Climate Change, Social Media, and Youth: Engaging the Youth in Climate Change Issues in Jordan

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Executive Summary

Climate change is widely recognised as a complex issue with far-reaching effects. Jordan, an Arab country with youth comprising a third of its population, faces multifaceted challenges arising from the effects of climate change. This research examines how the framing of Jordanian climate change communication on social media can impact youth's engagement in related issues. To this end, the exploratory study utilises Standpoint theory, Framing theory, and Media Agenda-Setting theory as a theoretical framework. Using a qualitative research design, the study analyses 326 relevant Facebook posts from 13 recognised Jordanian climate change actors, including four governmental bodies and nine civil society groups and projects, between 1 March 2023 and 25 June 2023. This was followed by semi-structured interviews with six Jordanian young climate activists.

This study endeavours to contribute to the existing body of academic research on the framing of climate change communication on social media, with a focus on a non-English language. Through thematic content analysis, the study shows four predominant framing themes in the Facebook posts: 'Attribution of Responsibility,' 'National Position,' 'Solutions,' and 'Human Development'. The findings reveal that the posts mainly reported on the results of current efforts in the field by the different institutions. Jordanian civil society Facebook posts during the research period mainly aligned with the governmental posts. The latter employed traditional mass media language and few hashtags, images, and other media, whereas the former used English more than Arabic. These practices may limit the reach of the posts. This can be an indicator that institutions may be using social media to promote their achievements rather than increase climate change awareness and action.

Moreover, the youth-centred study utilises Standpoint theory to explore the perspectives and experiences of young people regarding climate change communication on social media in Jordan. Accordingly, the thesis seeks to contribute to expanding the scope of Standpoint theory beyond its current focus on feminism. The findings reveal a general dissatisfaction with social media practices among the engaged young. They provide recommendations, such as tailoring communication for Jordan's different socioeconomic groups and including more visuals, media, and simpler language. The research highlights the need for reframing to align with the needs of the engaged youth, specifically emphasising the use of the 'Benefit,' 'Human Interest,' and 'Solutions' frames. These frames may encourage younger generations to actively engage in climate change issues.

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Table of Contents

List of Figures and Tables

List of Figures

List of Tables

1. Introduction

One of the biggest environmental, social, economic, and security concerns confronting the world and humankind is climate change. Climate change is defined by the Intergovernmental Panel on Climate Change (IPCC) as a shift in the climate's condition that may be recognised by variations in its attributes over time, and that occurs because of internal or external natural processes (IPCC, 2018). It is generally accepted in the scientific community that large-scale adjustments are necessary for climate change adaptation and mitigation. Consequently, the past few years have seen a huge increase in publications seeking to communicate climate change science to the public because of their impact on politics and the considerable contribution of household emissions to climate change (Ballantyne, 2016). However, many people still do not participate in conversations on climate change, and the subject is still a long way from becoming one of the key concerns globally (Geiger et al., 2017a). Thus, it is crucial to understand climate change communication as a social process that shapes reality for its participants rather than fitting into the typical planning framework provided by strategic communication approaches (Ballantyne, 2016).

The Arab region is one of the most affected regions by climate change. Jordan is a non-oil-producing, middle-income Arab country in the Middle East with a semi-arid climate. The country is substantially affected by climate change as one of the driest and most water-stressed countries in the world. Jordan is already experiencing significant issues with the quality of the environment, the availability of water supplies, an increase in temperature and drought, and a decline in yearly precipitation (Ministry of Environment, 2014). Along with climate change, Jordan is impacted by socioeconomic pressures, political difficulties and upheaval, and a high population of immigrants and refugees (Ministry of Foreign Affairs of the Netherlands, 2019). Jordan has undertaken substantial achievements in reducing poverty and infant mortality and increasing adult literacy, among others, but all its accomplishments are threatened by water and natural resource shortages (The Hashemite Kingdom of Jordan, 2015b). Moreover, Jordan's disaster management relies on reaction rather than prevention; it has an insufficient financial infrastructure, most of the relief it gets goes to refugees, and it lacks community engagement and emergency preparation; thus, another calamity will be financially devastating (Al Kurdi, 2021).

In addition, many developing countries face the dilemma of either following the path of unchecked development without considering the environment or prioritising climate change action, which means slower growth (Prasad, 2018). Jordan is no exception. To face the water scarcity challenge coupled with the impact of climate change on water sources, Jordan realises the importance of managing water resources effectively, which is reflected in the country's most recent National Climate Change Adaptation Plan (Ministry of Environment, 2021a).

Youth are Jordan's most dynamic citizens, as those between the ages of 15 and 30 years old constitute almost a third of the population (The Department of Statistics, 2021). Research suggests that young people do not seem to adopt pro-environmental behaviours more than adults, despite having learned about climate change in school and being aware of its harmful effects from an early age (Ojala & Lakew, 2017). Young adults in Jordan are particularly vulnerable to climate change, which exacerbates already severe economic conditions, including a lack of job opportunities, notably for refugee communities (Oxford Analytica, 2021). And as future leaders, youth will have to address the societal and environmental implications of climate change (Ojala & Lakew, 2017). Thus, they should be empowered and included in the plans shaping Jordan's economic, social, environmental, and political future (Ministry of Environment, 2021b).

In reality, the representation of young people in state institutions remains limited as until 2022, the minimum age of the candidates to the House of Representatives was 30 years old. After endorsing the new Electoral Law (2022), the age of candidacy was lowered to 25. In the most recent elections of 2020, just 10% of the House of Representatives members were under 40 (Al-Azzam, 2020). Underrepresentation of youth in Jordan's legislative and executive branches undermines equal representation and national initiatives to increase youth political participation. This also affects the trust in government as only 31 per cent of Jordanians trust the national government, regardless of age, gender, education, or wealth (Arab Barometer, 2022).

Climate change is a complicated and multidisciplinary issue that requires credible messengers to help people grasp its processes and implications (Howarth et al., 2020). This is related to climate science being comprised of many uncertain and theoretical details that may not be grasped by non-scientific audiences, who generally prefer local, concrete information (Corner et al., 2018). In this regard, social media can present an

opportunity to engage youth and raise their awareness about climate change aspects. As of January 2022, there were 6.85 million active social media users in Jordan (Kemp, 2022). Young social media users in Jordan recognise the importance of social media, especially for connecting with other people (Abu-Shanab & Al-Tarawneh, 2013). Moreover, research has shown that social media can help foster climate change understanding, mobilisation, and conversation and encourage climate action by bringing climate change closer to people and personalising an abstract and distant problem (Anderson, 2017). Hence, climate change communication can be beneficial if framed strategically on social media.

Nevertheless, social media platforms also have their dangers, and climate change communication is not spared as it is a major target of misinformation and fake news (Boykoff, 2011). By spreading climate scepticism and misinformation online, big data can be detrimental to the climate (Treen et al., 2020). Most studies neglect the transient processes driving climate change communication on social media platforms populated largely by non-experts and youth; hence, additional research is needed to understand social media's impact on shaping youth's engagement in climate change (Ojala & Lakew, 2017). Prior research highlighted the significance of values, attitudes, and opinions when engaging youth in climate change (Corner et al., 2015). People may doubt what they can do regarding climate change and if their efforts matter; thus, as research indicates, emotions may be just as important as awareness in driving individuals to act (Moser, 2016).

1.1. Research Objective and Questions

The purpose of this study is to investigate the way in which environmental issues in Jordan are framed on social media, specifically how they are defined and where the emphasis is placed. The overall objective is to determine how these frames perform in engaging one of the most affected groups in the country, the youth, in climate change issues and whether reframing is needed. Hence, the main research question of this study is: How is the framing of climate change issues in Jordan on social media impacting its potential to engage the youth?

Subsequently, two sub-questions were formulated as follows,

1. What are the frames of current climate change communication on social media in Jordan?

2. How does the engaged youth perceive climate change communication in Jordan?

The strategy to fulfil the objective of this thesis is to determine the active participants in climate change communication in Jordan, then understand their framing of the issue, and, finally, examine the perceptions and engagement of the youth in these current practices. In simpler words, the research seeks to understand what makes climate change communication on social media in Jordan (un)successful in engaging the youth and by doing so, the paper can propose recommendations on how the issue at hand may be reframed to include youth in these online communications effectively.

1.2. Relevance

1.2.1. Scientific Relevance

The paper will add to the previous academic literature on social media framing of climate change communication (e.g., Chen et al., 2023; Molder et al., 2022; Ross & Rivers, 2019; Vu et al., 2021), especially in communication not using English as a primary language. Additionally, because the research focuses on challenges relating to climate change and youth engagement, the findings will have ramifications not just for science communication but also for insights into how youth cope with complex problems. As youth are largely ignored in policy-making and future planning, this thesis will help bridge the gap in researching how the framing of climate change issues on social media can impact youth's perspectives and experiences, which will affect them in the long run. In addition, the thesis aims to explore the application of standpoint theory beyond its usual feminist scope by examining the perspectives of young people in relation to climate change communication on social media. This thesis will contribute to the expanding corpus of knowledge on the application of standpoint theory to examine the experiences of less powerful and even vulnerable social and economic groups, as well as their relationships among themselves and with other individuals and organisations. There are numerous approaches to phenomena that can be garnered from the numerous perspectives that can be derived from the various positions and experiences of the group in question. Therefore, taking the issue of climate change communication from the eyes of the youth will help shed light on how science communication and related research can be improved.

1.2.2. Societal Relevance

The findings of the study would empirically expand the existing body of knowledge on the framing of climate change communication to better engage young people in the Arab region and the Middle East in general and in Jordan in particular. The results could benefit local and national policy and decision makers and relevant governmental agencies in Jordan. In addition, this research has the potential to enhance the current practices and efforts of many stakeholders working on the nexus of climate change and youth empowerment, such as the United Nations, international and national civil society organisations, and Non-Governmental Organisations. Insights from the paper may assist communicators in overcoming obstacles in conveying complicated problems while engaging future leaders. Accordingly, the research aims to encourage debates that are more reflective of society and incorporate the perspectives of young activists, whose views may still not be well represented, striving to promote diversity and tolerance. By acknowledging the benefits of solving lesser issues, we can integrate them into mainstream science, and hopefully, related policies can be influenced. This research has the potential to reveal how Jordanian youth might utilise new technology to influence policy and decision-making. Ultimately, I am hopeful that this study can support the young activists and changemakers in Jordan by understanding their narrative for better program planning and advocacy efforts in the connection of climate change and youth work.

1.3. Thesis Outline

Following this introduction, there are six chapters in this thesis report. The second chapter will provide an overview of the research's state of the art in order to contextualise the study case and the primary concepts employed in the report. The theoretical framework for this study will be outlined in Chapter 3, which will include Standpoint theory, Framing theory, and Media Agenda Setting through Social Media. The methodology used to accomplish the research objective is provided in Chapter 4, including the data collection and sampling methods, data analysis, as well as some ethical considerations and methodological limitations. The results of the thematic content analysis of the posts and semi-structured interviews are presented in Chapter 5. In order to answer the research question, the findings are discussed in relation to the theoretical framework in Chapter 6. Finally, the conclusion in Chapter 7 summarises the study's results and proposes potential future research areas.

2. State of the Art of Research

2.1. Climate Change Communication

As the atmosphere and oceans warm, climate change fuels public discussion. Scientists, governments, entrepreneurs, and people all around the world are debating the causes of global warming and how to achieve renewable energy targets. Global media interest in climate change during 2022 declined 11% from 2021, although it increased 38% from 2020 and 7% from 2019, making 2022 the second-highest climate change coverage since 2004 (Boykoff et al., 2023).

Environmental communication, including climate change communication, began in the mid-1980s, and it primarily focused on scientific results, catastrophic weather reports, and high-level conferences or policy discussions (Vavilov, 2019). Nevertheless, nowadays, most countries' news media are making climate change more visible (Barkemeyer et al., 2017). However, it is difficult to communicate climate change knowledge to the public, and learning about climate change does not necessarily influence human behaviour (Dulic et al., 2016; Kollmuss & Agyeman, 2002). People make decisions regarding climate and environmental change based on their emotions, not their knowledge (Moser, 2016).

Recent research on the effects of the media shows that actors, including organisations as well as individuals, who create both controversy and consensus are especially important when trying to figure out how news coverage affects views and attitudes about climate change. For example, agreement consensus on the anthropogenic nature of climate change is a consensus communication pattern (Chinn et al., 2018), while disagreement consensus would be a news article offering just climate science denial. Conflicting evidence calls consensus communication as a science-communication technique into question (Bayes et al., 2023). Some scholars argue that people may not trust experts who take positions contrary to their preferences (Kahan et al., 2011) or react negatively to scientific-consensus messages (Ma et al., 2019). Even if people acknowledge the scientific consensus, they may not change their ideas (Bolsen & Druckman, 2018). These arguments may apply to controversial science areas like climate change, where trust in scientists is low compared to other fields.

The vagueness and extent of climate change can make it hard for people to know what they can do and if their efforts count (Moser, 2016). An increasingly popular way to help engage people is the use of customised climate change visualisations. Visualisation tools that depict climate impacts in a familiar place may help people anticipate possible futures and plan for adaptation (Dulic et al., 2016). Most climate change communication tactics use cognitive motivation to promote pro-environmental behaviour; however, a lot of research focuses on emotions (Nabi et al., 2018). Generally, climate change messages have either evoked fear, guilt, or, more recently, hope and optimism (Moser, 2016). Negative emotions can lower people's ability to act (O'Neill & Smith, 2014). In addition, communication with a negative-then-positive emotional sequence has been shown to improve positive environmental behaviour (Nabi et al., 2018).

According to the IPCC's recommendations, the efficacy of climate change communication is determined by the degree to which the message is of interest and meaning to the audience (Corner et al., 2018). Previous literature covers transformative practices to expand and promote climate science's engagement in policymaking, including initiatives enhancing access to scientific knowledge through research communication or building transdisciplinary research to engage all possible beneficiaries cooperatively (Howarth et al., 2020). For example, one UK study found that climate communicators, including scientists and journalists, felt it was crucial to foster agency and empowerment within their strategies (McLoughlin et al., 2018).

Climate change communication may increase knowledge but not responsibility or willingness to participate in climate change action (Vulturius, 2020). Therefore, there is a need to bridge the gap between science, policy, and action. Climate change communication should be able to foster constructive dialogue and relationships between scientists, the general public, and politicians in order to implement climate solutions (Badullovich, 2023). To enhance public participation, a unidirectional approach must be broadened, and individuals must become active participants in conversations (Badullovich, 2023). Models of two-way communication include debate forums where a small number of actors can engage over time, establish comparable ideas or objectives, and establish boundaries (Leeuwis & Aarts, 2011). Increased public exposure to climate change will increase participation, just as infrequent exposure diminishes the significance of the issue and inhibits behaviour (Geiger et al., 2017b). One way of exposure can be through public deliberation settings among citizens, which are suggested to improve

climate policy dialogue by producing socially acceptable climate policy (Muradova et al., 2020).

