincing. Just tell some clear information only with one explorer I can understand it. So that was not convincing me. So until now in my life, I always try to validate everything, social media news by myself, because still I don't find any convincing AI assistant.

Interviewer: Okay, so what will make an AI assistant convincing to you?

Participant 5: As also you mentioned, it gives us detailed information, not just some clear information that you easily can find it in each website. And it's not AI assistant. Only with writing a small script, it can go and explore one website and give you some information. When I say AI assistant, I expect that this technology go through and research deeply, research all the online world not just one website, unrelated things about those brands, for example, or those people that I expect to give me some information.

Interviewer: Okay, interesting. Thank you so much. Em, do you have additional suggestions, some experience you want to share with us?

Participant 5: Yeah, just again, regarding your last question that how be an AI assistant, be convincing. The other thing that can give us even resource online links, something that, uh, yeah, that connects us to the information that he, that the AI assistant tell us who valid the things that tell us something like this. Maybe can grab, grab my trust, my attention. But I want to say that to all the people that use online words, especially maybe adults or elderly who don't have enough knowledge about what happens in online words. I just want to tell that don't trust anything easily. Always have some research because even my friends that are students, the HCI students, they are working online, they trust easily to everything. Because I believe that nothing trustable nowadays because there's no fraud in this online digital world. So trust no one.

Interviewer: Okay, thank you so much for the word of caution to us and to other people also. And thank you so much for your time. Your insight has been very, very valuable for us. And I know it will go a long way to help us.

Interviewer: So as I said earlier on, we will use your ideas to actually design a tool that we think can help as we solve the problem or manage the problem. Will you later on in weeks to come or months to come be interested to test such a tool where we use your ideas to develop? Yes, sure. I'm really interested to see what is it. Is it convinced me? Is it trustable for me? Is it okay? You know, transparent for me.

Interviewer: Okay. Thank you. So you said that. You would want the system to search other website, other sources. So, in that case. Would it be better if the is also able to. related to the fake news you have asked him to verify if it's fake or if it's true. I don't know if my question is right. So if the case has happened before, would you be happy if the AI system is able to tell you that this same news has been circulating on this website?

Participant 5: Exactly. As I told you, I accept the AI assistance to research for me from not just one aspect. Also research about the history, about the related new something like this, everything, every aspect. Yes, I accept this. I expect this.

Interviewer: So thank you so much again, Ms. Koshinans. And welcome. If there is no question. Yes, for now, there is no question. Lydia, is it possible to pause the video? Yeah, let me stop there.

PARTICIPANT 6

Interviewer: Could you please state your Gender and Age?

Participant 6: Male, 34.

Interviewer: What is your level of education?

Participant 6: I have a Bachelor's degree in Engineering.

Interviewer: Country of origin?

Participant 6: I am from Nigeria.

Interviewer: How long have you been living in Germany?

Participant 6: I have been living in Germany for the past 5 years.

Interviewer: What is your mother tongue and do you speak any other language?

Participant 6: My mother tongue is Yoruba and my second language is English, and I speak a little bit of German.

Interviewer: What is your current occupation and main activities?

Participant 6: I'm an IT consultant.

Interviewer: How do you primarily access information and news?

Participant 6: Mostly through my laptop and smartphone, using news websites and social media.

Interviewer: Ok. What are your main sources of news and information?

Participant 6: I rely mostly on BBC, Al Jazeera, and local Nigerian news websites, as well as Twitter.

Interviewer: How often do you access news from these sources?

Participant 6: I would say multiple times a day.

Interviewer: Do you prefer news from your home country or from German sources?

Participant 6: Both are important to me. I like to stay updated on what's happening back home and here in Germany. I keep myself informed about the new trends in the German system as well as my home country. Since I'm here I keep myself updated regularly.

Interviewer: How do you verify the credibility of the news you consume?

Participant 6: I usually compare news from different sources and check if reputable sites are covering the same story.

Interviewer: How do you discuss or verify news information received from friends or family?

Participant 6: I usually do not pay much attention to news I receive from family and friends because I do my own searches but when I do, we discuss it in group chats, and I often look up the information online to verify it.

Interviewer: Are you aware of fake news?

Participant 6: Yes, I'm quite aware of it.

Interviewer: Have you ever encountered news that you later found out was false or misleading?

Participant 6: Yes, several times.

Interviewer: If yes, what was the experience?

Participant 6: It was frustrating and sometimes worrying. There was an instance where a false report about a visa policy change caused a lot of anxiety among my friends. We later confirmed that the news was false and it had already caused several emotional damages. People thought they were going to be sent back home.

Interviewer: How did you realize the news was fake?

Participant 6: I checked the official government website and confirmed with a reliable news source.

Interviewer: What impact did the fake news have on you or your community?

Participant 6: It caused a lot of unnecessary stress and confusion. People were worried about their immigration status for no reason.

Interviewer: Do you think fake news affects the immigrant community differently than other groups?

Participant 6: Yes, I do.

Interviewer: Ok. In what ways?

Participant 6: Immigrants might be more susceptible due to language barriers and less familiarity with local credible sources. This makes it easier for them to fall for fake news.

Interviewer: And have you noticed any particular themes or topics that are more prone to fake news targeting immigrants?

Participant 6: I have noticed topics related to immigration laws, public safety, and employment seem to be common targets. I have seen people fall victims to fake news and scams relating to these topics

Interviewer: How do you feel fake news has influenced public perception of immigrants in Germany?

Participant 6: It has definitely contributed to negative stereotypes and xenophobia. The media has painted some kind of pictures which is not pleasant, probably due to the mistakes of one or two persons. For where I'm coming from, Nigeria, the international media has painted a picture of scamming crime around us and this has affected my encounters with people since they see me in that light.

Interviewer: How do you feel fake news has influenced immigrants' perception of the native Germans?

Participant 6: It can create unnecessary fear and distrust if immigrants believe negative and false stories about Germans.

Interviewer: What specific challenges do you face in discerning truth from fake news in your stay in Germany?

Participant 6: The biggest challenge is the language barrier and knowing which sources are trustworthy.

Interviewer: How do these challenges impact your integration into German society?

Participant 6: They make it harder to fully integrate because there's always a level of doubt and uncertainty about the information. And since I depend on these information to inform myself about the laws and regulations of the German society.

Interviewer: How do they influence your perceptions of societal issues?

Participant 6: They can skew my understanding of societal issues, sometimes making them seem worse than they are. I might think the law is harsh on me but if I have access to the right information and able to understand, I would view it differently.

Interviewer: How do they affect your ability to critically evaluate online information?

Participant 6: They make me more cautious and sometimes overly skeptical of the information I come across.

Interviewer: What are your information needs and preferences in accessing reliable and trustworthy news sources?

Participant 6: I prefer well-established, reputable sources and news that is straightforward and fact-checked.

Interviewer: Can you share strategies you employ to verify information and protect yourself from disinformation?

Participant 6: Mostly cross-referencing with multiple sources and checking the credibility of the authors or websites are my main strategies.

Interviewer: Would you be interested in using a tool that detects fake news? Why or why not?

Participant 6: Yes, it would be very helpful to quickly verify information and avoid the spread of false news.

Interviewer: Do you have any suggestions for another solution other than a tool to detect fake news?

Participant 6: I would say increased media literacy and educational programs to help people identify fake news themselves.

Interviewer: What benefits do you expect from such a tool?

Participant 6: It would provide quick verification and peace of mind, reducing the spread of misinformation.

Interviewer: What key features would you like to see in a fake news detector?

Participant 6: I would expect a user-friendly interface, fast verification, and detailed explanations on why something is flagged as fake and probably other news cites that has similar fake news on it.

Interviewer: How would you prefer to receive alerts about fake news?

Participant 6: Through a mobile app notification or email.

Interviewer: What level of detail would you like in the explanation of why a news article is flagged as fake?

Participant 6: I would like a clear but concise explanation on why the particular news is fake, with links to credible sources that debunk the news.

Interviewer: What would make you trust the results provided by the fake news detector?

Participant 6: Transparency in the process and endorsements from credible news organizations or institutions.

Interviewer: Have you used any similar tools in the past? If so, what was your experience like?

Participant 6: No, I haven't used any similar tools before.

Interviewer: How would you measure the success of a fake news detector?

Participant 6: I would measure the success of such a tool by its accuracy, user satisfaction, and the reduction in the spread of misinformation. If it is able to provide accurate information on why a news is fake, perhaps give a measurement of the accuracy by percentages. The user reviews could also contribute to the success of the tool.

Interviewer: Do you have any additional suggestions or features you think would be useful for a fake news detector?

Participant 6: I think it could include educational content on how to identify fake news and improve media literacy. This would keep people informed about fake news.

PARTICIPANT 7

Interviewer: Please what is your gender and age?