Evidence suggests that people are more environmentally conscious when they believe that other people share their ideals (Steg, 2023). Public participation in policymaking, even if indirectly, legitimises government policies, especially on sensitive matters like climate change (Muradova et al., 2020). As acknowledged by place-based methods, climate change communication should be based on local knowledge, experiences, and priorities (Khadka et al., 2021). Solutions that disregard the settings of local, social, and political systems are ineffective because they produce isolated futures. Thus, it is necessary to discuss values, feelings, and daily experiences in climate change communication (Dulic et al., 2016).

Invoking emotions, both positive and negative, when designing climate change communication can prove beneficial. For example, there is a growing corpus of literature investigating the efficacy of using fear in advocacy campaigns' persuasive message tactics (e.g., Chen, 2016; Park, 2020; Armbruster et al., 2022). Fear-based messages may lead people to avoidance or denial because climate change may seem insurmountable, but hope-based messages may be more effective, according to recent literature (Chapman et al., 2017; Hornsey & Fielding, 2020). On the other hand, several academics have proposed that using humour properly to talk about climate change can increase people's interest in the topic (Boykoff & Osnes, 2019; Moyer-Gusé et al., 2019). Literature on humour and climate change shows that humour can raise awareness (Kaltenbacher & Drews, 2020; Ross & Rivers, 2019) and increase engagement (Anderson & Becker, 2018). However, a funny appeal in a frightening message about climate change made younger viewers see a higher risk than older viewers did (Skurka et al., 2022).

Finally, misinformation and scepticism about climate change are becoming more of a problem, with sceptics utilising fake experts as a communication strategy (Schmid-Petri & Bürger, 2022) and dismissing climate scientists as illogical due to ignorance or hysteria and attributing their irrationality to ulterior intentions (Cloud, 2020). In the following parts, a comprehensive exploration of the main concepts of the study will be undertaken, namely climate change, social media, and youth, within the broader framework of climate change communication.

2.1.1. Climate Change and Social Media

Climate change is one of many topics discussed on social media, and online communication can influence offline discussions. Online depictions and discussions of climate change are becoming increasingly critical (Schäfer, 2012; Auer et al., 2014) since the media and public opinion have a substantial impact on climate change engagement (Boykoff, 2011). Social media platforms are designed to enable users to create and share content and engage in conversations (León et al., 2021). Due to the participatory and decentralised character of social media, they reveal previously inaccessible dimensions of climate change communication and social interaction (Auer et al., 2014). Political, economic, scientific, cultural, ecological, and meteorological stories about climate change influenced public and political discourse in 2022 on the national, regional and international levels (Boykoff et al., 2023).

Even though social media is likely to have the greatest impact in nations with high Internet usage, opinion leaders are likely to use it even in nations with low Internet penetration. While mainstream media still covers climate issues, online discussions have expanded as climate scientists use blogs and social media to engage with colleagues, political activists, and the lay public and influence public opinion (Hawkins et al., 2014; Tandoc & Eng, 2017). This complex, pluralistic, and participatory digital media ecology, including social media, blogs, vlogs, and podcasts, in science communication has led to new studies on how the Internet engages different audiences and how stakeholders participate in online debates (Koteyko et al., 2015; Weitkamp et al., 2021).

On the one hand, digital information-sharing networks, including social media, can improve scientific communication by facilitating scientist-public conversation (Schäfer, 2012). Empirical data supports the increase in public-scientist engagement on social media (López-Goñi & Sánchez-Angulo, 2018; McClain, 2017; Jiang et al., 2018). On the other hand, climate change communication "historically has been generic, untailored and untargeted" (Howarth & Black, 2015, p. 506). Due to the crowded digital ecosystem, science communicators are not reaching a high profile in this information landscape, but there is room for them to do so (Weitkamp et al., 2021). Thus, to raise awareness and engagement, climate change messaging and debate must be carefully framed to appreciate all perspectives. Industry, scientists, NGOs, and policymakers compete to frame climate change as per their agendas (Koteyko et al., 2015). These actors are progressively utilising

social media to communicate information and garner support (Schäfer, 2012). Moreover, in some cases, social media was, and still is, used to promote propaganda for both individual and collective interests (Tyagi, 2021).

Accordingly, online climate change communication presents a new potential for communication researchers; however, most climate change communication studies have centred on text-based social media platforms, like Twitter, using extensive quantitative approaches, so future research is recommended to narrow their scope and use qualitative methods to examine the understudied platforms, like Facebook (Pearce et al., 2019; Vu et al., 2021). As climate change communication studies continue to emphasise quantitative content analysis of traditional Western news media, namely, mass media and journalism, there is a need for more international research designs and a broadening of the focus to include politicians, government agencies, nongovernmental organisations, and corporations (Agin & Karlsson, 2021). Social media messaging approaches are not generally operationalised based on a communication theory; instead, many global climate change organisations employ an "emphasising here and now" strategy to widely promote public knowledge and engagement in climate change mitigation (León et al., 2021). Thus, reclaiming climate change's present impact in time and space, i.e., here and now. Climate change interventions describe its consequences, whether through a new scientific finding or general knowledge. However, a study on Quora, an online social question-and-answer site and knowledge market, found that specialised topics, rather than generic knowledge, related to climate change could better raise attention to the issue (Jiang et al., 2018). Thus, research is recommended to examine "whether social media platforms provide space for subjective and normative imaginations of climate alongside the universal, apolitical climate imaginary proffered by science" (Pearce et al., 2019, p. 9).

Here, it is also important to point out that although traditional media outlets have been blamed for promoting misinformation about climate change to some degree, social media platforms are more likely to highlight or permit misinformation (Tyagi, 2021) and to question climate change (Treen et al., 2020). Social media is fertile ground for misinformation since it is used to share news and promote causes, and microblogs appear to have more effect than longer news items owing to their memorability (Lawrence & Estow, 2017).

To counter and neutralise misinformation, related literature examines mainly three methods: correction that immediately contradicts inaccurate details and gives links to sources from experts (Margolin et al., 2018; Vraga & Bode, 2017); inoculation that explains disinformation practices and disproves false reasoning (Compton, 2018; Vraga et al., 2019); and collaboration that engages all stakeholders, including non-environmentalists, and mixes a range of communication methods (Day, 2000; Lawrence & Estow, 2017). While a collaborative approach was found to be recommended for response strategies to misinformation (Lawrence & Estow, 2017), humour in inoculation interventions was found to reduce reactance, i.e., resistance to engage with the intervention (Vraga et al., 2019).

Finally, the information-deficit model of science communication, including climate change, operates on the presumption that any discrepancy between how science is seen and how the general public understands it is due to a lack of knowledge. Accordingly, this paradigm maintains that improving public understanding about the subject will boost support for climate action since the deficit will be overcome if the public accepts and values climate change communication from scientists, and thus, public opinion will support climate action (Suldovsky, 2017). This is in line with the research finding that dispelling myths and encouraging people to take action are two benefits of spreading information about climate change (Guy et al., 2014; Ranney & Clark, 2016). However, data suggests that the information deficit model is partial or even erroneous (Suldovsky, 2017; Ehret et al., 2017). Instead, social and cultural elements, rather than science, impact public opinions regarding climate change and related policies (Ehret et al., 2017; Van Der Linden et al., 2021). For example, gender differences in climate change representation, communication, and governance, including on social media, are increasingly recognised and investigated (Holmberg & Hellsten, 2015; Mavisakalyan & Tarverdi, 2019; Pearse, 2017).

2.1.2. Climate Change and the Youth

Throughout the world, including in the Arab and Middle East regions, social media platforms were employed to create environmental and climate change awareness campaigns, reflecting people's desire to safeguard and sustain the environment (Eskjær, 2017). Social media sites help increase youngsters' understanding of environmental issues, improve climate-related behaviour, and motivate youngsters to take climate action (Hamid

et al., 2017; Duran-Becerra et al., 2020). Due to the Arab region's susceptibility to climate change, the region's young students had direct experience with climate change issues (Eskjær, 2017). A study among university students in Egypt shows that the Internet was their major source of information about climate change by a large margin (Ghanem, 2023).

Indeed, even newspapers and TV networks are embracing social media to reach their audience. Research has shown that people's awareness of climate change discussions has been largely influenced by traditional and social media news coverage (Tume et al., 2018). Likewise, actors in social movements frequently use social media as a mobilising instrument in pursuit of public recognition and to connect with journalistic resources to amplify their message to international viewers (Bergmann & Ossewaarde, 2020) and significantly further their digital activism (Knupfer et al., 2023). For example, the young environmental activist, Greta Thunberg, utilised social media posts to frame messages and drive action, which were widely liked, shared and reacted on (Molder et al., 2022).

However, mainstream news media depict social movement participants from marginalised groups, like youth, as troubling or aberrant and disrupting the state of affairs (Brown & Harlow, 2019). As "dutiful, disruptive, and dangerous dissent," young people help raise awareness of climate change and drive political action via legislation and practises (O'Brien et al., 2018, p. 1). Furthermore, younger generations are frequently neglected in media coverage, associated with negative stories, or portrayed as victims (Vlad, 2017; Kettrey, 2018), and their viewpoints are hardly ever reflected in the mainstream media (Graham & De Bell, 2021).

Accordingly, youth are becoming formidable climate change communicators and activists because of better digital tools and platforms (Bassar et al., 2018; O'Brien et al., 2018; Vavilov, 2019). However, a systematic review of climate change communication and youth found that most research addressing youth engagement with climate change using the media tended to focus on environmental education initiatives for youth, and none of the 284 publications examined how media represented the youth's reporting on climate change (Graham & De Bell, 2021). For example, the pilot project #OurChangingClimate uses social media to engage youngsters in understanding their communities and their resilience or susceptibility to climate change (Napawan et al., 2017).

Although there is a demand for trustworthy climate material on social media and optimistic coverage of the subject, including visuals, which can help boost content impact

(Parry et al., 2022), there is a lack of scientific reliability in the postings made on social media. However, a study exploring 100 TikTok videos with the tag #climatechange, which received over 200 million views, found that only 8 per cent cited credible sources and that the main themes were presenting climate change as real (93%), mentioning affected populations (76%), and climate anxiety (57%) (Basch et al., 2022).

In this context, it is essential to examine the problem of rising climate fear among younger generations. Climate anxiety in young individuals reveals a continuous psychological stressor that may harm their mental health, yet, many young people feel disregarded or rejected when discussing such worries and sentiments (Hickman et al., 2021). Studies have shown that youth feel ignored and excluded when shielded from these discussions (Baker et al., 2021), and they turn to the media, both mainstream and digital, for climate change knowledge (Rousell & Cutter-Mackenzie-Knowles, 2020). Understanding the psychological effects of climate change on young people can help change how we talk about climate change so that different emotional reactions to climate impacts are accepted (Moser, 2016).

The psychological and emotional responses to climate change and the activities of communities are influenced by cultural narratives both globally and locally (Parry et al., 2022). Thus, depending on the cultural orientation of consumers, the effect of social media engagement on pro-environmental behaviour may vary, but in general, social media engagement promotes a responsible and compassionate attitude and behaviour towards the environment (Alsaad et al., 2023).

In the following section, before Before delving into the theoretical and methodological frameworks of the study, it is important to provide an introduction to the case study of Jordan, specifically in the context of climate change issues and communication.

2.2. Climate Change Communication in Jordan

2.2.1. Jordan's Environmental Profile

Summers in Jordan are long, hot, and dry, while winters are brief and cool. The climate is influenced by the proximity of the country to the Arabian Desert and the eastern Mediterranean region. 75% of Jordan is desert, with annual precipitation of less than 50 mm, summer daytime temperatures may exceed 40°C, and winter nights can be extremely

frigid, dry, and windy (World Bank, 2021; Ministry of Environment, 2021b). The majority of Jordanians reside in the northwest region, which receives the most rainfall and has better access to water. The most noticeable repercussions of climate change are water scarcity, desertification, and the depletion of agricultural land caused by extreme temperature and evaporation rises, precipitation declines, and droughts (World Bank, 2021; Ministry of Environment, 2021b). In addition, Jordan has frequent winter flash floods and landslides that may harm people, crops and infrastructure, and due to dry conditions and erratic rainfall, drought is on the rise, which can hurt agricultural productivity (World Bank, 2021).

In addition, the extreme heat and water and resource scarcity increase energy usage and prices; still, Jordan depends on fossil fuel imports because of the lack of alternative energy sources (Ministry of Environment, 2021b). In fact, Jordan imports 93% of its energy, using approximately 8% of its Gross Domestic Product (GDP) and putting pressure on its economy (Ministry of Environment, 2020), leading to Jordan's energy sector being responsible for the majority of CO2 emissions – 76% in 2016 (Ministry of Environment, 2020). Still, Jordan's emissions in 2021 were approximately 2.3 total carbon dioxide (tCO2) per person, making it an average country (Global Carbon Atlas, 2021).

The 2022 Environmental Performance Index (EPI) ranks countries' environmental performance using the latest statistics and analyses how these scores have changed over the preceding decade (Wolf et al., 2022). Jordan's 2022 EPI score is 43.60, with a positive change of 7.80 compared to 10 years ago, ranking 81st (along with Afghanistan and Brazil) among 180 countries and 3rd within the Greater Middle East region, after the United Arab Emirates and Israel (Wolf et al., 2022). This is a significant indicator demonstrating Jordan's commitment to enhancing its environmental performance taking into consideration its context. The Arab region and the Middle East are characterised by stark differences in ecological footprints, natural resources, and political priorities, and climate change has been relegated to the background of public opinion and discourse in favour of more pressing issues, such as political unrest as well as religious and ideological conflicts (Eskjær, 2017).

National and International Commitments

In 1992, Jordan joined the United Nations Framework Convention on Climate Change (UNFCCC) and ratified it in 1993. By the 2015 United Nations Climate Change

Conference (COP21), Jordan, among other countries, submitted its Intended Nationally Determined Contributions (INDCs) to the UNFCCC Secretariat (The Hashemite Kingdom of Jordan., 2015b). Unless a country chooses differently, the INDC becomes a Nationally Determined Contribution (NDC) when it joins the Paris Agreement. Jordan signed the Paris Climate Agreement in April 2016 and ratified it in November 2016, with the agreement entering into effect in December 2016, and in January 2020, it adopted the Doha Amendment.

In the updated NDC, Jordan committed to reducing its GHG emissions by 31% below the 'business as usual' baseline by 2030; only 5% is an unconditional pledge, while 26% is contingent on the availability of foreign financial help and implementation assistance (Ministry of Environment, 2021b). To do so, the NDC highlighted some commitments, among many others, in relation to youth as it emphasised the importance of investing in youth as future decision-makers and key stakeholders who would adapt to climate change via knowledge and empowerment. Accordingly, it highlighted education as a driver for positive change and proposed, among other activities, and proposed (1) creating a standard entry-level education curriculum with new climate change and environmental subjects as a step to empower the youth, (2) launching formal and informal awareness raising campaigns, including through social media, and (3) building a committed national delegation to effectively participate in local, regional, and global climate change negotiations and dialogue (Ministry of Environment, 2021b). Additionally, during COP27, King Abdullah II proposed the Climate-Refugee Nexus Initiative to grant priority positions to countries hosting refugees who are disproportionately affected by the impacts of climate change (Weldali, 2022).

Jordan has several national and sub-national climate policies and plans to strengthen its climate strategy, such as the National Plan for Green Growth (2017–2025), the updated National Climate Change Policy (2022-2050). These plans aim to put these commitments into action. Among many other suggested activities, the policy suggests targeting youth by employing digital media platforms, in addition to traditional media outlets, to conduct outreach campaigns (Ministry of Youth, 2023). In addition, legal regulations relevant to climate change were also improved. The principal environmental law in Jordan is the Environment Protection Law (no. 52) of 2006[1] which did not address climate change until

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[1] In English

late 2014. The revised Environment Protection Law (no. 6) of 2017[2] emphasises the role of the Ministry of Environment in devising policies and programmes to forecast climate change, identify affected sectors, and adhere to international environmental agreements.

2.2.2. Climate Change and the Youth in Jordan

The possibly irreversible hazards caused by climate change will have the biggest effect on marginalised and impoverished populations in the Global South, who have contributed the least to the accumulation of greenhouse gases associated with global warming (O'Brien et al., 2018). Thus, climate change communication and action are essential to environmental research and international policy to protect disadvantaged groups' human rights.

Despite the vulnerability of the Arab region to climate change, the issue continues to receive limited consideration, as evidenced by a shortage of research on the subject (Eskjær, 2017). Schmidt et al. (2013) examined media material from 27 countries between 1996 and 2010 and found that the coverage of climate change in Jordan was only 0.07%, while Australian, Canadian, German, UK, and US publications covered climate change at 15.40%, 5.66%, 8.39%, 14.74%, and 11.02%, respectively. It is worth noting that Schmidt et al. (2013) measured media attention to the issue at hand without defining themes or analysing media coverage subjects, which is a shortcoming of the study.

A recent study on the Climate Action Mandate, conducted by the United Nations Children's Fund (UNICEF) (2020), surveyed 100 Jordanian youth and found that more than 90 per cent of them are worried about climate change, and almost half of them use social media to talk about their worries, while some express their concerns through their communities and schools.

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[2] In Arabic and English

3. Theoretical Framework

In this chapter, the central tenets and relevance of each theory used for this thesis are delineated. The study utilises Standpoint theory, Framing theory and Agenda setting theory to look at climate change communication and youth engagement in Jordan in line with the research objective and questions.

3.1. Standpoint Theory

Standpoint theory seeks to apprise social sciences, improve society, and challenge the power structure by presenting another point of view (Kokushkin, 2014). It was initially developed from Marxist understandings of class relations in capitalism; feminist theorists expanded on the liberating potential of Marxist analysis by identifying consciousness as being shaped not only by the labour process but also by the gendered relationships of the labour process; thus, opposing its reductionist epistemology (Cockburn, 2015). Therefore, standpoint theory examines group communication, power-based behaviour, and social status. In research, it is important to realise that any research has a certain point of view, and a researcher can better fight prevailing ideas about authenticity and accuracy and reclaim legitimacy via alternative discourses (Kokushkin, 2014). Even though standpoint theory is primarily prominent in feminist research, it is an invaluable instrument when it comes to experience-based fields in the social sciences.

Nancy Hartsock (1983) analysed the differences and contradictions between male and female role development, self-construction, and societal expectations, as well as male views that had been constructed and incorporated into society, resulting in incomplete social understandings that excluded non-male experiences and knowledge. This paradigm shift exemplified the social and power formation of knowledge, thereby strengthening feminist standpoint theory. Furthermore, Harding (1986) highlighted gender inequalities in scientific theory and reasoning and suggested that the scientific community should start studying knowledge from the marginalised group's perspective rather than the dominant group, which might generate different findings. The difference in power between the main group and the subgroup is a necessary part of a standpoint. This power differential shapes the subgroup's identities and shared experiences (Rouse, 2009). The youth can be viewed as a marginalised subgroup whose identity is influenced by power or social standing.

Most research on climate change communication is built upon a transmission model, where a message is transferred from a source to an audience, instead of an interaction model where all participants are viewed as co-authors of meaning (Ballantyne, 2016). Here, standpoint theory is vital to provide alternative understanding when mainstream knowledge ignores or excludes unprivileged populations, as it emphasises the experiences and identities of these groups in reforming discourses (Kokushkin, 2014). Literature promotes the idea that youth should be engaged in the process of overcoming their obstacles (MacKay et al., 2020; Thew et al., 2021). In Jordan, although young people represent a large proportion of the population, they are still marginalised and have limited access to opportunities to participate in the country's policymaking and decision-making processes (Milton-Edwards, 2018). Following the standpoint lens, this paper will shed light on how young social media users in Jordan can reclaim their stories and help reframe climate change action and communication online to better address the objective of engaging the youth in climate change issues.

Youth's views can be understood using concepts provided by feminist standpoint theory. For instance, the androcentrism of knowledge identification and production in social sciences was discussed within the standpoint theory to pinpoint the lack of women's perspectives in the field (Harding, 1991). This concept can be adapted to address adultism or reverse ageism when discussing youth's engagement in climate change communication. Adultism can be defined as a partiality against young people by considering adults as superior to the youth and allowing adults to exert power over them (Checkoway, 1996). Within the field of youth engagement in climate change, researchers have examined adultism in practice (Ritchie, 2021) and research (Neas et al., 2022). Evidence suggests that there is a need for youth-centric research extending beyond large youth movements, especially those in the global North and among privileged and largely White youth (Neas et al., 2022).

Another concept that can be adopted is intersectionality. As a black feminist, Collins (1997) discussed standpoint theory in view of societal and historical oppression. Intersectionality emphasises the interrelationships of gender, class, race and disability within complex power systems (Moradi & Grzanka, 2017). Hence, a major principle of standpoint theory is that knowledge is situated (Bowell, n.d.), which means that no one individual or (sub) group can have access to all ways of seeing and knowing and that our interpretations of the world are, in part, reflective of our intersectionalities within various

groups; such as nationality, class, gender, age, etc. Moreover, taking into account sociocultural and geographical settings, power relations, and ideological and sociopolitical struggles can improve assessments of dominating relations, discourses, and practises, as it offers "strong objectivity", i.e., knowledge that is "less partial and less distorted." (Harding, 1991, p. xi).

Moreover, standpoint theory suggests that research should start with marginalised groups' viewpoints since they can perceive things that non-marginalized groups cannot (Bowell, n.d.). Feminist researchers argue for research that works with rather than on participants and promotes progressive social change in order to demolish established hierarchies and power relations in conventional academic research methods (Harding, 2004).This way, the theory emphasises the impact of power on different social groupings. As emphasised by feminist studies, a perspective is not always a direct consequence of one's biology; rather, we can learn to seek out and value the perspectives of others, including those who are marginalised.

All in all, using this theory can help incorporate the perspectives of young people into a larger critique of the social media coverage of climate change in Jordan, as opposed to merely analysing climate change communication on social media over a certain period of time. This approach can serve as an entry point to provide a shift away from the Western viewpoint related to youth engagement and toward a better-contextualised understanding of their experiences within the field of climate change communication, including how they see the current practices, how they communicate among each other and their recommendations to reshape the communication from the different relevant stakeholders to improve their engagement and participation in addressing climate change in Jordan.

3.2. Framing Theory

Framing theory is used in many disciplines, such as sociology (Goffman, 1974), communication (Entman, 1993; Ardèvol-Abreu, 2015), and social movements (Snow, 2013; Benford & Snow, 2000), among others. Framing opposes the idea that humans are logical and unbiased; rather, it suggests that individuals' choices are influenced by how an issue is presented. The notion of framing is based on the idea that storytellers may choose among many possible interpretations, thus determining how to deliver information via

constructed "frames." In other words, people use frames to uncover, interpret, and classify experiences to deal with new information (Goffman, 1974).

Framing describes a collection of communication techniques that the storyteller, i.e., society, uses to create meaning around social issues (Goffman, 1974). Accordingly, frames are considered social constructs that enable individuals to preserve a common understanding of reality (Ardèvol-Abreu, 2015). In addition, frames are mental structures of thought, knowledge, and awareness that allow people to accept either shared or opposing political perspectives, as well as cultural paradigms that can determine how social actors interact with each other and form opinions on issues (Schön & Rein, 1994). When it comes to challenges related to a topic having scientific, social, environmental, economic, and political elements, like climate change, the framing process is crucial for inspiring collective action toward social change (Snow, 2013). Therefore, the framing process aims to resonate with the public or a specific audience, depending on the end goal of the storyteller.

Applying this to social media, users can set their own agenda by conveying what they deem worthy of sharing, whether it is the whole truth, if any, or not. Then, individuals interpret and contextualise the world by creating cognitive frameworks to support decision-making about what is pertinent to them (Goffman, 1974). So, users on social media establish an initial presentation to promote a certain issue, and framing helps analyse social media's interpretation of a topic, i.e., frames, by explaining and underlining salient features of reality (De Vreese, 2005; Entman, 1993).

Framing is seen as the interaction between several components involved in the communication; the producer, the text, the recipient, and the culture, rather than being restricted to the communication piece (Entman, 1993). To understand the interplay between these elements, De Vreese (2005) defines three stages of framing: "frame-building, frame-setting, and individual and societal level consequences of framing" (p. 52). Combining the elements proposed by Entman (1993) and the stages anticipated by De Vreese (2005), Carlan and Ciocea (2016) suggested an approach to framing from a communication perspective. Following this framework, social media acts as a channel between the producer and receiver via the text (and visuals, like pictures and videos) that will influence the culture. In this way, social media can build and set the frame as well as cause consequences for the individual and society. For people who have access to several

information sources and know how to use them, the media is an extra source, while for those with less access and skills, the media can be an educational source (Rimal et al., 2015).
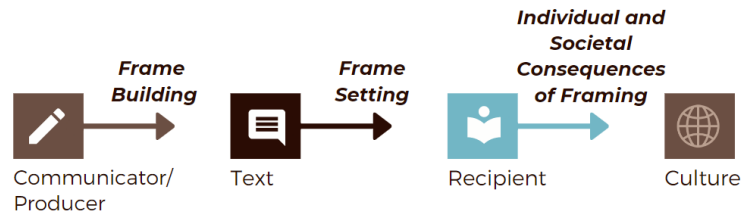

Figure 1: Framing Theory - From Carlan and Ciocea (2016)

In the context of this study, framing relates to how climate change is conveyed to the public, with certain aspects presented more prominently over others to affect public attitudes (Badullovich et al., 2020). The topic of climate change and its implications in Jordan can be framed in multiple ways depending on the different elements of the communication process. This results in many (counter) frames, and it means that frames of the same topic can be diverse and can be changed over time. The way the climate change story is delivered is a vital part of communication, a deciding element in how the audience will perceive the facts and the possibility of their engagement (Nisbet, 2009). Here, reframing comes as an important concept as it involves modifying an existing frame by seeing the topic through other lenses and taking other options into consideration. Reframing is the process of reflecting on a frame to produce fresh perceptions to eventually alter to adequately address the issue in mind (Benammar, 2012).

Reframing can be helpful in unlocking decision-making practice (Schön & Rein, 1994). This paper will use this theoretical lens to identify the different (counter) frames of the current communication practices on social media reporting on the climate change issue in Jordan and analyse them to make sense of whether and how they engage young people. Then, it will endeavour to reflect on these frames to provide suggestions to engage the youth. Given that culture also influences the communicator/producer and taking into consideration that the main population this thesis is focusing on is the younger generation and a generational gap is possibly affecting the framing and reframing of the issue at hand, I will be adapting the linear model into a circular one as in Figure 2.
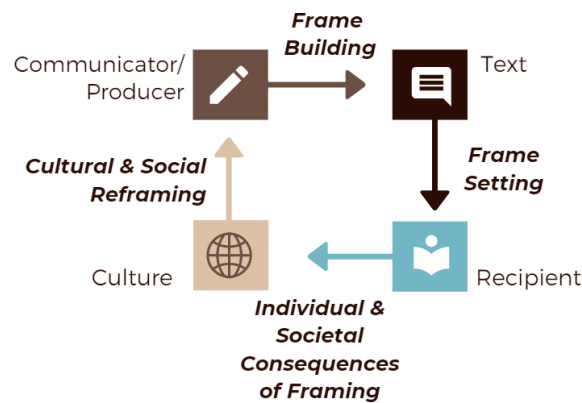
Figure 2: Framing Theory - Adapted from Carlan and Ciocea (2016)

3.2.1. Framing of Climate Change Communication

Media and news coverage of climate change has grown steadily over the last decade, although the rate of growth differs by country (Schmidt et al., 2013). Overall, the routines, regulations, knowledge of climate change, craftsmanship, time frames, limited financial and human resources, or other pressures that guide journalistic decision-making can impact the media's portrayal of climate change, which has both positive and negative effects on global and national climate policy (Swain, 2021). Thus, it has been shown that the frames of communication on climate change vary across countries and throughout time (Schmidt et al., 2013; Schlichting, 2013).

The majority of climate change media studies concentrate on industrialised, developed countries. These analyses suggest that frames of climate change in media coverage are influenced by national factors, like cultural context and extreme weather events (Schmidt et al., 2013), local media systems and journalistic norms (Boykoff & Boykoff, 2004; Schäfer, 2015).

According to research, there are primarily two different narratives about climate change: one that the fossil fuel industry created and another that environmentalists created in an effort to protect the environment, and these two storylines come together to form a single narrative (Swain, 2021).

Empirical evidence evaluating science politicisation suggests an actor-based approach with superfluous references to political actors in science communication and journalism pieces (see Chen et al., 2023; Chinn et al., 2020). This politicisation of science emphasises

governance, control, ownership, and conflicts about competence in decision-making instead of scientific research, with most actors being policymakers (Nisbet, 2009).

When it comes to public priorities and legislation, concerns about the environment are typically pushed to the end of the list in favour of concerns about the economy, health, and security (Molder et al., 2022). Still, in countries where the scientific consensus on climate change is broadly recognised, global institution events such as IPCC reports and UNFCCC meetings and Conferences of the Parties of the UNFCCC (COP) drive media coverage, and most peaks in media coverage correspond with these events (Schmidt et al., 2013), and Arab countries are no exception (Abdellatif, 2022).