Participant 7: I am a 50 years old male.

Interviewer: What is your level of education please?

Participant 7: I have a high school diploma.

Interviewer: Which country do you come from?

Participant 7: I am from Turkey.

Interviewer: How long have you been living in Germany?

Participant 7: I've been living in Germany for 20 years.

Interviewer: What is your Mother tongue and if you speak any other language?

Participant 7: My mother tongue is Turkish and I speak German and I understand some English.

Interviewer: Ok. Please what is your current occupation and main activities?

Participant 7: I'm a small business owner. I run a grocery store in my neighbourhood.

Interviewer: Now I am going to ask you a few questions about your media consumption. So how do you primarily access information?

Participant 7: Mostly through TV and the radio. I also read newspapers and occasionally check news online. But I will say I'm not a social media person but I try.

Interviewer: Oh interesting. Ok so what are your main sources of news and information?

Participant 7: I watch TRT World, also listen to Deutsche Welle on the radio, and read local newspapers. For online news, I use websites like Hurriyet and CNN Türk.

Interviewer: Ok. How often do you access news from these sources?

Participant 7: Every day, usually in the morning before I leave home for work and evening when I return.

Interviewer: Do you prefer news from your home country or from German sources?

Participant 7: I follow both. News from Turkey keeps me connected to my homeland, while German news helps me understand the environment I live in now. I would say I have survived for the past 20 years here because I follow the news.

Interviewer: How do you verify the credibility of the news you consume?

Participant 7: I compare news from different sources, so when I see it on the TV, I try to see if I can find the same news on the radio. And sometimes if I hear something significant, I check multiple channels and websites to see if the information is consistent.

Interviewer: How do you discuss or verify news information received from friends or family?

Participant 7: We talk about it when we meet or over the phone. If something seems suspicious, I look it up online or ask someone I trust who is more knowledgeable.

Interviewer: Are you aware of fake news?

Participant 7: Yes, I am aware. It's something we often discuss, especially when it involves important issues. During my stay here I have panicked over several fake news. A typical one was the earthquake that happened in my country in 2023, there were a lot of fake news about it, people saying what caused it and some affected people and so on.

Interviewer: Have you ever encountered news that you later found out was false or misleading?

Participant 7: Yes, it has happened. There was a story about a supposed new law affecting small businesses that turned out to be completely false. And as I said before, during the earthquake in Turkey, there were several news about it that were fake.

Interviewer: Oh ok, and what was the experience like?

Participant 7: It was very stressful. Many small business owners, including myself, were worried about how it would affect our livelihood. It took several days before we found out that it was just a rumour. And the earthquake issue caused fear and panic since I still have family back home and could not even reach some of them, I was always afraid and hoping my family are safe.

Interviewer: How did you realize the news was fake?

Participant 7: I checked the official government websites and reliable news sources. None of them mentioned the new law, and eventually, it was confirmed that the news was not true.

Interviewer: What impact did the fake news have on you or your community?

Participant 7: It caused a lot of unnecessary worry and confusion. People were stressed and started making plans to deal with the changes that were never going to happen. Fear and panic.

Interviewer: Do you think fake news affects the immigrant community differently than other groups?

Participant 7: Yes, I do. Immigrants might be more isolated and dependent on their own community's sources of information, which can sometimes be less reliable.

Interviewer: In what ways?

Participant 7: Language barriers and less familiarity with the local media landscape make it easier for fake news to spread. Immigrants might not know which local sources are trustworthy.

Interviewer: Have you noticed any particular themes or topics that are more prone to fake news targeting immigrants?

Participant 7: Yes, topics related to immigration policies, public safety, and economic opportunities seem to be common targets. These issues directly impact immigrants' lives and are easy targets for misinformation.

Interviewer: How do you feel fake news has influenced public perception of immigrants in Germany?

Participant 7: It has definitely contributed to negative stereotypes and heightened hate against immigrants. Fake news often portrays immigrants as a threat, which influences public opinion and leads to discrimination.

Interviewer: How do you feel fake news has influenced immigrants' perception of the native Germans?

Participant 7: It can create unnecessary fear and distrust if immigrants believe negative and false stories about Germans. This can hinder integration and create a sense of isolation. Some people say that Germans are all Nazis and racist, which is not true. If you get closer to them, they are really nice. Though there are still some people who follow the Nazi rule but not everyone.

Interviewer: ok interesting. So do you face any specific challenges in discerning truth from fake news in your stay in Germany?

Participant 7: The primary challenge is the language barrier. Although I speak German, it's easier to consume news in Turkish. This can sometimes make it difficult to gauge the credibility of local news sources. And also I'm not too well technology educated so sometimes when I have to check something online I face some challenges.

Interviewer: How do these challenges impact your integration into German society?

Participant 7: They create barriers to fully understanding and engaging with local issues. Misinformation can lead to misunderstandings and hinder the process of building trust and relationships within the community.

Interviewer: How do they influence your perceptions of societal issues?

Participant 7: They can distort my understanding of societal issues, sometimes making them seem more polarized or severe than they actually are. This distortion can hinder constructive dialogue and informed decision-making.

Interviewer: How do they affect your ability to critically evaluate online information?

Participant 7: They make me more cautious and thorough in evaluating information. I have to spend additional time and effort to verify facts and ensure the credibility of the sources.

Interviewer: What are your information needs and preferences in accessing reliable and trustworthy news sources?

Participant 7: I prefer well-established news outlets with a reputation for thorough fact-checking. I also value access to expert analysis and reports from credible organizations.

Interviewer: Can you share strategies you employ to verify information and protect yourself from disinformation?

Participant 7: I cross-reference information from multiple reputable sources, check the publication date, and look for corroborating evidence from official statements or academic reports. I also use fact-checking websites and tools to verify dubious claims.

Interviewer: Would you be interested in using a tool that detects fake news? Why or why not?

Participant 7: Yes, I would be very interested. Such a tool would be invaluable in quickly verifying information and reducing the spread of misinformation.

Interviewer: Do you have any suggestions for another solution other than a tool to detect fake news?

Participant 7: Education and awareness campaigns can be very effective. Teaching people how to critically evaluate information and recognize signs of fake news can empower them to make informed decisions. I think people usually fall victims to fake news because they do not even know how it looks like.

Interviewer: What benefits do you expect from such a tool?

Participant 7: I would expect quick verification of information, reduced anxiety from misinformation, and a more informed community.

Interviewer: What key features would you like to see in a fake news detector?

Participant 7: The tool should be able to be used by everybody no matter your level of education or language, fast verification process, detailed explanations of why something is flagged as fake, and links to credible sources that debunk the news.

Interviewer: How would you prefer to receive alerts about fake news?

Participant 7: Through mobile app notifications or maybe SMS alerts.

Interviewer: What level of detail would you like in the explanation of why a news article is flagged as fake?

Participant 7: Maybe a clear, concise explanation with links to credible sources for further reading. It should be detailed enough to understand the reasoning but not overly technical.

Interviewer: What would make you trust the results provided by the fake news detector?

Participant 7: Transparency in the verification process and endorsements from reputable institutions and news organizations.

Interviewer: Have you used any similar tools in the past? If so, what was your experience like?

Participant 7: No, I haven't used any similar tools yet.

Interviewer: How would you measure the success of a fake news detector?

Participant 7: By its accuracy, user satisfaction, and the reduction in the spread of misinformation.

Interviewer: Do you have any additional suggestions or features you think would be useful for a fake news detector?

Participant 7: Maybe you can add a feature that can report the news site that produced the fake news to law enforcement agencies.

PARTICIPANT 8

Interviewer: Please could you state your age and your gender?

Participant 8: I am a female, and I'm 40 years old.

Interviewer: Okay, And what is your level of education and occupation?

Participant 8: Okay so I have a PhD in Sociology. I work as a university lecturer and researcher.

Interviewer: Okay, thank you. What is your country of origin?

Participant 8: I'm originally from Brazil.

Interviewer: And how long have you been living in Germany?

Participant 8: I've been living in Germany for about seven years now.

Interviewer: Please what languages do you speak? Kindly state your mother tongue and any other languages you speak.

Participant 8: My mother tongue is Portuguese and I speak German, Spanish and English as well.

Interviewer: Oh interesting. So how do you primarily access news and information?

Participant 8: I primarily access news and information through academic journals, various news websites, and social media platforms. I find this combination keeps me well-informed from multiple perspectives.

Interviewer: What are your main sources of news and information?

Participant 8: I rely heavily on The Guardian, Folha de São Paulo, and local German news sources like Spiegel Online to stay updated on current events.

Interviewer: How often do you access news from these sources?

Participant 8: I access news from these sources several times a day. Keeping up with the latest information is crucial for my work and personal interests.