In both developed and developing countries, there are a set of prominent frames that have been captured in the media. First, there are the main five frames identified by Semetko and Valkenburg (2000), which are the Attribution of Responsibility, Economic Consequences, Conflict, Human Interest, and Morality Frames. Second, complementing the previous themes, three climate change denial frames were identified by McCright and Dunlap (2000); Scientific Uncertainty, Benefit, and Anti-Regulation Frames. Then, three additional frames were integrated by Pandey and Kurian (2017); Scientific Certainty, National Position, and Human Development Frames.

Within the Arab context, a recent analysis of climate change coverage by Egyptian television channel websites identified five frames: (1) responsibility or commitments, such as after the 2015 Paris Agreement; (2) disaster stressing climate change's imminent threat; (3) political conflict highlighting the role of political actors; (4) economic impacts of climate change; and (5) national solutions urging policymakers to act through national climate change strategies (Abdellatif, 2022). A new frame was identified as the Disaster Warning Frame (number 2).

Another relevant frame to mention is intergenerational justice, which refers to the notion that future generations must compensate for the environmental damage caused by previous generations (UNICEF, 2010), provides young activists with authority, and suggests systemic reforms and mitigation attempts are conceivable (Von Zabern & Tulloch, 2021). In a more recent analysis, eight primary frames, along with the themes of awareness and action, were detected in the climate change discourse on Twitter between 2018 and 2021 (Chen et al., 2023). Some of these frames resonated with the previously delineated ones, and three were added; Emergency Alert, Policy Reforms, and Solutions Frames (Chen et

al., 2023). All in all, there are 17 identified frames for climate change communication, as described in the table below.

Frames have different attributes and impacts that are identified by research. For example, messages that are presented from a gain perspective, i.e., eliciting pleasant feelings, are more successful in increasing hope and positive attitudes towards the mitigation of climate change (Vu et al., 2021). Furthermore, when framed from an economic cost perspective, there is less support for climate change mitigation (de Vries et al., 2016). And institutional effectiveness, which refers to the degree to which an organisation is able to adapt to climate change successfully, has also been operationalised as a message characterisation (Vu et al., 2021).

On their end, young people also depend on framing as a source of unity and moral validity by utilising narratives with victims, heroes, and villains, criticising inertia from institutions and supporting climate change action (Han & Ahn, 2020).

Table 1: Main Identified Frames for Climate Change Communication in Previous Literature

Frame	Meaning	Identified by	Used also by
Attribution of Responsibility	This framing assigns responsibility to a specific actor or stakeholder, such as a government, an individual, or an organisation, for the cause or solution of the issue.	Semetko and Valkenburg (2000)	Pandey and Kurian (2017) Abdellatif (2022) Chen et al. (2023) - in relation to raising awareness
Economic Consequences	This frame talks about the issue in terms of how it will affect a person, group, organisation, area, or country economically.	Semetko and Valkenburg (2000)	Pandey and Kurian (2017) Abdellatif (2022)
Conflict	This frame draws attention by highlighting the conflict between individuals, organisations, or institutions.	Semetko and Valkenburg (2000)	Pandey and Kurian (2017) Abdellatif (2022)
Human Interest	This frame describes climate change from a human or emotional point of view.	Semetko and Valkenburg (2000)	Pandey and Kurian (2017)
Morality	This frame puts the issue in religious or moral terms.	Semetko and Valkenburg (2000)	
Scientific Uncertainty	This frame revolves around the notion that the evidence for climate change is insufficient and possibly false.	McCright and Dunlap (2000)	Pandey and Kurian (2017)

Benefit	This frame depicts the issue as beneficial in terms of quality of life, health, and/ or agriculture.	McCright and Dunlap (2000)	Pandey and Kurian (2017)
Anti-Regulation	This frame highlights the negative consequences of climate change measures and policies on the economy, national security, sovereignty, and/ or the environment.	McCright and Dunlap (2000)	Pandey and Kurian (2017)
Scientific Certainty	This frame stresses that climate change is a scientifically proven issue that should be addressed.	Pandey and Kurian (2017)	
National Position	This frame highlights a country's climate change policies and attitudes.	Pandey and Kurian (2017)	Abdellatif (2022) Chen et al. (2023) - in relation to calling for action
Human Development	This frame focuses on topics related to sustainable development, including health, social and economic aspects of human life.	Pandey and Kurian (2017)	Chen et al. (2023) - in relation to calling for action
Disaster Warning	This frame emphasises the immediate danger that climate change poses.	Abdellatif (2022)	Chen et al. (2023) - in relation to raising awareness
Intergenerational Justice	This framing underlines that future generations must pay for past environmental degradation.	Von Zabern and Tulloch (2021)	Chen et al. (2023) - in relation to raising awareness
Emergency Alert	This frame aims to raise awareness of the urgency of the issue.	Chen et al. (2023)	
Policy Reforms	This frame calls for policy changes related to the issue.	Chen et al. (2023)	
Solutions	This frame recommends solutions such as using alternative power sources.	Chen et al. (2023)	

3.3. Media Agenda Setting through Social Media

Maxwell McCombs and Donald Shaw's Agenda-Setting Theory states that mass media can shift news topics from the media agenda to the public agenda. Policymaking and representational accountability are affected by media and public agendas. The public's priorities shape the government's policy agenda (Kingdon, 1984). Mass media shape public opinion by covering certain stories over others (McCombs & Shaw, 1972). Its most well-known premise is that the press "may not be successful much of the time in telling

people what to think, but it is stunningly successful in telling its readers what to think about" (Cohen, 1963, p. 13).

In this sense, media agenda can be defined as "the pattern of news coverage across major print and broadcast media as measured by the prominence and length of stories", and public agenda can be defined as "the most important public issues as measured by public opinion surveys" (Griffin, 2012, pp. 379-380). Framing is one of the most important concepts introduced to the theory in the 1990s, referring to how the media presents news to the general public. Figure 3 illustrates how Agenda-Setting Theory works. The media select a social "reality" to cover and determine the story's framing for public consumption. The media coverage of "Reality" influences individuals' "perception of reality."
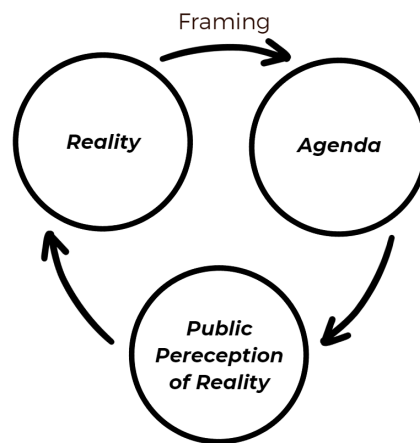
Figure 3: Agenda-Setting Theory

Throughout the broadcast period, there were few media outlets, and they were able to reach a large number of people, and as a result, they wielded enormous influence over the public agenda. Today, social media allowed everyone to produce and upload content online and connect electronically. This resulted in many more media sources, and the ability of the mainstream media to set the agenda may have decreased (Groshek & Groshek, 2013) as digital and social media changed the media ecosystem, making it unclear who influences whom as well as allowing media consumption to be personalised to individual audience members' preferences, threatening the mass media's long-held ability to dictate the public agenda (McCombs, 2005). According to intermedia agenda-setting theory, media agendas flow from the media to the public as well as between media outlets (McCombs et al., 2014).

Audience fragmentation refers to the shift from broadcasting to vast audiences to niche media reaching targeted audiences, which influences political behaviour and public opinion. The broad spectrum of digital media can lead to numerous agendas among the public, thereby ending agenda-setting as we know it (McCombs, 2005). As a result, a public without a common agenda may be difficult to unite and take collective action since its members disagree on society's most pressing challenges (Chaffee & Metzger, 2001). On social media, algorithms can facilitate audience fragmentation even more, producing "filter bubbles" which restrict the content that individuals are exposed to depending on their previous searches and interests (Pariser, 2011).

In addition, research shows that social media content may set the agenda by raising awareness and perceived significance of the topics among individuals (Feezell, 2018). A recent study of agenda-setting literature suggests that as the change to social media platforms has increased, so did study interest in agenda setting through social media, notably in intermedia agenda setting and recommends that future academics focus on media other than newspapers and Twitter (Su & Xiao, 2021).

In the Arab region, it is argued that digital and social media were key to the Arab Spring, as social media makes it feasible for people to organise outside of government-controlled spaces and create social movements around identities and political issues. Even though social media has facilitated the voicing of marginalised voices, online activism, and some reshaping of news agendas, it is important not to overstate the influence of social media in the form of 'euphoric arguments' overestimating the effects of social media on politics in the Arab region (Badr, 2015). Instead, there should be more in-depth and balanced research on social media and democratisation in the Arab region, as the impact of social media can be complex and unpredictable (Badr, 2015).

This study will employ the second level of agenda-setting theory, i.e., framing theory, to acquire an understanding of the media agenda for climate change on social media in Jordan. Then, the standpoint theory will be utilised to have a deeper grasp of how the young perceive this framing. Based on this theoretical framework, framing theory will help us understand the agenda of the media on climate change issues, and standpoint theory will help us delve more into the youth's perception of this reality, which in turn will help us understand the overarching reality of the youth in Jordan in relation to climate change.

4. Methodology

This section discusses the methodology employed to conduct the study, including the data collection and sampling methods, analysis tools, and potential limitations of these techniques.

The study is exploratory and interpretive. Thus, a qualitative research design was used to collect and analyse data to deliver on the goals of the research since such a methodology concentrates on understanding the meanings that individuals attach to practices and activities, with less concern for generalisation (Bryman & Bell, 2003). This is clear in the research question, which revolves around the current frames applied specifically to portray climate change issues in Jordan and their potential to engage youth. In addition, the context requires an interpretive analysis that emphasises the relevance of meaning in social settings and daily notions and investigates concepts emerging from the field (Schwartz-Shea & Yanow, 2012, p. 38).

4.1. Data Collection and Sampling

Two sub-questions were developed to answer the research question, and each sub-question was addressed using a different method for data collection and analysis. An elaboration of the methods and rationale follows.

4.1.1. First Sub-Question: Current Frames

This first part of the thesis aims to contextualise the study regarding the current frames of climate change communication on social media. Therefore, this study used content analysis of Facebook posts by the relevant Jordanian actors to understand how they communicate climate change on the most popular social media site in the country. According to StatCounter (2023), 85 per cent of Jordanians who had access to the internet used Facebook in 2022 (See figure 4). In addition, according to Meta's advertising resources, Facebook's ads reached 76 of Jordan's internet users in early 2022 with 5.25 million users (Kemp, 2022).
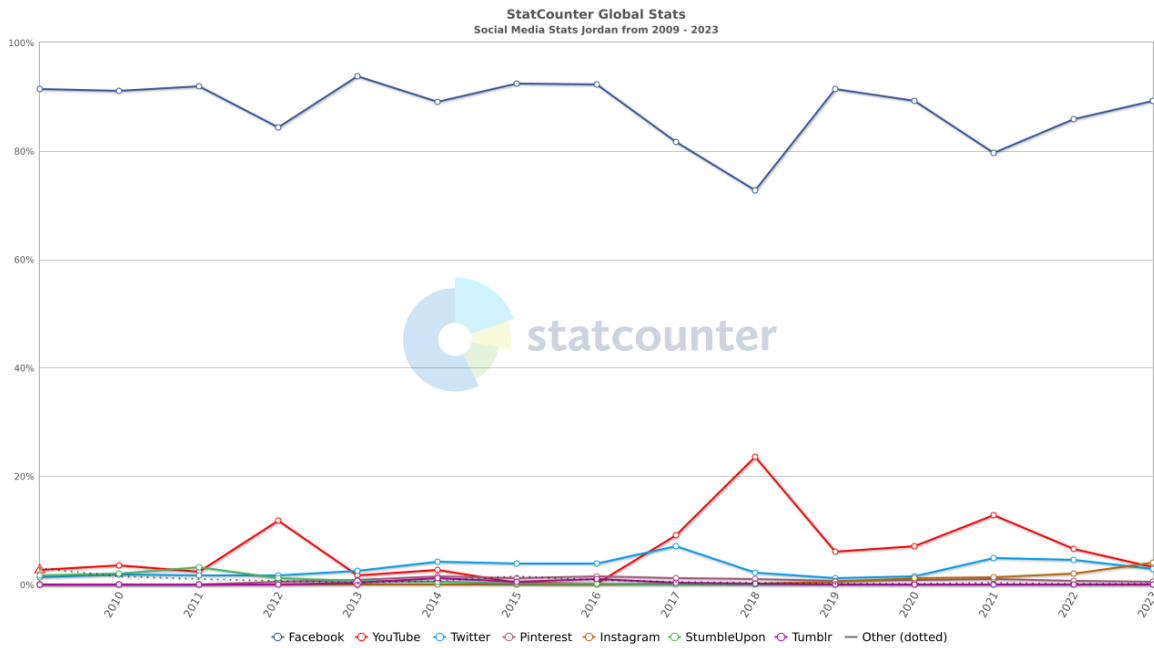
4.1.1.1. Mapping Active Actors on Facebook

A desk review was conducted to map the current actors in the field of climate change in Jordan with an active Facebook presence. These actors included governmental entities as well as local, national, regional, and international civil society organisations. Additionally, there were individuals, such as influencers. Green celebrities or greenfluencers have become major speakers and campaigners for climate action (Anderson, 2013; Knupfer et al., 2023). Figure 5 summarises the results,

In short, there were international and Jordanian actors. International actors included UNICEF, the United Nations Development Programme (UNDP), the German Agency for International Cooperation (GIZ), and ActionAid.

Since the focus of the study is climate change on the national agenda, only Jordanian actors were considered for the content analysis. They could be categorised as below,

1. Governmental institutions that are directly relevant to climate change issues in Jordan. These included the Ministry of Water and Irrigation (MoWI), the Ministry of Agriculture (MoA), and the Ministry of Environment (MoE). In addition, since this study is investigating youth's perception of climate change communication, the Ministry of Youth (MoY).

2. Jordanian Civil Society, including Non-Governmental Organisations (NGOs) as well as smaller youth initiatives focussing on climate change. A brief overview of each one is below,

Table 2: Overview of the Main Active Actors on Facebook working on Climate Change Issues in Jordan

Type of Institution	Name and Website, if any	Abbreviation and Facebook Page	Scope of Work	Followers
NGOs	EDAMA Association	EDAMA	Innovative Solutions for Energy and Water Sectors	13K
	Generations for Peace	GFP	GFP has a dedicated programme on engaging youth in climate action "SAWN"	31K
	Jordan Green Building Council	JGBC	Renewable Energy and Green Buildings	26K
	Methods for Irrigation and Agriculture	MIRRA	Development of the Agricultural and Water Sectors	2.4K
	Royal Scientific Society	RSS	Research and Innovative Solutions	22K
	WADI for Sustainable Ecosystems Development	WADI	reforestation for climate resilience and water security	8.7K

Youth Initiatives	Dibeen for Environmental Development	DED	Environment Conservation	9.9K
	EcoYouth Jordan	EYJ	Environment Conservation.	1.8K
	Youth for Climate Jordan	YCJ	Awareness Raising. Their most recent project is a podcast funded by UNDP.	562
Government	Ministry of Agriculture	MoA	Agricultural Sector	57K
	Ministry of Environment	MoE	Interministerial Focal Point for Climate Change	25K
	Ministry of Water and Irrigation	MoWI	Water Sector	70K
	Ministry of Youth	MoY	Youth	158K

3. Active individuals in the field: they were many, and since the scope of the study is to explore the wider agenda, the focus should be on institutionalised efforts.