Interviewer: Do you prefer news from your home country or from German sources?

Participant 8: Both are equally important to me. I like to keep up with news from Brazil to stay connected to my roots, while also following German news to stay informed about my current home.

Interviewer: How do you verify the credibility of the news you consume?

Participant 8: To ensure the credibility of the news I consume, I cross-check information with multiple reputable sources and look for academic references if they are available. This helps me filter out any unreliable or biased information.

Interviewer: Okay. How do you discuss or verify news information received from friends or family?

Participant 8: I don't really pay much attention to news I receive from family and friends because you know I don't trust that they would do the proper verification before they share with me. But the few times I do, I often verify the information through reliable news websites or academic sources to ensure its accuracy before forming an opinion.

Interviewer: Interesting and Are you aware of fake news?

Participant 8: Yes, I'm very aware of fake news. It's a significant issue that can have serious consequences.

Interviewer: Have you ever encountered news that you later found out was false or misleading?

Participant 8: Yes, several times. One notable instance was a viral story about a supposed health crisis in Brazil that turned out to be completely fabricated. It was quite unsettling and caused unnecessary panic among the public.

Interviewer: How did you realize the news was fake?

Participant 8: I realized the news was fake by checking official health organization websites and finding no evidence to support the claims made in the story.

Interviewer: What impact did the fake news have on you or your community?

Participant 8: The fake news caused unnecessary worry and diverted attention from actual issues that needed addressing. It was frustrating to see how quickly false information could spread and create confusion.

Interviewer: Do you think fake news affects the immigrant community differently than other groups?

Participant 8: Yes, I believe it does.

Interviewer: In what ways?

Participant 8: Immigrants might not be as familiar with local credible sources, making them more susceptible to believing fake news. Additionally, language barriers can make it harder to discern the reliability of information.

Interviewer: Have you noticed any particular themes or topics that are more prone to fake news targeting immigrants?

Participant 8: Yes, topics related to immigration policies, crime rates, and public health seem to be targeted often. These themes can be particularly harmful as they can shape public perception and influence policy decisions.

Interviewer: Yea okay. How do you feel fake news has influenced public perception of immigrants in Germany?

Participant 8: From my perspective and experience whilst staying here in Germany, I would say fake news has had a significant impact on the public perception of immigrants in Germany. It often perpetuates negative stereotypes and misinformation, which can lead to heightened suspicion and prejudice. These misleading stories can create a distorted view of immigrants, portraying them as a threat to local culture and security. This can exacerbate anti-immigrant sentiments and make it more challenging for immigrants to integrate into society. Overall, fake news contributes to a divisive atmosphere, making it harder for communities to come together and understand each other's perspectives.

Interviewer: Interesting. So looking at it the other way round, how do you feel fake news has influenced immigrants' perception of the native Germans?

Participant 8: It can create distrust and fear, especially if immigrants believe negative and false stories about Germans. This can hinder social cohesion and create unnecessary tension.

Interviewer: What specific challenges do you face in discerning truth from fake news in your stay in Germany?

Participant 8: Language barriers and unfamiliarity with the local media landscape are significant challenges. It can be difficult to navigate news sources and determine their reliability when you're not fully fluent in the language or familiar with the media outlets.

Interviewer: How do these challenges impact your integration into German society?

Participant 8: These challenges create a barrier to feeling fully integrated and informed. Sometimes, this leads to a sense of isolation because it feels like I'm not fully connected with what's happening around me.

Interviewer: How do they influence your perceptions of societal issues?

Participant 8: These challenges can skew perceptions, making issues seem more or less severe than they are. Without reliable information, it's easy to misjudge the seriousness or nature of societal issues.

Interviewer: How do they affect your ability to critically evaluate online information?

Participant 8: They make me more cautious and sometimes skeptical, but also more diligent in verifying information. I tend to spend more time cross-referencing sources and seeking out trustworthy information.

Interviewer: What are your information needs and preferences in accessing reliable and trustworthy news sources?

Participant 8: I prefer well-established news sources and academic journals known for their credibility. Having access to reliable and comprehensive news is important to me.

Interviewer: Can you share strategies you employ to verify information and protect yourself from disinformation?

Participant 8: I cross-reference multiple sources, check for academic references, and look at the credibility of the author or publication. These strategies help me filter out disinformation and stay informed with accurate news.

Interviewer: Would you be interested in using a tool that detects fake news? Why or why not?

Participant 8: Yes, I would be interested. It would be a helpful resource to quickly verify information and avoid the spread of misinformation. Having a reliable tool would save time and provide peace of mind.

Interviewer: Do you have any suggestions for another solution other than a tool to detect fake news?

Participant 8: Absolutely. Beyond tools, fostering a culture of critical thinking and media literacy through educational programs would be highly beneficial. Workshops, school curriculums, and public awareness campaigns can teach individuals how to critically analyze information, recognize biases, and verify sources. Encouraging a skeptical yet open-minded approach to consuming news can empower people to become more discerning readers and less susceptible to misinformation. Additionally, promoting transparent and ethical journalism practices can help rebuild trust in the media.

Interviewer: Even as you use this tool, what benefits do you expect from such a tool?

Participant 8: I would expect quick verification of information and a significant reduction in the spread of misinformation. It would also be useful in educating users about how to identify fake news on their own.

Interviewer: What key features would you like to see in a fake news detector?

Participant 8: In a fake news detector, I would like to see a feature that allows users to easily report suspicious news articles for further review. It would also be beneficial to have real-time analysis and alerts for breaking news stories that are flagged as potentially false. Additionally, integrating a community feedback system where users can discuss and provide insights on the credibility of news stories would enhance the tool's effectiveness. Lastly, having a comprehensive database of verified sources and a section for educational resources on how to spot fake news would make the detector a valuable tool for all users.

Interviewer: How would you prefer to receive alerts about fake news?

Participant 8: I would prefer to receive alerts through a mobile app notification or email. These methods are convenient and ensure that I'm notified promptly.

Interviewer: What level of detail would you like in the explanation of why a news article is flagged as fake?

Participant 8: I would like a clear, concise explanation with links to credible sources debunking the news. Understanding the reasoning behind the flagging is important to trust the tool.

Interviewer: What would make you trust the results provided by the fake news detector?

Participant 8: Transparency in the verification process and endorsements from credible institutions would make me trust the results. Knowing that reputable organizations back the tool would give me confidence in its accuracy.

Interviewer: Have you used any similar tools in the past? If so, what was your experience like?

Participant 8: No, I haven't used any similar tools before. I usually rely on my own methods of cross-checking information.

Interviewer: How would you measure the success of a fake news detector?

Participant 8: I would measure the success by its accuracy, user satisfaction, and the reduction in the spread of misinformation. If the tool can consistently provide reliable results and help users avoid fake news, it would be successful in my eyes.

Interviewer: Do you have any additional suggestions or features you think would be useful for a fake news detector?

Participant 8: It could include educational content on how to identify fake news and improve media literacy. Providing users with the skills to discern fake news on their own would be a valuable addition.

PARTICIPANT 9

Interviewer: Okay, thank you. So, yes, can you please confirm your gender for us? What is your gender? I'm female. Yeah, female.

Participant 9: And then can you please give us your age range?

I'm 32.

Interviewer: Okay, thank you so much. And your level of education?

Participant 9: And I'm doing a PhD. I'm a PhD candidate.

Interviewer: And please, what's your country of origin?

Participant 9: Iran.

Interviewer: Okay. Thank you. How long have you been living in Germany, if I may ask? It's exactly from the beginning of the new year. So we are in June, so about six months in your seventh month now.

Interviewer: Okay, thank you. And what is your mother tongue?

Participant 9: Persian.

Interviewer: And apart from Persian, which other languages do you speak? You speak English?

Participant 9: English, a bit German.

Interviewer: Okay. Thank you. And yes, you mentioned you are a PhD candidate, but apart from that, or even with that, what are your main activities, if I may ask? Or occupation? As a career?

Participant 9: Yes, career wise, yes. I'm a research assistant.

Interviewer: Thank you. And educational level is PhD. Thank you so much. How do you primarily assess information on a normal day? Maybe if I should give you tips maybe for maybe by online, maybe by print, maybe by TV, social media. Yeah, yeah, yeah.

Participant 9: Mostly I use online platforms from daily news or anything else. OK, so you have special with online websites you use. And mostly Instagram, Instagram or some YouTube channels. But if I want to know more about something really special, I will use BBC. And there is another, if something is relating to my country, I will use international. It's Iran International, which is specified for our country. But the sources out of country.

Interviewer: OK. Thank you so much. And how often do you assess information? Just a rough idea. How frequent do you check these websites or check these social media pages?

Participant 9: I mostly use this website and platforms at least every week. Because I'm out of my country, I have to know what's going on in my country. But Instagram, I use it daily. OK, so for YouTube, it's weekly, for Instagram it's daily.

Interviewer: OK, thank you so much. And yes, you mentioned about your home country and now you are in Germany. So do you still prefer news from your home country to Germany or you prefer the German news to your home country?

Participant 9: Actually, my country sources of news are not so reliable so that I prefer to pursue German news more reliable.

Interviewer: Interesting, okay. So you prefer German news and how do you verify that the news you listen to in Germany are reliable, as you said.

Participant 9: You know, they just look at the problems with other aspects. Rather than our countries, they just show the positive aspects of our problems. I mean, they don't say all the truth, but. Then I want to recognize that news is truth or something fake news. I just check some websites to recognize about the details and just analyzing and comparing with the other sources information then I understood that it's reliable or not. Then I prefer to follow when the most news are more have more details and have more clarification for me. That's why I prefer to pursue German news because they show more reality rather than Persian news.

Interviewer: Okay, interesting. That sounds very interesting. So if I heard you right, then they have more details and then you can easily compare to other sources as well as compared to Persian news. That is interesting. Thank you so much. Are you aware of fake news?

Participant 9: Fake news, fake news. There's some fake news, but I didn't recognize your question properly. Maybe.

Interviewer: I mean, are you aware that there is fake news? Do you know that there is fake news? Do you know about fake news? Have you heard? Oh, yeah, yeah, yeah.

Participant 9: Yeah, actually. Sorry.

Interviewer: And have you experienced fake news before?

Participant 9: Actually yes, because sometimes some sources want us to exaggerate some news or showing the other aspects and it's my responsibility to recognize which one is true or false.

Interviewer: And so can you remember an experience where you listen to a news and you later realise, oh, this wasn't true? Can you remember one of such experiences?

Participant 9: Yeah, I think it was two months ago that there were an attack, there were tension between Iran and Israel. And it was so hot news and every sort of information, sort of news wanted to show these in their special way and it was difficult to

recognize which one is true but actually after comparing some of the sources again easily understood that even Iran International which I following for my country news It was fake news because it has some details that it was not matched the other source of information. And it was a fake one. Even the International News Agency gave out fake news.

Interviewer: That is interesting. And so, in such a situation, can you think of an impact it has on you? Or even the impact it has on the Iranian community.

Participant 9: You know, this channel, this sort of news, it's so popular in my country. And even it can make a group of people who just advocate some ideas or things that they are totally wrong. Mostly, there are some tension in Iran, internally, that many groups are struggling with each other. And this kind of news can certainly affect on people and how they think and how they act and make some activities in this such a group and they easily make strong advocate from a special kind of group. And this group would be with very false news, with very fake news. They would be on the top of the power and people if they don't care about the truth or not. I mean, they don't recognize about it. They would follow them and they gave them power to and it's awful. So since many people if I had you right since many people believe in the Iranian national television or national news and most of the people believe the news without even cross checking if it's true or not. And this buzz publicity can make people advocate for the wrong reason. It can bring a lot of chaos. And actually, one point. Iran International is not our national source of news. It's all topical. You know, because our internal is not reliable at all. But even Sometimes Iran International makes some fake news because they have some commercial partners and you know. So they are also buyers sometimes. Yeah, yeah. Exactly. Interesting.

Interviewer: Okay. Thank you so much for this revelation. And do you think now back to Germany, do you think fake news affects the immigrant community in Germany, different from native Germans?

Participant 9: You know, sometimes some fake news has more effect on immigrants because I think that immigrants are more vulnerable compared with native people because they are just humorous like many stresses and they have to cope with their stress and dealing with other things. They have to manage many things and then they get a negative pulse from the news Or a very stressful news. It can strike. It can affect all kinds of their daily life. And he can make life so difficult for them.

Interviewer: Thank you so much for this answer. And so in your opinion, you think fake news in Germany or fake news is mostly targeted to immigrants or apart from immigrants, mostly you think is targeted to immigrants?

Yeah, yeah. Okay.

Interviewer: And do you have any special reason why you think it's targeted to immigrants?

Participant 9: Actually, there was news that I know about Afghan people that they wanted to fire them because they saw some violence from them at each causing many intentions for immigrants, even for Iranians, that they think maybe the secure months for every other nationalities would be more difficult to get passport or citizenship or even coming to Germany. And it was so stressful. But after clarifying and after more details, it has been clarified that it's not have any effect on other people, just the people who had committed crime. And it was just specified for them, not for all people. But at first they said that it would be affected by other groups as well. And it was so stressful even for me. Okay.

Interviewer: Thank you. I didn't get the first point you said. You said this was an issue about which people? AR? Afghan people. Afghan?

Participant 9: Afghan. Afghanistan. An Afghan person has killed a police officer. It was last month.

Interviewer: In Germany?

Participant 9: Yeah, yeah, in Germany.

Interviewer: Interesting. And which city did this happen?

Participant 9: I'm not sure about it, but I think it was in Bayern.

Interviewer: Okay. Oh, so this sounds like a big problem for immigrants. Wow. Thank you. Thank you so much. It's sad, but thank you. Yes.

Interviewer: And so do you think the, yes, for example, an Afghan, Afghan killing the police officer. Do you think this situation has made the Germans have different perceptions on immigrants in Germany? Do native Germans have different perceptions?

Participant 9: Yeah, actually, yes, because you know, they couldn't recognize rich people are safe and the other people are so dangerous for their society and communities. They just look at all immigrants the same, and it's a disaster to recognize which one is the good one and would make some profit for their community, for the society. But the others are so harmful for them, even for their safety. And, you know, it makes a perception for them that all immigrants are very bad. They are society and that's why I think it was before the election. And you know about the election that happened, and I think it was nearly one month ago, And that's why people were so worried And the party that was more against the immigration

had better results in the election. That's one of the, I think one of the factors that has made it, it was the happening in Bayern. Okay. That's my perception. Yeah, yeah, yeah, you are right. Okay. Wow, this is, it's sad for immigrants, but this is the situation.

Interviewer: Thank you. And do you also think that in the other 10, do you also think that we immigrants also have different perceptions about the German communities than who they actually are?

Participant 9: Could you please make more explanation about it?

Interviewer: Ah okay, so first of all you answered that because of fake news, Germans have different perceptions about all immigrants and you said they see all immigrants the same and all as bad people and it's not right. That is what you said, yes which is very interesting and very right. But my question is now the opposite way. Do you also think that we immigrants also see all Germans?

Participant 9: Actually, you know, even before coming to Germany I have heard some news about German people that they are so unfriendly they are not welcoming. You should make yourself ready to react to them and deal with them and it's so hard to communicate with them. But actually the fact is all of them are not the same. The majority of them are very friendly people and they are open and welcome to other immigrants. But some of them are really unfriendly. But you know, at the big point, just the perception of us would be something that, We met someone that once had a bad reaction to us, then all of them maybe would be the same. And it's something that the news about the Germans replace all around the world, I think, because I have just so many posts on Instagram that they are making some jokes from German people that they are so friendly, bad tempered, and so unfriendly, bad tempered, something like that. But all of them are not the same.

Interviewer: Interesting. Yes, I also heard all these. Thank you so much. And so back to you specifically or personally. What, you've been here for seven months? So what specific challenges do you face in trying to separate fake news from the true news?

Participant 9: Actually, sometimes it's so difficult because when you don't have enough information about a topic, it's so difficult to compare some sources because even you don't know the basis and you have to know more about it, but you don't know which one is more reliable and you have to just rely on yourself that what was your previous experience about that platform, even it works or not. Then you can decide that in difficult situations, you can rely on this source or not. It is something that. In a very difficult situation, I do that. Yeah, I just rely on my previous experience about a platform at first and then just compare the most reliable one with the others. In this way, it would be more effective for you.

Interviewer: okay. Oh, that is a good strategy. Good one there. And then, how do these challenges affect your integration into German society?

Participant 9: It's not clear.

Interviewer: Do you understand the question or you want clarification?

Participant 9: Yeah, but maybe it needs more clarification.

Interviewer: Yes. So now you are in Germany and you don't even really speak the language and now you just said when you hear about fake news, you have to just only rely on your experiences and other things. And these things we believe will affect how you will integrate into the German society how well are you able to mingle with the Germans, how you are in Siegen and you are in a pure German environment, but there are challenges that's preventing you. So how does these challenges affect your integration?