Following a consultation call (17 April 2023) with a national climate action specialist (KI 00) working with youth at an NGO in Jordan, the validity of decisions regarding the choices of the social media platform and active institutions was confirmed.

4.1.1.2. Data Preparation

The identified pages were closely reviewed to identify relevant posts. Since Arabic is predominantly used, this was done manually, and a database was created containing the actor, post, date, time, link, and any images or videos. The relevancy of the post was decided based on whether the post contained any mention of climate change or related issues or solutions. The time frame was from 1 March to 25 June 2023 so that the posts would coincide with the interviews with the engaged youth (see the next section) as closely as possible. A total of 326 posts were collected.

Table 3: Number of Total and Relevant Posts per Actor

Institution	Relevant posts				Total Posts				Rate of Relevant Posts	Total Relevant Posts
	March	April	May	June	March	April	May	June		
EDAMA	13	3	3	2	15	5	7	3	70%	21
GFP	15	9	3	3	45	33	28	25	23%	30
JGBC	10	1	6	7	13	3	10	7	73%	24
MIRRA	5	1	1	1	5	2	4	3	57%	8
RSS	3	5	3	1	13	16	13	8	24%	12
WADI	6	2	4	3	9	4	6	6	60%	15
DED	10	4	6	4	10	4	6	6	92%	24
EYJ	2	2	3	1	3	3	3	1	80%	8
YCJ	8	5	5	2	8	5	5	2	100%	20
MoA	16	9	16	10	39	22	70	35	31%	51
MoE	6	5	21	9	13	7	28	13	67%	41
MoWI	31	5	19	10	68	23	54	44	34%	65
MoY	2	1	0	4	121	210	47	57	2%	7

The program ATLAS.ti, an automated qualitative data analysis software, was utilised to help in finding and sorting code-related text segments. This systematic approach avoided anecdotalism and cherry-picking (Kuckartz, 2014). This ensured that the data analysis was complete and representative.

4.1.2. Second Sub-Question: Perspectives of the Youth

To answer the second sub-question, I conducted a series of semi-structured interviews with engaged youth in Jordan to explore their experiences and perceptions of the current communication frames as well as their usage of social media for climate change communication. These interviews also helped formulate recommendations and suggestions to reframe the issue for better engagement of the young social media users in Jordan.

The sampling technique was purposive to allow the researcher to actively pick participants based on their broad understanding of the topic (Keyton, 2006). The eligibility criteria for the participants were a young person living in Jordan, aged between 15 and 30 years old, and actively engaged in activities related to climate change for at least a year prior to the interview. A preliminary list of seven engaged youths was shared by KI 00 after the

consultation call. The nominees were all contacted, and five agreed to the interview. Then, a snowball technique was used, and a total of six interviews were conducted. These were online interviews, since all the activists are based in Jordan, and lasted approximately 60 minutes. In the table below, there is an overview of the participants; however, to ensure detailed and truthful responses, the interviewees were granted anonymity and confidentiality for their responses.

Table 4: Overview of the Interview Participants

	Age	Gender	Governorate	Region	Urban/ Rural	Education	Activism Focus	Nationality
KI-01	21	Female	Balqa	Centre	Urban	Still Studying - BA Biology	Solid Waste Issues	Jordanian
KI-02	26	Male	Zarqa	Centre	Rural/ Badia	Still Studying - Highschool Diploma	Water Issues, Solid Waste Issues, and Carbon Footprint	Syrian
KI-03	25	Male	Jarash	North	Rural	Still Studying - BA Civil Engineering	Youth and Women's Empowerment	Jordanian
KI-04	27	Male	Jarash	North	Rural	BA Agricultural Engineering	Agricultural Issues	Jordanian
KI-05	28	Female	Balqa	Centre	Rural	BA Management Information Systems	Agricultural Issues	Jordanian
KI-06	30	Male	Irbid	North	Rural	BA Civil Engineering	Water Issues	Jordanian

After the interviews, a follow-up consultation call with KI 00 (27 July 2023) was carried out as a means of gathering further specialised information.

4.1.2.1. Saturation

Unlike other sampling methods, purposive sampling determines saturation by the rich data each participant is anticipated to provide instead of the number of interviewees. Therefore, saturation is met when the researcher accumulates a thorough comprehension of the issue at hand. As the sample size in qualitative research depends on data quality and application, it is necessary to continue sampling until the researcher finds no new information or experiences theoretical saturation, which entails continuously assessing the data and drawing conclusions (Sandelowski, 1995). The goal of this study is to reach a priori thematic saturation, i.e., the extent to which the data supports the identified codes or

themes (Saunders et al., 2018). On the one hand, this method helps researchers grasp existing theory's conceptual codes. On the other hand, an inductive thematic saturation allows the research to identify new codes or themes that may lead to new knowledge (Saunders et al., 2018).

4.1.2.2. Interview Structure

The interview structure was designed in English and translated into Arabic since the interviews were conducted in the native language of the participants for easy understanding and elaboration. The full interview structure can be found in Appendix 1. The interview structure was validated with a pilot interview. Testing the guide helps in the identification of problems and the refinement of its reliability (Abd Gani et al., 2020), gives credibility and dependability to the research (Malmqvist et al., 2019), and allows the researcher to analyse the level of observer bias (Creswell & Poth, 2017).

4.1.2.3. Data Preparation

Data analysis requires transcribing the audio to text; however, verbatim transcription can be time-consuming, expensive, and susceptible to mistakes (McMullin, 2023). Thus, decisions about word choice, syntax and grammar will be made by the transcriber, and transcriptions may become different from the audio data. This also includes considering other verbal and non-verbal cues like laughing and sighing. All of which could affect the analysis.

To surmount these challenges, I utilised live coding, which can be done by listening to the audio, marking key times where elements of the research questions were discussed and transcribing only the relevant sections for the analysis (McMullin, 2023). Listening to the recordings repeatedly in each analysis phase helps in hearing the conversations precisely as they happened, which maintains "the voice of the participant" and allows the findings to reflect the motives, details, and perspectives of the participants' wording (Parameswaran et al., 2020, p. 630). I identified relevant excerpts from the recordings coupled with their timing and transcribed these portions.

4.2. Data Analysis

Qualitative content analysis, a common method used in media and communication studies to categorise text passages, was utilised to analyse the data (Puppis, 2019). The data from both techniques were analysed separately to create conclusions by identifying, coding, and categorising themes. This approach requires in-depth qualitative data analysis to identify themes and patterns, which helps organise stakeholders' ideas on the topic (Mayring, 2014).

A code is "most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (Saldaña, 2013, p. 3). A theme is a pattern that appears repeatedly throughout the data and is structured around a key idea (Braun & Clarke, 2006). Coding involves classifying data using labels that condense each part (Boeije, 2009). After transcription and code orientation, three steps of coding were employed: initial, axial, and selective coding.

This kind of analysis is iterative in nature since it calls for revision and improvement as the study progresses to better understand the findings' structure. As qualitative content analysis employs multiple methods for systematic text analysis, it can preserve the methodological advantages of quantitative analysis and permits a mixed methods approach involving inductive and iterative categorisation of text as well as quantitative frequency analysis (Mayring, 2014).

I started the analysis with the identification of the basic unit of analysis, i.e., the theme of the text segments, and then focused on interpreting these text segments. The content analysis used both inductive and deductive coding (Fereday & Muir-Cochrane, 2006). The inductive codes were taken from the literature review done earlier, namely the list of frames found in climate change communication (Table 1). These frames were used as themes since a thematic content analysis instead of a framing analysis.

In addition to theory-driven coding, content-driven deductive codes were used. Trial coding was used to confirm the comprehensibility and viability of the deductive codes. Additionally, to provide a more specific and contextual interpretation of the major themes, subcategories were inductively developed (Puppis, 2019). This process included categorising text parts or establishing new ones until no new (sub)themes emerged and

until the data was found to properly answer the research questions. A codebook was created from the preset codes based on the theoretical framework as well as the textual data-based codes (Appendix 2). For each (sub)theme, the codebook includes a descriptive example to help assign text segments to the different themes (Puppis, 2019). Finally, I summarised the data under each (sub)theme to highlight key points and eliminate redundancy.

4.3. Quality of Research

This is an exploratory and interpretive study seeking to comprehend unknown human elements without simplifying them quantitatively. Therefore, validity, reliability, and generalisability do not fully apply here. Instead, trustworthiness is used as the criterion to ensure the quality of research so the readers can rely on the results. This study revealed comparable as well as opposing perspectives and life experiences. As a result, the researcher should ensure trustworthiness by providing enough detailed descriptions and argumentation rationale, interacting with different views and consulting additional sources to improve the interpretations and review inconsistencies (Schwartz-Shea & Yanow, 2012). Accordingly, I presented the findings showing my analytical process and made sure to consult not only literature but also specialists in the field.

Moreover, several measures were implemented to enhance the reliability and validity of the study. In addition to engaging in consultation calls with a recognised climate action specialist working with engaged youth in Jordan, I conducted multiple reviews of the collected data throughout the analysis and synthesis of findings. These steps were taken to ensure the accuracy of the interpretations made, thereby faithfully representing the experiences and perspectives of the participants. In addition, I made efforts to strengthen the research's trustworthiness by considering transferability. Transferability measures how well the findings may be applied to different situations and can be accomplished if the researcher provides thick and thorough descriptions of the research methodology by the researcher (Kumar, 2011). In this thesis, I provided a detailed account of my methodology and experience during data collection and analysis.

4.3.1. Positionality and Reflexivity

This methodology was necessarily informed by my own standpoint as a researcher and as a Jordanian woman. As Margaret Hughes (2018, p. 41) puts it, "As a human being, and as

a researcher, I believe myself to be part of a social world, or community, I am not separate from it." Therefore, my positionality was considered because a scholar's background and position influence the research topic, how they examine it, the techniques they use, the results they get, and how they communicate them (Malterud, 2001). This requires a critical reflection on my assumptions and biases, which have an impact on the research. Thus, the researcher has to be vigorously involved, attentive, and open about the difficulties that might arise as a result of their cultural and social backgrounds (Milner, 2007). Overall, my positionality as a researcher is vital in all aspects and steps of researching and writing the thesis, as it may affect how a study is conducted and published since the researcher picks which voices to include (England, 1994). I am aware of my positionality in this study, but I believe that the benefits outweigh the limitations, as I speak the language and understand the context closely.

4.3.2. Ethical Considerations

Measures were taken to ensure research ethics were considered in several ways. Researchers must act ethically, taking into account their objective standards, the research context, and the participants' values. Thus, researchers must decide what is and is not suitable in certain instances and defend their decisions with valid arguments (Hammersley & Atkinson, 2007).

The first part of the study follows the recommendations for Facebook-related qualitative research by using 'passive analysis' by analysing information patterns in pre-existing content without researcher engagement (Franz et al., 2019). To ensure delicate handling, I utilise only public data and assume users have knowingly shared the content on a public platform (Kosinski et al., 2015). All the posts were taken from public Facebook pages of institutions and initiatives.

Another measure was ensuring the informed consent of the participants in the interviews feeding into the second part of the study. Prior to conducting interviews, participants were given a comprehensive overview of the study's purpose. In addition, they were informed where their data would be used and reassured that all data would be deleted after the research and that their responses would remain confidential. Interviews were recorded with informed consent for accuracy and extensive analysis.

4.3.3. Limitations

As mentioned earlier, a limitation of qualitative studies is lacking external validity (Puppis, 2019). Thus, this research cannot be statistically generalised to other contexts, but it can nevertheless contribute to advancing knowledge within a theoretical field (Matthews & Ross, 2010). A further limitation is the likelihood of sampling bias in participant selection as the preliminary list of engaged youth came from one source, and all the interviewees came from the Northern and Centre regions in Jordan. A more diversified sample from governorates, especially the South, may have provided a better picture of the issue. However, the aim of this research is not to be representative but rather to examine the public communication on Facebook with regard to climate change in Jordan and provide an overview of the local context within this field.

5. Results: Analysis of Empirical Evidence

This section presents answers to the research questions through the qualitative analysis of the posts and the interviews with the engaged youth. I will start by presenting the media reality extracted from the thematic content analysis of the Facebook posts on Climate Change. Then, I present the youth's perception of the media reality by discussing the main themes that emerged in the interviews with the engaged youth.

5.1. Content Analysis of the Facebook Posts

The first research sub-question asked, "What are the frames of current climate change communication on social media in Jordan?" Accordingly, I will discuss the frames dissected in the thematic content analysis of the identified relevant Facebook posts published between 1 March and 25 June 2023 by the principal actors named in the mapping, a total of 326 Facebook posts.

In general, the analysis focused on the framing of the climate change issue; therefore, the coding was derived directly from the main identified frames for climate change communication in previous literature. Before delving into the main themes, I will give a general overview of defining elements for governmental and civil society posts. To illustrate the themes, I will use examples from the posts, which will be direct translations from Arabic unless otherwise specified.

5.1.1. Governmental Institutions

164 governmental posts were analysed. These posts were published by the governmental institutions directly relevant to climate change issues or youth in Jordan, i.e., MoWI, MoA, MoE, and MoY. It is worth noting that the posts from the ministries amounted to half of the total of the analysed posts (164 posts). All of these were only in Arabic. This may indicate that the target audience is mainly a local, or at most a regional, audience. Overall, the majority of the posts were lengthy, approximating press releases; the average word count was 264, and the longest post was 1,129 words long. Therefore, the central theme(s) of the post was not always clear; instead, it would contain many themes. Finally, even though it is beyond the scope of the study, it is noteworthy that the posts generally

contained few or no hashtags and/or visuals, which may have made them less noticeable in a user's feed, and specifically, MoA has limited who can comment on the posts.

5.1.2. Civil Society

In this section, I will present the findings from the 162 posts published by the identified actors from the Civil Society in Jordan. The posts from the non-governmental organisations were less uniform. In terms of language, all Climate Change Specific Youth Initiatives used Arabic; EYJ and YCJ were Arabic-only, whereas DED used both English and Arabic in each post. As for the bigger organisations, MIRRA and GFP mostly used English, with only one and two posts, respectively, in Arabic, and the rest used Arabic mainly but had some posts in English.