Participant 9: Actually, yes, you're right. It would be sometimes so challenging even for me. It's really hard to deal with these challenges to emerge the society because we are coming from a very different culture. It takes sometimes to know and recognize rules, laws and other things that are really true about German. Because sometimes we just rely on what we are hearing from others or from some sources, but the reality is something else that makes some difficulties even in some procedures, for example, when we are going to the foreigners office and we are expecting something else, but actually, they are not, they are not true. And. And we have to do something else and sometimes it takes our times of based our times or based on energy events. It would be costly for us. And I have no idea. I think it would be. I have to be patient and give myself time to just accustom to these rules and laws and know about them and recognize how much of them is true because there is no other sources. You know, even some German people are not sure about the rules. So it can happen, but it's more strict about immigrants, I think. And it's more challenging for them because when you are a native and no one expects you to doing something or going to ask them about that and some official places, but when you are an immigrant, you have to know more about them. And just fine with that.

Interviewer: Okay, thank you. Thank you so much. So now that you are still learning, and you have, you have given yourself much patience to just to learn to understand. Does these stories people are circulating about the immigrant and immigrant societies, has they affect your perception of the German society issues?

Participant 9: Yeah.

Interviewer: In what way?

Participant 9: And also flight patients. Maybe you can repeat your question again.

Interviewer: Yeah, I wanted to know how all the fake news surrounding, for example, immigration issues have influenced your perception. How do you now see the German community and, for example, immigration issues? Do you have a particular perception about, you mentioned Ausländer beholding. Do you have a particular perception about such issues?

Participant 9: Actually, yes, I think the. The security is a security and says any conditions for immigrants. Would be more strictly as they say, they facilitate everything they can. Make some chance, if you have heard about it, Germany. Begin to issues some chance got the visa, but reality, they, they are more strict rules for immigrants because as I know, they have to control the society and their German society because there are more people. It came to Germany legally. It can be so dangerous work that mostly terrorist from Afghanistan and they have to. More aesthetic that have to do more control on that. So, it's maybe they would facilitate immigration, which sounds got that, but other side, they would imply more the conditions will be more difficult in the future, next year, I think.

Interviewer: Okay, okay. Thank you so much. So, do you have special accessibility needs? For example, if you are You mentioned you watch videos on YouTube and other websites. Do you have special needs to access this information?

Participant 9: No.

Interviewer: Okay. And then, so yes, you mentioned that you employ patients. You mostly have to be patient with information you hear. Apart from being patient or learning to be patient, do you, can you share with us other strategies that you use to protect yourself from fake news?

Participant 9: Uh, there are strategies. Yeah, actually. The best strategy I've mentioned earlier is to be sure about the news is comparing comparing and rely on your previous experience when something happened to you, then you can check some sources and which sources has mentioned about that, then you can rely on it for the future experiences and you can use in other cases, you can use this one as a source of really true information and really true news. And it's just, I think there is no way to recognize through work hours and it's my idea.

Interviewer: Okay, thank you. So for you, the skills you use is you mostly rely on your previous experiences. You cross check or reference to other points. Exactly. And then you are mostly patient.

Participant 9: Yeah.

Interviewer: Okay, thank you so much. Would you be interested, apart from these skills and these strategies you've developed over the years, Will you be interested in using a tool that helps you to detect fake news?

Participant 9: Actually, I don't know if there is a tool for that, but it's if AI or anything else, you know, I just know AI for recognizing such things like that. But I'm not sure that AI would give you true information, because in some cases and there are so problems in even in AI responses, but if there is a tool that would be more reliable and you can use it very efficiently, why not? It's so convenient and it makes everything easier. I don't know such a thing if you know. Let me know about it.

Interviewer: Yeah, there are actually some tools and we are also working towards developing, adding to what is already there. But since you will be interested, we are happy about it.

Interviewer: Thank you. But you mentioned that you are, you can't also rely 100% on AI. So apart from maybe we using AI or a tool to help develop fake, to help detect fake news, do you have an idea or can you give a suggestion of something that can be done to easily help detect fake news, if not a tool or a device?

Participant 9: I know that there are some methods, text analysis. Even I took a course about it two weeks ago, and it was about how you can recognize Even the author of a post in Twitter, some other platforms, because the style that people are writing in that. It's very specific for everyone and it's just some scripts you can understand. It's not 100% reliable, but it's more likely to guess which party. I mean, which political party or which person has written this one? And maybe it would be effective for such a thing.

Interviewer: OK, text analysis. That is a great suggestion from you. Thank you. So now back to the tool in case there is a tool to detect fake news. What are some of the benefits you will expect from such a tool?

Participant 9: You know, sometimes knowing about the news that is true or fake, it takes a lot of my time and time at the moment is so valuable for me. If there is a good tool for me, it would just save some time for me costly for me because I don't know about even I have faced such a thing because I didn't know about brick summer in Germany. Now, I understood that there is a big summer and because I didn't receive my submission from that, I'll commit to maybe I will last my registration for the next semester. And it's just because of lack of information and didn't. follow true information. But if I had this tool to recognize the true information, it would save me even money and time.

Interviewer: Okay, so for you, you expect such a tool to save you much, much time and even save you money also. Okay, thank you so much. And then are there some special features you would want the designer, their tool to have? Special feature?

Participant 9: Yeah. For example, can you give me some examples?

Interviewer: Yeah, for example, maybe someone will say, well, I want such a tool to give me references of why it's saying this news is fake. Some will say I just want real time information. Someone will say maybe I want a detailed explanation or you should have some ratings from other people or what do you expect from it?

Participant 9: At the 1st, the references are so important for me. And there is a place, I think, knowing about other people opinion would be so interesting for me. And the 3rd plan, I really might about that is the. And if the tool can. I mean, organize the information and news for me, date and time, it would be more effective. Good, good, good, good, good, good.

Interviewer: OK, thank you so much. So you especially want to provide the references as to why it is telling you it is fake. And then you want opinions and comments from other people also. And then you wanted to give you the timestamp, the time that information came in the time of the reference information. Thank you. Thank you so much again.

Interviewer: And so we move on to our next question. And so in case the tool is able to do all this for you and the tool wants to inform you, this is fake. How do you expect to receive the alert from such a tool?

Participant 9: You mean a bit notification?

Interviewer: Yes. How do you want your notification to come?

Participant 9: Just like a pop-up.

Interviewer: Okay. Thank you. Thank you so much. And so if the notification come as a pop-up, what's the level of details you want in the notification?

Participant 9: Just short details so you can... At the first glance And maybe just see the title and short description that it's true or fake. And then by clicking on it, I can find more explanation about that and the features that I told you earlier.

Interviewer: Okay, thank you. That is very interesting. Thank you so much. And so yes, the tool again is able to do all these for you. What will make you trust or not trust such a tool?

Participant 9: It depends. I have to compare them. If I had experience with such a tool, then I would continue pursuing this tool. But if I face something really problematic for me, then I will stop following such a tool.

Interviewer: Okay, so it depends on your experience with the tool?

Participant 9: Yeah, exactly.

Interviewer: Okay, thank you. And have you used such a tool in the past?

Participant 9: No.

Interviewer: Okay. And would you want to just try such a tool?

Participant 9: Yes, why not? It's so interesting.

Interviewer: Okay. Thank you. And so, yes, we've spoken about trust. And now we want to talk about the success. How would you measure the success of such a tool? This tool is very successful. This is just a failure of something. What's on which criteria will you measure such a tool?

Participant 9: I think it would be important at first when I'm not sure about the reliability of such a tool. And I think at first I have to compare them at the past and with my methods compared with other sources. It is more reliable for me and I would follow it. I think I can access it based on my perception of the past sources, previous sources. And that's it.

Interviewer: Okay, so you just compare with your old strategies, your manual strategies. Yeah, then if everything works, then you think it's successful?

Participant 9: Yeah.

Interviewer: Thank you so very much. Yes, I'm up for these thoughts from you. Do you have additional suggestions for us? About the tool? Yes, about the tool about your experience. Do you have any other thing you think you can just So we can include it in our study?

Participant 9: I think the idea of text analysis, it's so grateful in such a tool. That's mostly in political news because there are very fake news when there is some election or any tension between countries. And it's so difficult for people to recognize which one is true and which one is fake text analysis packages would help you to make some more clarification when you have a huge amount of data and it's impossible to deal with them with human cover. I mean you cannot make such a...spend all your time daily checking this news and it would be more helpful if you want to develop such a tool. I think you have to use a part of your study on these text analysis packages.

Interviewer: Okay, thank you. So if you say test analysis packages, can you please throw more light to what exactly you mean by test analysis packages?

Participant 9: There are some scripts I know about the R scripts that you're writing a code in R environment or even I'm not sure it's in Python as well. And by then you can filter in all the data and all the news. And you can recognize even the styles to them that, as I mentioned earlier, even you can recognize with some codes which parties and which groups has written this post or tweets. And I think in this way, it would be helpful.

Interviewer: Ah, okay. Yes, now it is much clearer. Yes, I understand. Thank you so much. So thank you for your time.

Interviewer: So as I said earlier on, the aim of our master thesis is to gather opinions, precious opinions for people like yourself. So we will know what people like yourself and ourselves actually expect and want. And then we can later try to bring up a device that is very usable because it is from our opinions. We did it together. So if we are able to bring out such a tool or even develop a prototype, design a prototype of such a tool in our master study, will you be interested to later on as part of our project again to test it to see how it works and then give us your feedback again?

Participant 9: Actually, yeah.

Interviewer: So we are welcome to contact you again if we want, if we are able to develop and we want your analysis of the tool.

Participant 9: Yeah.

Interviewer: Okay, thank you so much. You're welcome.

PARTICIPANT 10

Interviewer: Okay, thank you. Yes, so we will start with some demographics.

Participant 10: I'm 28 and 2 months. I'm at the moment 27. Okay, thank you so much. Sorry, please go ahead. I don't think I need to tell you my height. I am from a nationality Pakistani. I was drawn in a village in Pakistan. I took my education, early education from my nearby city and then I moved to the capital city in Pakistan where I did my degree. And then after it, I just moved here where I do this Masters with you guys.

Interviewer: Okay, thank you so much. And what is your mother tongue, please?

Participant 10: My mother tongue is Punjabi.

Interviewer: Punjabi and which other languages do you speak apart from Punjabi?

Participant 10: I speak Urdu. Urdu is our national language. And I understand a little bit Arabic. Now, of course English and a little bit of German also.

Interviewer: Okay, thank you so much. You mentioned earlier on that you are a student at the moment. So, apart from being a student, do you have another occupation apart from being a student?

Participant 10: My job is the at the moment, technical inventory.

Interviewer: How do you primarily assess information? If we may ask.

Participant 10: What information?

Interviewer: News, any information you want to know. Do you use online sources, print, TV, media? How?

Participant 10: Um, the sources are mostly digital, of course. So websites, YouTube and so on. And of course, social media and so like the local newspapers also here. Like for example, in Siegen, we have a lot of local newspaper agencies and digital news

agencies. So I follow them on Instagram, Facebook and so I see the news from them.

Interviewer: Yeah. Okay. So on Instagram, Facebook and these messages, do you have some specific channels you mostly read information from?

Participant 10: Here in Germany. Yes, or in your home country.

Interviewer: anywhere.

Participant 10: I mostly use YouTube and then on YouTube I see different channels. Whenever like, for example, I'm in Pakistan, then I will see Pakistani channels on YouTube. And if I'm here, then I would see German, DW or other Western.

Interviewer: And can you tell me or can you think about how often do you access information from this source?

Participant 10: What do you mean by assessing?

Interviewer: You said you gather, you get information from YouTube. You mostly watch videos or something if you need to know something. That was what you said before you left. So how do you, how, what is the frequency?

Well, I spend all of my day in front of YouTube. Okay. Multiple times a day. Yeah. Yeah, but I'm not always, of course, watching news. It's mostly other content related to, I don't know, AI or, I mean, workshop and hobbies and stuff like this.

Interviewer: Okay, thank you. Do you prefer to get news from your home country or from German sources?

Participant 10: about what exactly I would ask.

Interviewer: Anything you want to inform yourself with.

Participant 10: So if I want something, some news about German society, then I would of course look for the German sources. Some, there are some events, for example, in my home country, and these also get documented by outlets such as DW, Deutsche Welle. And so then I also kind of see how the local media is talking about an issue and how the international media is talking about an issue. So it kind of gives me a holistic picture, like what's the meta perspective and what's the micro perspective on this. So I kind of use both sources.

Interviewer: Okay, thank you. And so if you are looking at the local media and then the German media, how do you normally verify the credibility of the sources you are looking at?

Participant 10: So first, it's I believe they're trusted or established platforms. Of course, you can never be sure that one use is always true. Like, for example, BBC has made mistake. All of the big outlets have done blunders with their journalism. And once you do understand the journalistic process, then you kind of also believe it's more. But then you also know its limitations. Like how does the news get reported? How does it get recorded? And what are the processes of journalism? So, and how, like for example, in journalism, if you have multiple sources confirming one thing, or you have a first person evidence of it, then you can talk about it. So, I mean, once you understand this, you can trust more, but then you can understand the limitations. So, to me, when I see the bigger and trusted outlets, then I am not 100% sure always because I don't think it's reasonable to be 100% sure but I think I am always 95% sure that yeah I think something like this happened and interpretation can matter about how this news gets interpreted but then I just want to know that this event happened and these are the facts. I just want to hear the facts mostly. I don't hear the part where they review it or they give their own bits on it because that goes towards interpreting the news. But if I know the culture, then I only need to know the facts, how it happened on the ground. But if I don't know the culture, like here in Germany, then I also need to then know the interpretation of it. Like, for example, if there is a law, there is a new law in Germany which maybe affects me then I would say first this news will come to me from indirect sources so for example one of my friends will say oh this has changed you need to look at it and then I will go on the internet and then I will read upon it and there might be one or two main outlets that are reporting on it so I will listen to the news and if this is something that To see this law and when it will, it will get proved and what are the clauses included within it? So I think that's the way how I kind of navigate this news and facts and. Think like this.

Interviewer: Yeah. Okay. Thank you so much. So if I understood you correctly, you. How you verify depends on how much the information affects you. And if it's something that affects you so much, then you verify from the government websites. And if not, then you just don't verify because it doesn't affect you so much.

Participant 10: Yeah, exactly. And I don't I don't disseminate it to the next people. Like, if it's not something that doesn't affect

me or my immediate community or my friends that I don't care about, if it's true or if it's not true.

Interviewer: OK, thank you. A little follow up on that. So if it is something that affects you or affects your community, how do you communicate or discuss your findings with these people, with the people you think it affects them?

Participant 10: I think I Again, I kind of use the credibility of these main sources if it's from something like a larger media outlet. And if it's not just one media outlet, if there are more two or three, then it's kind of confirmed that something like this is happening. So then I am sure like this is something that is truth. But the truth is also like something That's really, really finicky here. And I think this is maybe also relevant for you, how truth is formed and how people understand truth. And how if you show them, if you bombard them with one news more and more times, it just kind of becomes a fact for people. So I, at some level, I think all truth is created. And we just need to know first the facts. And if there is any evidence, like video evidence is perfect. If there are, for example, if people narrations of an event, then it gets a little bit tricky to understand it. So fact always helps. And I personally see the facts and then I disseminate it to my friends or family.

Interviewer: Okay, thank you. Yes, you disseminating it is what I wanted to understand how you disseminated to friends and family. Do you have to meet up with them? Do you write it to them as a message? Do you call them? How do you do this dissemination to friends and family?

Participant 10: I send them on WhatsApp. Maybe the link. You send them on WhatsApp. OK. Or the video. OK. On WhatsApp or social media. Social media, yeah. And sometimes I can get friends and I discuss it with them. OK.

Interviewer: Okay, thank you so much. And are you aware of fake news?

Participant 10: Yeah, I am aware of the concept.

Interviewer: Have you ever encountered news that you later realize, oh, this wasn't true, it was just misleading?

Participant 10: I mean, I'm sure I have come across many fake news. It cannot be, and sometimes I don't even know it. That's the trick about it. Okay. There are some that there have been sometimes where I was able to identify it. Fake news.

Interviewer: Okay. And do you remember the incident? Can you share with us the experience?

Participant 10: Okay, like, for example, I, I, in the past two, three months, I saw a lot of news. I don't remember what they were, but I looked at the website. I looked at the way that they were speaking English, like the language. I recognize that it was not very concrete. There were no dates or sources on their news. And also the somehow the website looked like a little bit finicky and the logo was not right and I thought, yeah, maybe this is not. So this is all the visual ways that I recognize something. Other than this, then I have this perception. Like for example, if I even see fake news in something that I think that it's trustable, then in my mind, I have always created these categories which platform is more towards the left, which platform is more towards the right, which is a centrist, which is more of a radical, which platform presents a radical point of view. So because the type of news that they post, so after some time, in my mind, there's like a categories that build for all of these platforms based on the kind of content or the news that they have been reporting upon and the way that they do their analysis. So I always try to kind of know them like the hidden motives behind the news and if a news is presented, how do you decode it? Like there's always a little bit of a how do you say that you form the news really tells you a different story. So these small cues I use, the choice of word selection and everything, this is what I use to identify the political spectrum of the news channel. And then if they report some news, and if they are the only ones reporting it, then I'm not sure then I don't believe them unless the other side of the spectrum, like for example, a lot of people of the leftist view are also reporting on it, then I would say, yeah, okay, maybe something like this happened. If it's something that concerns me, then I will go deep into it and then I'll confirm it. But otherwise, yeah, as I said, I don't go so deep into it.