There was mostly consistent and continuous use of the same hashtags for each organisation, reflecting the main topics of different projects, campaigns, and relevant stakeholders. The only exceptions were two of the youth initiatives, EYJ and YCJ, which used hashtags in only one and two posts, respectively. Most posts had images or videos, and no-visual posts had links to websites with an image.

Even with different focuses, all the organisations celebrated environment-related days with posts on climate change, and some pages linked national and international holidays with climate change action, like Jordan's Independence Day (DED and WADI), Women's Day (EDAMA and WADI), and Father's Day (WADI). The posts from civil society had relatively more posts encouraging their audience to share their experiences and opinions, notably, DED and GFP.

5.1.3. Main Themes

Table 5 is an overview of the main themes of the governmental posts in descending order of the number of posts featuring that theme. Elaboration of the findings is discussed below.

Table 5: Main Themes of the Posts with Frequency of Occurrence

Theme	Civil Society	Government	Total
Attribution of Responsibility	89	97	186
National Position	18	125	143
Solutions	72	39	111
Human Development	77	26	103
Human Interest	36	1	37
Morality	5	25	30
Benefit	14	11	25
Disaster Warning	18	2	20
Intergenerational Justice	8	6	14
Scientific Certainty	4	5	9
Policy Reforms	3	2	5
Economic Consequences	0	3	3

Attribution of Responsibility

This theme describes the assignment of some responsibility to a specific actor in relation to a climate change issue. Overall, it was one of the most pronounced themes within the posts, ranking second when analysing the government posts and first among the civil society posts separately, with a tally of 97 and 89 posts, respectively.

Individual Responsibility. This sub-theme assigns responsibility to the individuals in Jordan. It was done in standalone posts, such as,

"...On the occasion of #InternationalWaterDay, take part in the global campaign that aims to encourage action to solve the water crisis by creating a list of personal commitments in the following link…" - YCJ (22 March 2023)

This theme appeared in awareness-raising campaigns, for example, MoWI's 3-week digital campaign (between 20 March and 8 May 2023) on the role of the individual in not

wasting water and maintaining water resources. Another campaign was more of a call-to-action campaign by MoE, who utilised their page (between 18 May to 4 June 2023) to mobilise efforts to clean public spaces in the different governorates in collaboration with local municipalities to celebrate World Environment Day. Excerpts of the posts are below,

"... the Ministry of Environment... becomes grateful and appreciative... directing its invitation to all citizens and all their social groups to the necessity and importance of active participation in the success of the activities of this campaign..." - MoE (18 May 2023)

- MoWI (22 March 2023)

This post does not have any text; only this poster of a famous cartoon strip character, Abu Mahjoub, saying the motto of the campaign.

Some government posts attributed responsibility to individuals by showing the legal consequences of anti-environmental behaviours, such as building wells without the permission of MoWI; the post would describe the violation and the ministry's action and calls for the citizens to report any similar acts. For instance,

"The wells were backfilled, and reports related to the incident were prepared to take legal measures against the aggressors, appealing to everyone not to be complacent in reporting any violations or abuses in the interest of the water situation and the continuity of supply to citizens..." - MoWI (2 March 2023)

Finally, within this theme, there were posts with seasonal advice for hikers and park-goers since the timeframe of the sampling corresponded with the Spring season in Jordan. For example, some MoE's posts included seasonal advice on preventing wildfires and

avoiding littering, and citizens were entrusted with the responsibility of paying attention to all of the safety precautions. The same goes for an awareness-raising Campaign by DED around preserving national biodiversity, which contained everyday advice for people visiting parks and forests.

Organisations Responsibility. This sub-theme includes assigning roles to national, regional, and international organisations. In both categories, these posts can include collaborations and coordination with other parties, like,

"...#WADIJordan, along with our partners, are working towards restoring some of the degraded lands to ensure they continue to sustain us when we celebrate our 100th and 200th Independence Day…" - WADI (25 May 2023)

In the governmental posts, this theme is put in the context of supporting the government in its efforts to address climate change. For instance, after meeting with an official from another country, in posts reporting on workshops with an international organisation, or after reporting attending a conference. Posts under this sub-theme typically illustrate the next steps and an outlook of future efforts. Below are some examples,

"This memorandum will work to consolidate cooperation between the Ministry of Agriculture and the Himma Wa Lamma Initiative ... under the umbrella of the Jordan Association for Inbound Tourism, with the aim of increasing the green area in the Kingdom…" - MoA (9 March 2023)

"The minister, Al-Radaida presented to the guest ambassador the initiative launched by His Majesty King Abdullah II at the COP-27 conference on the climate-refugee nexus and the need for international efforts to support it to implement its important pillars." - MoE (31 May 2023)

This sub-theme was mentioned in civil society posts in the context of the organisation reporting on their own operations or future steps as self-assigned responsibility, such as,

"On #WorldEnvironmentDay, we are proud to announce our ongoing dedication to achieving a net zero carbon footprint since 2019 at Generations For Peace…" - GFP (30 May 2023), in English

State Responsibility. These posts generally describe the next steps the government is going to take in order to ensure continuity of efforts and illustrate their progress in

achieving the goals of the different strategies and policies. In addition, this responsibility is sometimes demonstrated in the context of Jordan's adherence to the national commitments to which it has pledged.

"... The two sides agreed during the meeting ... to take practical steps to deal with these challenges within a framework of sustainable development, in addition to emphasising the continuation of cooperation between the European and Jordanian sides, through the existing cooperation platforms in the Union for the Mediterranean (UFM) and cooperation in the work of the upcoming climate conference COP-28…" - MoE (26 March 2023)

Posts from civil society did not contain a direct assignment of responsibility to the state. Instead, the post would read something like, 'States should do this' or 'Let *us* do that'. For example,

- DED (10 April 2023)
The highlight was added

National Position

This theme, with 143 total posts, describes Jordan's climate change efforts, including policies and attitudes, and features governmental officials discussing current, past, and future practices and collaborations to address climate change issues.

It was the most prevalent among government posts, as 125 posts (76 per cent) had it as one of the post's significant themes. Posts under this theme primarily described Jordan's policies and attitudes regarding the different climate change issues. The two first themes coincided together in 59 governmental posts; this may suggest that the post emphasises the government's position to apportion responsibility for a climate change issue to a specific stakeholder.

National Plans and Strategies. Posts reporting on the current implementation or preparation of national plans, strategies, and laws explained the rationale behind the current and future activities and the government's priorities. For example,

"... Al-Mahamid indicated that the holding of these workshops is to identify the challenges and factors that hinder water conservation in the agricultural sector and to lay the practical foundations for the national plan for water conservation in agriculture, as it is an essential pillar for achieving food security..." - MoWI (12 June 2023)

This type of traditional reporting and official communication from the government to the citizens highlights the country's stance towards addressing climate change in the different impacted sectors, including explaining future steps. For instance,

"... Advisor to the Minister of Water and Irrigation said that the strategy includes several pillars, the most important of which is reducing water losses, implementing the national carrier project, providing sustainable sources, and implementing strategic national projects..." - MoWI (21 March 2023)

Appreciation of local, regional, and international cooperation. This sub-theme included posts highlighting the government's gratitude for the efforts being made to address climate change issues, with a focus on funding from international organisations and other countries. For example,

"... the governor of Jerash praised the existing and supportive bodies for the establishment of the project, stressing the importance of afforestation to face the conditions of climate change and the fluctuation of the rainfall rate..." - MoA (13 June 2023)

This sub-theme illustrates the relationship and exchanges between governmental entities on the one hand and the local private sector and international society on the other, which

are often connected to future plans and focused on emphasising long-standing partnerships and previous collaborations.

Attitudes. These are posts defining the government's attitude towards climate change-related political and legal priorities and measures. These attitudes are explicitly linked to "royal directives," highlighting that these efforts are motivated not only by Jordan's international duties but also by the government's responsibility to care for its citizens. For example,

"Al-Hunaifat [Minister of Agriculture] said that food security is a requirement and a condition for national security because of its human, social, economic and environmental implications and dimensions, in line with the continuous royal directives that always emphasise giving food security an advanced priority at all national, regional and international levels." - MoA (4 May 2023)

This theme appeared less frequently in civil society posts; only in 18 posts (11 per cent). When it did emerge, the posts reported on the organisation's own activities that are aligned with the state strategies and policies or collaborations with government entities or under the patronage of the royal family or the state or discussed the impact of current government activities or prospective plans. For example,

"Under the patronage of H.E. Nayif Al Fayez Chief Commissioner - Aqaba Special Economic Zone Authority ... EDAMA officially launched the composting facility ... H.E. Nayif Al Fayzed [sic] ... confirmed the importance of composting in Aqaba..." - EDAMA (2 March 2023), in English

Solutions

The 111 posts under this theme either suggest or discuss efforts to implement potential solutions to the problems related to climate change. The governmental posts (39 posts or 24 per cent) included solutions like rainwater harvesting, wastewater treatment technologies, the National Water Carrier Project, digitisation of systems, using renewable energy sources and other innovations. Moreover, this theme includes some structural changes as steps towards holistic solutions for climate change issues, like water governance and national capacity building, specifically for employees of the ministries through workshops and lectures and developing an e-learning course. The quote below illustrates this theme,

"... to confirm the Jordanian government's serious and practical endeavour to find solutions and tools that help face the conditions and challenges that the water sector in Jordan suffers from…" - MoWI (21 March 2023)

The civil society had more posts under this theme, with 72 posts (approximately 45 per cent). The solutions were diversified depending on the focus of each organisation. For example, EDAMA's focus is energy-related; thus, under this theme, there is a digital awareness-raising campaign on the importance of using Smart Metres, a type of new device, to reduce energy consumption and posts around the event discussing the viability of the New City Project.[3] JGPC focuses on promoting a circular and green economy, MIRRA on grey water treatment, WADI on reforestation and use of seedlings, RSS on innovation related to water and agricultural issues, GFP and EYJ on small community-level projects from youth, and DED on advocating for better land and waste management systems.

"...Jordanian entrepreneurs combat climate change by designing hydroponic systems and launching five hydroponic models in the governorates of Mafraq and Jerash…" - RSS (3 April 2023)

Human Development

The 103 posts incorporating this theme discuss climate change issues and potential solutions in light of sustainable development as the ultimate purpose, like advancing the green growth and economic modernisation ambitions of Jordan, including green economy and employment.

In the 26 posts of the government, this theme is always associated with one of the first three major themes; National Position (18 posts), Attribution of Responsibility (5 posts), and/ or Solutions (3 posts). For example, a post by MoA on 1 March 2023 reports on a regional conference on sustainable management of rangelands by describing the government's efforts in launching the new national rangeland strategy and achieving Jordan's vision of economic modernisation (*National Position*), discussing solutions and scenarios to meet the water-related challenges, like water harvesting techniques and rehabilitation of pastures (*Solutions*) and appreciating the regional cooperation to achieve the Sustainable Development Goals (SDGs) (*Human Development*). This shows that even

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[3] A governmental project to build a new city with a green energy system to reduce population pressure on major cities.

though this theme was clear most of the time, it was rarely the central theme, only in 4 out of the 24 posts containing the theme.

This trend is also apparent in the 77 civil society posts with this theme, and it is the second-ranked theme in the frequency of occurrence. Although they account for more than half of the posts, it was the main theme in only 11. This is not surprising given that the majority of these organisations may rely on continuous fundraising, and linking their activities and communications to sustainable development is a good way to justify their projects and efforts. When this theme was the primary theme, the post would be linked with one of the major themes of Attribution of Responsibility (5 posts), Solutions (4 posts), or National Position (2 posts).

Human Interest

This theme was featured in a total of 37 posts that describe a climate change issue or solution from a human or emotional perspective, such as either showcasing the negative impact of climate change or the positive impact of a solution by relating to the people it benefitted or the people leading the initiative. Of these, only one governmental post has the central theme, which presented success stories of hydroponics-related projects, with an emphasis on the influence that these projects had on the young people who participated in this initiative.

The rest of the posts (36) were by civil society, which utilised media content to better convey the theme, such as short videos, mini web series (GFP), podcast episodes (GFP and YCJ) and a short film (DED) in addition to regular posters and photos. Two text examples are below,

"...When we drink a glass of water or write in a notebook, take medicine for a fever or build a house ... these and many other aspects of our lives are connected to the forest in one way or another…" - DED (16 March 2023), in English

"...The principal of the school ... spoke about the importance of the project in improving the educational environment ... which positively affected the students inside the classroom..." - RSS (2 March 2023)

Morality

Issues related to climate change are discussed in terms of religion, patriotism, or decency in the 30 posts employing this theme. Morality is also always linked with one of the three major themes; Attribution of Responsibility (26 posts), National Position (5 posts), and/ or Solutions (one post). This is anticipated, as it is typical to persuade individuals with a policy or a solution that has a moral justification in order to urge them to accept the obligation or take on the responsibility themselves.

Within this theme, 25 posts were by ministries, and most of these used a sense of national pride as the main motivator; for example, the Awareness Raising Campaign that was described previously made use of the hashtag 'حب_الأردن', i.e., Loving Jordan. In contrast, only 5 posts featured this theme among the civil society posts, and all were linked with Individual Attribution of Responsibility towards nature, biodiversity and food waste.

Benefit

This theme, with 25 posts, proposes that individuals and groups can benefit from climate change, such as through the green economy or other funding opportunities to support climate change or environmental projects. For example,

"This agreement will contribute to the national afforestation plan and will contribute to the employment of Jordanians and Syrians, improving the economic situation and creating job opportunities in governorates that witness high unemployment rates." - MoA (7 May 2023)

"...We're excited to announce our partnership with the UNGC Network Jordan on the Climate Ambition Accelerator! This initiative is designed to support companies in developing and implementing ambitious climate targets..." - JGBC (16 March 2023), in English

This theme can describe benefits for the government; for example, one post described Jordan's preparation to secure environmental funding from various financing mechanisms.

"...The two-day training program will focus on water security and climate change, as it will provide participants with opportunities to explore financing opportunities through environmental financing mechanisms such as the Green Climate Fund (GCF) ..." - MoWI (21 June 2023)

On the other hand, it can constitute a benefit for individuals, such as the post discussing the local Jordan Environment Fund and how individuals and companies might apply for it.