Interviewer: Okay, thank you. You said something interesting. So if it is something that's there, it's just one channel or one site, pay your groupings, it's recording then. you think is questionable but if both sides are recording then you tend to believe it's not fake?

Participant 10: Yeah because there the political interests are not aligning and if you see the parties whose political interests are not aligning then you kind of see okay why then the both of them are reporting it so then this means that this is kind of a truth so this is something that did happen so this kind That's yeah, I maybe I can trust this. This was okay.

Interviewer: Thank you. What impact do you think fake news have on the community?

Participant 10: I think it creates the society. I think it's great news and perceptions. It creates society like the news and the stories.

So news are basically stories, right? These are social stories of some events. And the way that cultures are formed and the way that societies work are by these collective stories, right? And if those stories imagine how society then gets off the, you know, so, so, for example, in the second world war, when the Nazis were here, how the Nazis used newspaper as a propaganda, and how they changed the news, made fake news about a community and how then this made a kind of a sentiment against the Jewish population in the German population So you can see how wrong it can go. So if you don't present true perceptions about people, about stories and about events, this can go very, very wrong. And this is what everybody fears with AI because then if it's so easy to create fake news and it's so easy to make it look real, you can imagine the world that will be in the next 20 years. So I believe that these news, whether it's true or fake, for good or for worse, they change it. And if it's fake news, this will only lead us to disaster.

Interviewer: okay, thank you so much. Back to Germany now, do you think fake news affects the immigrant community in Germany different from the native Germans?

Participant 10: So there is a perspective how German see that. So there's, I, I, because I first hand saw the impact of fake news of how Germans then perceive the non-immigrant, the immigrant populations, the groups, and how then the immigrant groups then also perceive German groups because of the fake news. So There was a on tick tock and I saw a lot of content that was against the immigrant groups and they were they were really reporting some of the really worse facts. Like, for example, immigrants are using your social benefits and there are so many. So 70% of immigrants are using social benefits and only 40% of them are working jobs and stuff like this. Yeah, so this was a propaganda by AFD. And this is really dangerous in a way that the TikTok audience is mostly young people. And this is so I don't think that they will believe it firsthand. But when you when you give them a news so many times, then it becomes It primes your mind so much that if something bad happens to you or if you see something going on out in the public, which was done by an immigrant person, then you would immediately label all of the immigrant populations towards that because then you have this primed effect of prejudice against a group. So then it only solidifies your negative views on the community more and more. And this was like one of my experiences of how I saw fake news affecting the immigrant population. About immigrant population, how they think about the other society around them. So there have been many fake news about laws and how AFT will come and they will do this and that. I've seen many news, but when I hear them, it's just like, I'm not sure about them. If they come, then we will see. Other than this, I don't care about it. I don't think that AFT will be reality, honestly. It looks scary, it's growing. But I don't think Germany can afford them. It's a childish thing that's going on. But I'm also there a little bit worried. So it's a paradoxical situation that I live with. On the other hand, we've seen that young people have been affected by the propaganda by AFD. And then most people who voted for AFD were young people. And how I see them, how the role of TikTok was there and this the last European Union elections. So about how the news can change and how these indirect sources of news, which is TikTok and so on, these small platforms, they're not small actually, they are one of the biggest. So it only makes me concerned.

Interviewer: Okay. Thank you so much for sharing this with us. Have you noticed any particular themes or topics that there is a lot of fake news surrounding it?

Participant 10: I think the most things that I've seen were regarding the immigration laws, regarding the political situation in Germany, regarding the Ukraine issue. Yes, I think this is mostly the content type.

Interviewer: Okay, thank you so much. And just so to understand your first stance, you actually meant that you, in your opinion, you think fake news affects Germans differently from immigrants? Is that what you mean?

Participant 10: Yeah, because I think I think there is like something like an in group out group thing going on. So, I think. News has different effects on on both. Both crops and if, for example. For example, if there is a fake news about how. Immigrants have done something so wrong and then I think A bad perception about so how then the immigrants think start thinking about themselves. Like, are we the part of the problem and how then the Germans get into this. Blaming mode that maybe we've been too open. Maybe we need to close down. Maybe we need to target these groups.

Interviewer: Okay, thank you so much. Back to your specific challenges. And what specific challenges do you face in descending truth from fake news in your stay in Germany?

Participant 10: These are very big questions though. And this really makes me then reflect about one of the examples. So it's always very helpful if I have an example in front of me. Otherwise, it's so hard to think off my mind. What was the question again?

Interviewer: First of all, how long have you been in Germany? I think we didn't guess that earlier on.

Participant 10: Two and a half years.

Interviewer: Okay, thank you. So the question is, since you're two and a half years in Germany, what are some specific challenges that you face in trying to dissent fake news from the truth? Okay.

Participant 10: Yeah, it could be maybe language was a challenge. Of course. I mean, this is one of the biggest challenges. But ever since I've learned a bit of German, so I can read a bit. That has not remained such a big challenge, but it's still there. Other than that...What are the challenges? I think it's just that there's so much to learn about the processes here, about how the government works, about how the policies work. And that makes it, that really makes it so complicated to understand what the governmental processes are, so the bureaucratic processes are, and how to then differentiate the, between policies and how do you see, okay, what's the government stance on this and what's the law on this and then we almost always never see the law on it. Yeah. And we never see read the clauses on it. So this is one of the challenges because to there's so much information and there's so much things to learn and to do to be sure about things. And this is one of the challenges that But then at the end I think, yeah. I don't I don't need to read everything. I don't need to do all of the research. It's. Yeah, it's time so I need to make this. Time and effort calculation for me and how much it affects me. So if it does, it affects me very really a lot. Then I need to read more on it. Other than that, as I said. Yeah, the challenge is that it's too complicated. There's too much information.

Interviewer: Thank you so much. So there's too much information. The processes are too complicated. How does this also these challenges you describe so far also affect your integration into the German society?

Participant 10: I don't think my purpose is to really integrate. I think I come from a different culture, and I have my own will, and I have my way of living. Of course, I want to understand their cultures, and I don't want to integrate myself into the culture, because I don't think that there is a I don't think I consider my culture as bad or anything. And so I think my culture also offers something. The German culture also offers something very good. So why not make a mixture of both of these cultures? And then I live my life with it rather than giving up my own values and then integrating with the German values. It's okay, some of the values I agree the most is freedom and so on. Even though as much as Bullshit that is we saw in the last year how much the freedom the western countries believe in and it's just a one-way freedom But I do believe it's like if there is some state as if there is some human State as Being totally free then i'm up for it Other than that, I think my culture game has a lot of things that I need to learn still And I will always make a combination of what I know and what this culture offers. So integration is not my. My goal. That's how that sounds very interesting. Yes, integration in this context, we don't mean that you have to put aside your values and then automatically accept the German values. Of course, that is not possible, and that is also not our goals as well. But integration into the German society is understanding the structures in the society and knowing how well you can position yourself, making new relationships or new contacts with people. It's just about your state and your living here, not really about their values and upholding their culture over yours. I don't know if this makes things clearer. I understand. Yeah. It's a...It's just that when I see some of the values that are in the German society. I think the other values that I got from my culture were a little bit better because they were a bit more helpful and I think if Germans also take them, they would be helpful for them. Like being collector, like being not so overly individualistic. And I think the problem with any Western society has been that they pick up an idea and then they overdo it. And there is a really an opportunity to look for other culture for ideas. And Europe has been doing it like they imported ideas from Japan, from China, from all over the world during colonization and so on. But I still think there is a lot to learn from the indigenous cultures in the world that Europe can learn from. And yeah, I think and that's why I think I, most of the times I, I only see the bad, not the good somehow.

Interviewer: Okay. Okay. Thank you so much. And would you be interested in using a tool that helps you detect fake news?

Participant 10: You mean a digital tool like an app or a website? Yes. Yeah, I mean, there is a website called Ground News. I think you also know this. So they kind of try to map the news outlets on the political spectrum. This is helpful, yes. But I think reducing all of the news channels to just political spectrums is not, it's helpful, but it's not what all are all what we need. I think we also need to understand the incentives of all of these platforms because a company has more incentives than just to be aligned with a particular party. They want to, of course, enhance their capital and increase their profits and so on. So then you need to understand how one news outlet is structured in the market and where they are invested, why they are invested in, and what do they want to get at the end. So political agenda is one thing, but I think there can be more indicators that I would like to see in one of the digital platforms that offers you some kind of help to recognize fake news. Okay. And political agenda is one of the things you want to see as a future of such a tool, right? I mean, this tool exists, the political agenda tool by the name of ground news, but I would like to see a little bit more of that Yeah, other ways of recognizing the interests of of a news outlet.

Interviewer: Okay. Okay. Thank you so much. And what are some features you would want to see in this particular in this detectives?

Participant 10: I think it would be nice to know the rhetorical analysis, if you know this. Rhetorical analysis of a news text that would be helpful. Like, how do they form the words and how do they structure their vocabulary to deliver a certain feeling or a sense about a topic? And I think if you If there is some tool like rhetorical analysis, which is very hard to achieve, then that would be helpful. Also, a tool that helps you. I think this is sub-topic of rhetorical analysis, which is called the fallacies. So a lot of arguments have a lot of fallacies inside of them. And so if there is a tool that can tell, like, for example, if I see a news and on

this news tool, it shows us. Uh, like, for example, there is grammarly, right? And I imagine a tool like grammarly that is like a plugin and that goes with your website. Wherever you're reading, it's always analyzing the news. You give it access to the news website and then it analyzes the text and it marks the text. Like, this is where I see there is problem. Okay, this argument has this fallacy or the way that the headline is structured. It's very offensive or it's supposed to anger you or it's supposed to put blame on somebody. So this kind of understanding the structure of the text and reading between the line, what the messaging, what the subliminal messaging is One of the best tools that I can get like a like a useful tool for me to understand really what's going on because mostly people don't understand these things like how in normal day people use a lot of fallacies. To deliver arguments, how they use rhetoric to win over arguments. So I think something like this would be really cool.

Interviewer: Okay. Thank you so much. And you mentioned that it should be able to tell you which aspects of the news has the fallacies and the rhetorics? How do you want to receive notifications for this? You said it should be a line. So do you just want such a paragraph or such a phrase to be underlined, or do you want to pop up to show you? Do you want an alert? How do you want to be notified?

Participant 10: I think not notified, but how do I put the word for it identified or something like for example if I see as I said if there's a text then I see the part of the text maybe highlighted in a different color or maybe there's like a pop-up or there's an icon next to it and if I click on this it tells me I think this text is Structured in this way to give this messaging So something like a feature like this and if it if it's a video then it tells you It shows you like an icon and it highlights the part of the video where the argument was placed. And then it says, I think in this part of the video, the person was talking about such an argument. And I think this is how the structured it.

Interviewer: Okay, thank you so much. So this is about the structure. If a part of the news is false. So considering a scenario where the whole news that a blogger is circulating is false, how do you expect the identification to be? Would you want the whole news to be highlighted in one color to tell you it is fake or would you want a notification? How would you want it to be in such a case?

Participant 10: I think if you if you use such a tools as a rhetorical analysis, then it will do rhetorical analysis of the whole news. Yeah. And then this will be the whole news will be highlighted. Yeah. And, um, all right, this will be a bit ridiculous. But then, if it gives you at the end, like a summary, for example, if you hit the icon and then say, tell me what this news is trying to achieve. What are the motives behind it? What are the interests that it's trying to feed into? And then if it can give you an answer that, hey, I think this news is particularly formed in this way to make people angry on this group or so, I think something like this.

Interviewer: Okay, thank you. So after you hit, and a little follow up also, so after you hit on the icon to know why the text has been highlighted. What level of detail do you want? Do you want it to tell you this news is fake or you want a detailed analysis of why it is fake?

Participant 10: So I think you're talking about the question about explainability and how the software or the AI system, whatever you have, has detected what it has detected, like the results. And how it got to these results. The question is if you are interested to know how, or you just want to know it's a sickness. Yeah, I would be definitely interested on knowing how the system marked it as fake news or how it did this analysis. And it's important to make the system be more open and open for the public so that it's not a black box. It's mostly explainable. And it tells you how it got to such a conclusion. And by this, the granularity of how much the model itself shows like, OK, I use this word and I connected this word together and this is how I got to that I understood that this person has certain tone of voice. And so take stuff like this. And so it's really a subjective matter. For example, if a person who is much more would like more granularity. They would like to know how this software works, how this program works to the last detail. But if as a person, like if I want to build a general trust of this tool, then I would not like so much granularity that I would go into how the programming works inside of it or how the model works algorithmically. But I would just like to see the references or the or the words that it's using to market. So that I kind of know how this tool or how this model works to identify fake news. Because in order for me to trust a fake news identifying tool, I also need to understand what are the methods that it uses to identify fake news. Because I cannot just believe on a tool that says, hey, I will detect fake news for you then I will say how do I believe you that you will detect fake news for me. So for it to be credible and for it to people for people to trust on it, it needs to open up how it works. And I think this is fundamentally a problem of explainability and the system needs to be explainable and it needs to show how the algorithm or how the model works. And you can choose the granularity level. Like if you are an expert, you can choose how the model is structured. And if you are a normal person, then you can see, for example, just the text analysis, or what words are marked, or how this whole text was analyzed. Something like this.

Interviewer: Okay, thank you so much. You mentioned earlier that you have used such a tool before.

Participant 10: No, I just know this groundnews.com, this website. And there you see, like, for example, if this, if there's a news and so this is mostly on American outlets. So you. Select a news and then you see this news has been mentioned by these GCS platforms and it's been identity it's been It's been published on the platforms that are mostly left leaning or are they By the platform that are mostly right leaning or if it's something like a central leaning So I think if you search this website, then you will

get a better idea of what I'm talking about, how it tells you if this news was. It kind of tells you that the political bias of. Such a news and how it's structured by political. Motives and so on.

Interviewer: Okay, so in your usage of this tool or this website. Did you like it or did you dislike it? Can you tell us about your experience with the website?

Participant 10: I like it, but it's very simplistic. That was my only point. Again, it's subjective. I would like to see more granularity and another person might not like to see more granularity. And it just depends. It's something that also what the culturally established is. Like, for example, in America You would always talk about the left versus the right and then so this divide between it. So then people would like to just know this political divide and that's it. They would like to, but there are always more factors to it. So there are so many interests and so on of all of the parties involved. So it kind of gets very complicated and it's it depends on what the society or your audience what and what to what extent it needs to be detailed. Sometimes it doesn't need to be so detailed. Maybe your audience does not like it. But if it's a very knowledgeable audience, they would like to read more, more facts and more matrix that tells you how this news is structured.

Interviewer: Okay, so thank you. And in your opinion, would you consider this website a success or not?

Participant 10: Partly, yes. It's a success. Partly, but not completely. Yeah, I would like, as I said, I would like to see more features, but as far as this is working, it's fine.

Interviewer: Okay. Thank you so much. Thank you so much for your time and for your valuable insight. As I mentioned earlier on The goal is to gather all these valuable insights and then transform them into a real tool. So in the months to come, if we are able to do this and put it into a prototype, and will you be interested to test such a tool and give us your feedback as well?

Participant 10: Yes, sir. I'll be offered. Okay.

Interviewer: So we are welcome to contact you should we need further assistance.

Participant 10: Yes.

Interviewer: I just wanted to, yeah, you really talked a lot about how fake news and Misinformation and this information is. Kind of taking the youths in Germany's attention and. These are the people who are going to go up. In the next 10 to 20 years to be the leaders of the. The communities and to take over so, how do you think The uprise of these misinformation and disinformation is going to affect the overall progress or development of the German community in terms of how it will affect immigrants and how it will affect. Because to be honest, I've heard people say that maybe in the next 5 to 10 years, Germany will not be the best place for immigrants anymore because of Some new developments. So what's your thoughts on that?

Participant 10: Yes, it's clear to me as far as I think. This is a digital world and there are technologies to disseminate information so quickly every day and then people are on it for seven hours a day. They are in front of screens and then they are priming their minds to news and to all of the instruction information and I think It is the single biggest tool that people get information from and the standard media That its days are gone. It's mostly now ubiquitous media in which every person is now the creator of truth by taking a camera and making a video like a tik tok video or a vlog on it are creating truth and It's it's only going to get harder to separate truth from personal opinions or personal motives. And it's going to really, really affect a lot, any country and any society. And if the companies, the global tech companies, don't recognize the way that their algorithms work and their. the way that their impact is on the global politics and global perceptions, then it's going to really get more bad. If we see a huge change in the next four or five years in how companies then change their algorithms away from the self-feeding narratives, like for example, if you see a news, it shows you more of the news that you want to, that you like. So if, Fundamentally, the structures and the way these systems work, it's not rectified. It will get so bad we don't know it. Honestly, and sometimes I'm so scared. It's crazy. And we've seen effects of it. Like, for example, I've seen so many facts like in Pakistan, there was a video somebody made on TikTok about a person saying something bad about the profit or something. And people got up on the road. They went to his house, dragged him out, burned him alive, and so on. Yeah. So these platforms have such a big impact on how people think and how people act. It needs to be regulated. It needs to be changed. Honestly, I think Germany or whatever other society, the technology at this point is so big and the impact is so huge that it needs to change otherwise it's all chaos.