"The Ministry of Environment/Jordan Environment Fund ... announces the extension of the period for submitting applications for environmental project support…" - MoE (10 May 2023)

Or it can be as simple as a job opportunity in a climate change-related project as the post below,
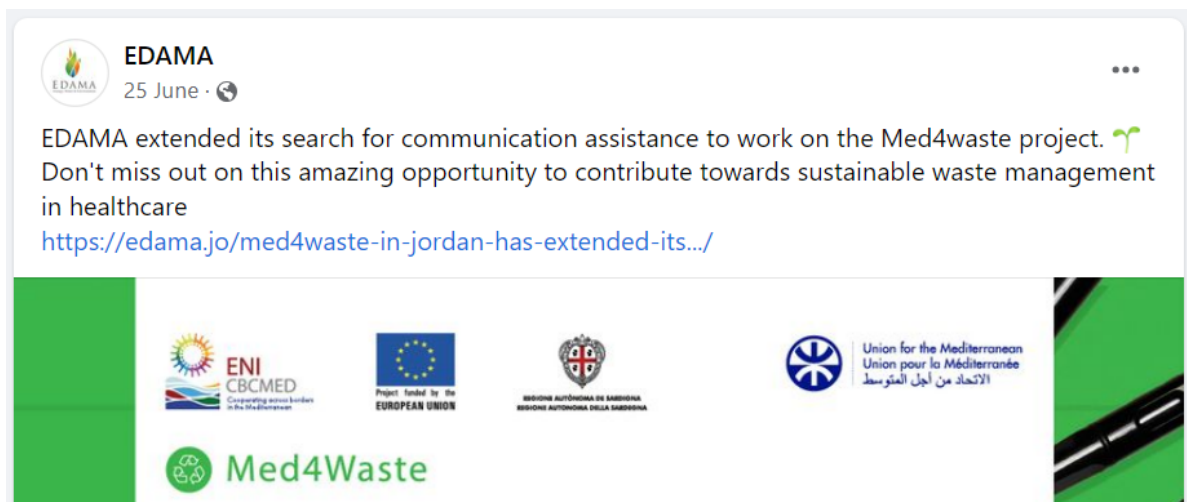
- EDAMA (25 June 2023)

Despite the fact that jobs are ostensibly included under the benefit theme, their portrayal decides under which theme they fall, for example, some instances portray these jobs as a means to an end rather than the 'benefit' itself, which suggests that they fall more under the general National Position or Human Development themes. Similarly, environmental funding mechanisms can be discussed under the umbrella of National Position and/ or Attribution of Responsibility.

Disaster Warning

Warnings of impending disaster were mentioned in 20 posts. This theme was featured in only two governmental as a minor theme: 1. as a justification for the government's stance in cooperating with neighbouring countries to combat the global food crisis (MoA, 26 March 2023 - National Position) and 2. as a call to action for a foreign government (in this case, China) to assist Jordan in overcoming the challenges posed by climate change (MoE, 30 May 2023 - Attribution of Responsibility).

The remainder 18 civil society posts under this theme were always linked to Attribution of Responsibility (12 posts) and/ or Solutions (7 posts). Therefore, the post is either linking the danger with a call to action for a certain party or discussing a solution in light of the danger. This subject also included media such as a podcast episode from YCJ about the impact of climate change and how to combat it, as well as web series episodes from GFP about how they predict the Earth would appear in the year 2253 if nothing is done to address climate change. A similar message is found in the excerpt below,

"... If no action is taken, plastic waste flowing into our precious aquatic ecosystems will almost triple by 2040..." - DED (5 June 2023), in English

Intergenerational Justice

This topic includes 14 posts that emphasise that future generations should not be responsible for paying for the degradation of the environment.

All 6 governmental posts under this theme, none of which was by MoY, were all linked with at least one of the major themes of Attribution of Responsibility (5 posts), National Position (2 posts) or Solutions (one post). In addition, 2 were also linked to Morality. For example, a post related to the cleaning campaign launched by MoE included 4 thematic agenda items as illustrated below,

Figure 6: Illustration of Multiple Themes in a Governmental Post

> *"... The Minister of the Environment ...* ==affirmed that the royal directives stress the necessity of preserving the environment and cleanliness==*, ...* ==pointing to the importance of preserving forest wealth for future generations==*, ...* ==calling on park-goers to preserve the environment in all the places they visit, following their national sense==*. ...* ==We will not go backwards we will enforce the provisions of Waste Management Framework Law== *..." - MoE (23 May 2023)*
>
> ==National Position (Attitude)== | ==Intergenerational Justice== | ==Morality== | ==Attribution of Responsibility (State)==

As for the 8 posts by civil society, they were linked to Attribution of Responsibility (5 posts), Human Interest (2 posts) and/ or Human Development (3 posts).

"In his Amman Peace Talks speech, GFP President Dr Mohanned Arabiat highlights our youth and institutional partnerships as essential pillars for continuing our peacebuilding

mission and finding innovative solutions to create a better future for future generations...”
- GFP (19 April 2023), in English

In general, this theme was not prevalent in the posts, accounting for less than 5 per cent of all posts.

Scientific Certainty

These are 9 posts that bring attention to the fact that climate change is an issue that has been confirmed by science and needs to be addressed. These were always pegged with one or more of the three major themes; National Position (5 posts), Attribution of Responsibility (4 posts) and/ or Solutions (2 posts). The posts report on new scientific publications, activities or training based on scientific research or collaborations with academic institutions to produce scientific evidence or solutions. For example,

“... The minister called for continuing these pioneering initiatives and ideas to find solutions to water challenges and improve the level of service provided to citizens by linking it to scientific research and merging national scientific expertise to confront it…” - MoWI (8 June 2023)

Policy Reforms

These 5 posts contain descriptions of and/ or calling for reforms of policies related to climate change. The 2 governmental posts had National Position as the central theme as they addressed the ministries' prioritisation of aligning internal policies with international and national policies and strategies to address climate change issues more effectively.

As for the 3 civil society posts, they were either linked with National Position (in one post around EDAMA's position paper in response to increasing the fees on renewable energy) or State Attribution of Responsibility (in 2 posts where the organisation would have a call to action from the government in response to a local climate change issue).

Economic Consequences

These 3 posts published by MoA describe how a climate change issue, specifically in this case, has affected the farmers economically. These three were all posted on 30 May 2023 after a day of torrential rainfall during Spring. The posts discuss the economic impact of the unusual precipitation and link it to the government's position of assisting these farmers in recovering from the damage caused by the adverse weather. The MoA is tasked with

evaluating the damage and compensating the farmers fairly, while the farmers are expected to cooperate with the government official working on the issue. Accordingly, these posts also fall under the first two themes.

5.1.4. The Youth in the Posts

Within the governmental posts, youth are mentioned in 34 posts (9 MoA, 8 MoE, 11 MoWI, and 6 MoY). In these posts, the youth are mostly mentioned as passive recipients of awareness-raising activities or training and employment opportunities. For instance, young people were mentioned in 12 posts reporting sponsored activities with the youth parliament, the national fellowship programme, the launch of new local agricultural facilities or parks, ministries' visits to schools and universities for awareness-raising purposes, and collaborations with organisations for job creation. Two posts mentioned youth in a policy-related context, such as in the launch of the water strategy and COP 28 preparations, explaining that youth empowerment is an essential element of these national processes. On the other hand, only 9 posts mentioned the youth as active participants while discussing celebrations of Arbor Day, the cleaning campaign, and the results of innovation and environmental competitions. Other posts included other vulnerable and marginalised groups, like women and refugees. In total, 11 posts grouped all of them together in one category. Only one post gives voice to these groups through the Human Interest theme, while in the rest, their portrayal is that of groups requiring capacity building and employment opportunities.

Regarding the civil society posts, there were 64 posts mentioning the youth. However, 48 posts were by organisations focusing on youth, namely, EYJ, GFP, and YCJ. In general, the posts were more inclusive of the youth's opinions and experiences through the use of digital media, as discussed earlier. While most community-level engagements in the posts were solution-driven, there was one mention by GFP of environmental marches, which is somewhat contrary to the overall trend of engaging the youth in training and employability schemes. In addition, GFP engaged a young employee to represent them at a related conference abroad.

YCJ can be considered as an open platform for youth to voice their opinions, such as a podcast series and an offline local 'Green Dialogue,' as they explain their goal is to transfer knowledge and raise awareness,

"... Our goal was ... to produce a set of episodes that simplify the issue of climate change in Jordan ... We continue with our goal of raising awareness of environmental and climate issues and transferring them from scientific and political interest to the public." - YCJ (24 May 2023)

Overall, there is still a pattern of depicting youth as passive, although there are more depictions of them as active participants in climate change action, primarily through solution-driven innovation and local community-level projects.

Although out of the scope of the study, other vulnerable groups were mentioned, mainly women and refugees. It should be noted that there were 5 governmental posts mentioning women under the bigger umbrella of women's empowerment, but only one showed them as active citizens working with an initiative that MoA recognises and collaborates with. Similarly, only 6 civil society mentioned women specifically, rather than grouping them with youth or with refugees. Two were on the occasion of International Women's Day (EDAMA and WADI), three on women-led projects, and one on women's land rights. Finally, in light of the importance of the Climate-Refugee Nexus Initiative, there were a total of 24 and 4 governmental and civil society posts, respectively, mentioning refugees.

5.2. Interviews with Engaged Youth

The second research sub-question asked, "How does the engaged youth perceive climate change communication in Jordan?" On that account, in this section, I will present the main findings from the thematic analysis of the interviews with regard to the perceptions of the engaged youth of climate change communication in Jordan.

5.2.1. Climate and Intergenerational Justice

This largely recurring theme across all interviews focuses on two main principles: 1) Jordan is a small country affected by climate change despite not being historically a contributor to its exacerbation globally, and 2) Young people's right to *"enjoy a safe, healthy and sustainable environment,"* as KI 03, a young activist from Jerash, puts it.

Jordan cannot avoid addressing climate change issues because it is challenging to distance oneself from it because everyone is affected by it or, as KI 06, a young activist from Irbid, puts it, *"it knows no limits."* This knowledge inspired the participants to take action as it is unfair that they, as young people in Jordan, have to deal with problems they did not create.

Thus, all the interviewees believed that promoting awareness of this reality via social media among youth from different cultural and socioeconomic backgrounds is critical,

"We are an affected country, and that is why awareness is supposed to be a little high, so social media is so important." - *KI 05, a young activist and entrepreneur from Balqa*

KI 04, another young activist from Jerash, expressed feeling sad and helpless because the impact on the people is too great, yet there are no policies or funding to assist those who can and wish to address the situation as they put it, *"this matter is linked to national policies, it is directly linked to the funds that the polluting countries are supposed to pay to the developing countries such as Jordan."*

One last aspect of injustice was pointed out by two participants (KI 01 and 04) regarding the language of the content on social media and the internet as being mainly English, while Arabic sources are relatively less and with lower quality. This can be one of the main challenges for young activists to stay informed. KI 01 suggested that this is the case probably because the responsible countries for climate change are not Arabic-speaking countries since these countries may be putting more effort into climate-change-related knowledge production as they are experiencing a more tangible impact.

The Anthropogenic Factor

Under this theme, four participants (KI 01, 02, 05 and 06) went beyond justice on the national level and discussed that it is critical to acknowledge and communicate the influence of humans on nature. KI 02, a young activist from Zarqa, discussed how climate change as a concept was not widely accepted in the Arab region, and media outlets in the Arab region, including Jordan, did not cover related stories until roughly ten years ago. KI 02 recalled that climate change was previously referred to as environmental issues or problems, neglecting the anthropogenic contribution. Similarly, KI 01, a Balqa-based young activist focusing on waste management, stated that it was only after delving deeper into climate change work and volunteering in the field that they realised climate change is exacerbated more by anthropogenic rather than natural factors, emphasising that humans and their anti-environmental behaviours bear the majority of the blame for climate change.

KI 06 was saddened by climate change's influence on weather and wildlife in his lifetime because *"in one way or another, humans have a fundamental role in the situation that we have reached."* Likewise, KI 02 reported feeling uneasy because people are the main

cause of climate change, but they do not care. Here, KI 02 described the significance of employing visualisations in climate change communication as they recalled the first thing that comes to their mind when thinking about the *"amount of global change and devastation that is happening on the globe"* is the image of *"the eighth continent ... which is forming in the sea due to ... the amount of human waste thrown into the sea."*

5.2.2. Responsibility for Climate Change Communication in Jordan

This theme emerged when the participants were asked about accountability for communicating climate change in Jordan. All the interviewees believe climate change communication in Jordan begins from MoE as a central hub because, as KI 05 said, they are *"the government's official spokesperson for the climate change file"* and *"globally ... the official authorised to negotiate on behalf of Jordan."* Still, they believe that *"the issue certainly extends to civil society organisations and international institutions operating in Jordan and even activists as well,"* as KI 04 puts it.

KI 01 admits not following MoE on social media and prefers GFP and UNICEF because they seem more active. And KI 02 and KI 04 specify the Climate Change Directorate and the Communications Unit, respectively, within the ministry. The latter two see that MoE's reach should be higher in raising awareness and activating its function as the interministerial focal point and coordinator of activities. KI 03 also advocates for increased activity on their official pages but understands that it might not be its priority,

"[Those] who understand the situation in Jordan, how the system is, ... the economic situation, and so on, they also know that ... working on awareness and action in this aspect [i.e., climate change] is not a priority for the government because people have other priorities." - KI 03

On their part, KI 05 and 06 hold the traditional media, like TV channels, along with MoE responsible for communicating climate change. All participants indicated other ministries as secondary partners, including MoWI, MoA, the Ministry of Digital Economy and Entrepreneurship (KI 05), and the Ministry of Energy and Mineral Resources (KI 06).

KI 06 was the only participant to mention the role of the educational system, namely, the Ministry of Education and its role in including the topic in official textbooks, the importance of universities updating their curricula more frequently to update their data,

and the need to connect students with key stakeholders to inspire them to work in this novel field.

5.2.3. Current Access to Information: Communities and Networking

This theme focuses on how engaged youth in Jordan currently remain informed and active with climate change issues. It emphasises the significance of belonging to a larger community of climate activists and making connections within that community.

When asked about social media's role in climate change communication in Jordan, it was interesting to find that none of the young activists became involved in climate change activism through social media but rather through their studies, jobs, or other volunteering activities. KI 01 believes that their involvement in volunteering has provided them with better access to knowledge and opportunities linked to climate change. However, KI 01, 02, 03, 04, and 05 use social media to stay updated, such as the official pages of news outlets, ministries and local and regional climate change-related projects and platforms, especially Facebook (01, 02, 04, 05), LinkedIn (01, 03, 04, 05), Instagram (01, 02, 04), and Twitter (04). KI 01, 02, 03, and 04 use direct online searches on Google, and KI 04 regularly visits the official websites of Jordanian institutions.

As for access to information, on the one hand, KI 02, 04, and 06 reported that local climate change information is challenging to find; KI 04 highlights that social media is not a good source. KI 02 outlined how they hardly found any resources before interviewing individuals for a local needs assessment. KI 06 had a similar issue getting data from a Jordanian ministry for their thesis; they found the process too bureaucratic, requiring *"a colleague or so, someone you know who can bring you the information."* On the other hand, KI 01 thinks anyone can find climate change communication if they put enough effort in, but notes that as most organisations publish on social media using regular posts rather than promoted or boosted[4] ones, it is harder to reach individuals who are not already following the relevant pages. KI 02 agrees that there are many organisations working on climate change with active social media presence, but typically, unless a person is working in the same field, these efforts are not visible to the public. KI 04 and 05 concur that once a person is part of the community of climate activists, getting information is no longer a barrier. To illustrate, KI 01 reported mainly using LinkedIn now as they found an active

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[4] "A boosted post is a post to your Page's timeline that you can apply money to in order to boost it to an audience of your choosing." (Facebook, 2023)

community of colleagues there, and KI 03, 04 and 06 are part of related communities, like the Water and Environment Community.

This community, mentioned by other interviewees, started in late 2018 and is a UNICEF-funded programme led by young volunteers under the auspices of MoY. In addition to weekly online awareness-raising sessions via Zoom,[5] KI 06 mentioned that the community had collaborations with Friedrich Ebert Stiftung and RSS to nominate the names of 15 youths to represent the community in a workshop aiming to collect recommendations from the engaged youth regarding COP 28. Overall, this community seems to be also a good way for networking as it connects youth with similar interests together as well as with other national and international NGOs working in the same field. This can indicate that it is popular within the community of climate change action, but not necessarily beyond that.

5.2.4. Current Practices and Recommendations

The importance of localising and contextualising the effects of climate change on both the national and local levels is addressed in this theme. It discusses both the current practices and desired changes.

Different Strategies for Different Social Groups

KI 03, 04, and 05 observed that the official climate change communication is lacking genuine strategy in Jordan. KI 03 and 04 explain that the government does not appear to promote climate change communication effectively, and its current practices do not go beyond mere ink on paper,

"Even those who work in this field in the Ministry of Environment, most of them ... just travel and come back. And take care.[6]" - KI 03

KI 06 agrees that the reach to all socioeconomic groups is not sufficient, and while it is still a solid step in the right direction, there should be measures in place to gauge *"the effectiveness of the message."* KI 01 agrees since they notice little to no engagement on climate change-related posts; two of their videos had between 80,000 and 149,00 views,

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[5] I attended one awareness-raising session organised by the "Water and Environment Community" on 5 July 2023, titled "The effect of high temperature on the ecosystem." The session was based on scientific resources and included global and localised information. It was interactive, engaging the participants by encouraging them to exchange knowledge, especially by asking about specific localised information.
[6] An expression of resigned acceptance in Jordan.

but most users left congrats remarks rather than content-related comments. KI 03 concurs, *"I post on social media. There would not be a lot of discussion - people see the message and leave. But I feel that the challenge is to get the message across."* According to KI 01, without a clear and informed communication strategy, *"you could create 50 million videos with no one noticing, aside from the organisation that initially provided the funding."*

Simplification for Maximum Reach and Facing Scientific Uncertainty

KI 03, 04, 05 and 06 believe that the messages are not reaching everyone due to a lack of strategic communication, simplification and localisation of science and knowledge for all Jordanians to make them relatable *"to their lives, their suffering and their problems."* KI 03 continues,

"For people who are from certain classes; for example, [living] in villages or marginalised areas, or do not follow up on these matters [i.e., climate change issues], the access to them is weak, and their understanding of the messages or simplification of messages for them is weak."

For better engagement on social media, KI 06 reiterates that posts should not contain technical terms and complex explanations; instead should use simple phrasing since *"The post will have greater interaction ... if the language is closely similar to the [language of] people."*

They feel there is a dire need to reach all people, no matter their socioeconomic and living situation, place of residence, professional and academic background, or age. They emphasise the importance of targeting not only youth but also older and younger generations. KI 05 highlighted how elderly people, including those working on climate change projects, can deny climate change, recalling an incident,

"There was an old employee, so I told him, Do you see what is happening to us? All of this is because of climate change. ... He rebuffed me and said, "Quiet! What are you talking about? There is no such thing as climate change. They are laughing at you. This is all state policy."

KI 04 summarises this as tailoring social media content to different social groups as communication strategies *"should be divided, as I do not work for all people, for all society, in the same way, in the same manner, rather, for each group and each party in a completely different way."*

All of the participants agreed completely that acquiring knowledge and informing others about climate change is a public responsibility; however, they reiterated the crucial role of fact-checking and scientific rigour in communicating climate change science. For example, KI 01 reported verifying and updating their training material with the latest localised knowledge. KI 04 emphasised the criticality of sharing localised, real-world, science-based information since much of what is available is untrue. KI 04 summarised this thematic item,

"It is also necessary to consider the ethical aspect that my information is 100% real, 100% educational, 100% understandable by the audience in the context in which you are publishing. ... Unfortunately, people share information that is not related to the local context, ... to real science, but rather information related to personal opinions. ... This does not make a change and does not affect the collective awareness of societies."

Human Interest Stories

Four participants (KI 01, 02, 03, 05, and 06) talked about the relevance of discussing the sudden fluctuations in the weather, like torrential rain, long heat waves, consecutive dry seasons, flash floods caused by delays and changes in rainfall patterns, in the context of climate change. They argued that by making the topic more tangible and relevant to young people's daily lives, they may be inspired to participate. KI 02 remarked,

"People who have worked on programs, projects, or things related in some way to climate change ... feel that it has clear results ... not just economically, but also environmentally."
- KI 02

KI 06 emphasises the need to use testimonials from people and link these stories to climate change, i.e., a human interest story. For instance, KI 06 reposted on their account a testimony from a friend's old father commenting that the heavy rain during June was a new phenomenon, linking it to climate change. KI 03 and 06 reiterate the significance of incorporating visuals as they characterise it as more persuasive. Overall, KI 02, 03 and 06 believe that climate change is connected to all aspects of our lives and can be linked easily to any topic of discussion, so every discussion can be an opportunity to raise awareness about climate change.

"I always try to raise the idea of the environmental issue, and, sorry for the term - I throw a small firework to spark a conversation about a controversial issue that links it to the

topic. Frankly, the response of young people to the topic is not big. ... It is simply not one of their priorities." - KI 03

The young interviewees recognise that Jordanians may not prioritise climate change. So, they highlight the importance of communicating how climate change, a seemingly distant problem, is actually a daily occurrence, especially the indirect impacts. In that regard, all of the participants mentioned water scarcity and its direct impacts; KI 06 mentioned the deterioration of rain quality, which affects water harvesting, and KI 03, 04, 05, and 06 discussed people's reduced access to water and the spread of some diseases due to damaged or unmaintained water infrastructure as well as effects of water shortage on the agricultural sector, especially the smallholder and rural family farmers, such as the continuous decline in the quality and quantity of crops. KI 06 states that showing how climate change affects Jordanians might assist in explaining the necessity of climate change action by inspiring compassion and sympathy.

"I sympathise with people who cannot overcome the difficulties of climate change. When the conditions affect the farmers, that is, they cannot make a greenhouse for agriculture, and they cannot obtain water sources at their own expense." - KI 06

Furthermore, the engaged youth recommended highlighting the indirect but tangible socioeconomic impacts in the local communities to engage people in Jordan. In addition to the general threat of food insecurity and financial losses because of a bad harvest season, KI 03, 04, 05, and 06 referred to how shortages of water supplies can threaten the livelihood of farmers as agriculture might not be a viable option for them anymore and women's economic participation, like female entrepreneurs with small projects dependent on water. They argue that these are all approaches to raising awareness about climate change without making it appear to be a foreign concern.

KI 03 and 05 also discussed probable social problems within the community as a result of psychological stress indirectly caused by climate change. For instance, a lack of continuous water supply can limit households' cleaning and washing frequency. This can affect their health and hygiene negatively, and the family may not be able to afford the prices of water tanks. According to KI 03, this can increase family economic and psychological stress, especially for women, who are usually family carers, and domestic violence may increase. Finally, KI 03 discussed how the irregularity of water supplies has caused conflict between neighbours and even leads to death,

"In more than one case, there have been deaths in Jerash [because of water scarcity] … This is a big problem because the water comes at night in Jerash … so there will be a state of monitoring the water so that they [people in Jarash] can ensure that the tanks are filled [properly] … There were two accidents that I know about; an accident where a person fell off the roof and died, and another [where] a person … because of the motors they put on the water [tanks], he was electrified, and he is now paralysed and lost his movement abilities."

Additionally, identifying the motivations of the engaged youth to work in this field can help inform the type of communication needed to mobilise other youth for the climate cause. KI 01, 04, 05 and 06 were inspired by seeing the negative impact of climate change and/ or the positive impact of local climate change initiatives on their communities and recommend communicating success stories. For example, KI 01 saw how a simple solid waste management project helped improve the environmental conditions in their village as well as the economic situation of the women participants. Conversely, KI 04 and 06, both from rural areas, personally witnessed the adverse effects of climate change on their own families' economic and food security situations,

"At that time, the Ministry of Agriculture lost its pivotal role of being supportive of rural farmers. Unfortunately, my family and grandfather shifted from agriculture towards … government jobs, and they left the [agricultural] lands." - KI 04

Solutions

KI 02 believes climate change communication should not be limited to raising awareness of the issues but also promote mitigation and adaptation techniques. By the same token, KI 01 emphasises the importance of communicating climate change science because there are many tangible, yet hidden to the non-locals, impacts of climate change that can be worked on by the youth, who can pinpoint the most important issues in their areas and, then, suggest localised solutions once they have gained the knowledge that allows them to better understand climate change.

KI 05 underlined the necessity of finding and communicating solutions for current problems as well as demonstrating how well the solutions operate, particularly how these solutions might alleviate various economic difficulties.

"If we go astray on the same approach; that we do not have water and continue to complain, and there are no solutions to this issue, we will have a negative impact on the agriculture sector, and therefore, the lack of food also affects food security. We will have successive problems." - KI 05

In fact, because of the lack of available employment opportunities, KI 05 set an example for others to follow by recognising a problem and actively working to solve it by upgrading and promoting innovative agricultural systems that use less water among farmers.

"I found that there are challenges for farmers, including their aversion to the agricultural sector, and I began to search for reasons. ... I am working so that the original farmers return to their farms, but without dispensing with the immigrants, because they are ... an essential element for us in Jordan, especially in the agricultural sector."

Similarly, KI 02 is driven to work for the climate cause because they aspire to launch their own initiative connected to SDG 13 (Climate Action), notably Water Harvesting, and they already have a prototype based on a local success story from their town. Three participants (KI 01, 05 and 06) stressed the need to listen to the youth's voice when designing, planning and implementing solutions for local issues, including formulating legislation.

Benefit: The Positive Part of Climate Change

KI 03 emphasised that climate change causes anxiety and fear about the future to the point that *"people even stopped wanting to hear about it [climate change] because the conversations are always negative."* However, KI 03 would like to shift the prevalent narrative to some positive aspects, like the green economy. KI 02 also believes Jordan is missing a chance to mitigate climate change and boost the economy by creating jobs. KI 06 agrees that young people may seem uninterested in climate change; instead, they have *"confused priorities because there is a … lack of access to job opportunities."*

Fundamentally, the young activists wanted to see more of the benefit framing, which, according to them, emphasised that climate change is not just about the loss of natural resources and biodiversity but also a chance for job creation and professional development for youth. KI 04 commented,

"Jordan makes me see that the environment is the only opportunity that exists. Environmental work or climate action for me as a young Jordanian, a university graduate,

who did not find a job opportunity, ... I see climate change as a way to overcome a problem we have in Jordan [i.e., unemployment]."

Case in point, KI 02 and 04 recognise that there are efforts to disseminate employment and funding opportunities related to climate change. Yet, KI 04, along with KI 06, believes there is more to be done, especially in implementing existing national policies and strategies as well as policy and law-making.

"Jordan's Economic Modernisation Vision ... is implemented by the state and under the auspices of the government. Was this thing applied in Jordan correctly, or was it applied in the first place? No, it has not been applied." - KI 04

A Necessity or a Luxury?

As mentioned earlier, all the participants discussed how people in Jordan might not consider climate change a priority, and their engagement depends on many elements, such as level of income, employment and education status, etc. KI 01 commented, *"Every issue in the world is related to class because I believe that most of the people, frankly, who have access and are able to understand the subject and read and discuss well are people from the middle class and above."*

KI 04 states that some youth view climate change as a luxury they cannot afford; hence, KI 04 calls for further work to raise awareness of the chances climate change offers the young to escape their conditions and construct a better future.

"If they see the opportunities that exist within this dilemma that we are going through, their point of view may change ... Climate change is certainly a problem, but for us, the societies of developing countries and non-polluting countries, it represents an opportunity for us to be able to achieve green economic growth."

A Trend

This theme addresses the youth's concern that climate change appears to be a trend. For example, before becoming a climate activist, KI 05 revealed that they were working on a project related to solid waste management without the employer connecting it to climate change. This changed in the last three years, especially during and after the COVID-19 pandemic, as more organisations began working in the field, according to KI 01. KI 03 agrees that there is more interest and funding for climate change communication on social

media and, with that, a chance for young people to get a job and escape from unemployment.

"I feel it is like a trend. ... Some people who are active on social media can be invested in. For them to address the issue of climate positively may increase their (public) respect and increase their followers."

While KI 05 commended the efforts that youth are currently making in climate change communication, especially the podcasts, they recognise that "*even organisations whose goal was neither environmental nor climate change are also working [on climate change] because they consider it an opportunity.*" KI 01 remarked that many youth climate change communication efforts, including podcasts, are funded by international organisations, so content creation may be motivated by money rather than a genuine interest in the climate cause or making a difference.

According to KI 01, podcasts do not improve climate change communication; rather, they are trending because content creators are copying each other and competing to become contact persons for donor organisations, some are looking to benefit themselves, and some simply want to help. KI 01 has been part of a podcast episode and said,

"I feel that young people do not open the podcasts at all. ... It is more of a show. I have never ever been told by anyone that they listen to podcasts so they can learn about climate change. ... I comment on and react to the post, but I do not like listening to podcasts. ... I feel it is just a trend."

KI 04 added that climate action in Jordan does not have a strong foundation and finds that many connected entities and institutions simply post when there is an occasion, without any strategic thinking for the greater good or orientation for a non-expert audience,

"There are many who like to join the climate action ... as 'trendy' not based on a change that they can make or based on scientific information that they want to convey. ... In the end, it is just to say: We have spoken for the climate."

This trend goes beyond governmental entities and civil society, affecting local decision-making. All participants have lobbying experience with local decision-makers who, according to the interviewees, never follow through on their promises. As KI 01 said, *"For example, if they are a member of a municipal council ... or a parliament representative and want to be re-elected ..., they come to the session, sleep and leave."*

Yet, KI 05 puts a positive spin on it. Even if not fully invested, local policymakers should be part of the discussion because older generations, who may stand in the way of youth activism, may be persuaded by the local policymaker to support the climate cause since *"they consider him to be a very important part in the dialogue and the owner of supported information."*

KI 06 questioned if there is an actual synergy or if only the appearance of coordination exists, *"How much can we contribute to solving this problem? ... Is there support for this effort? ... Is there any solidarity? Is there a link between you and everyone? ... Does the coordination really exist, or is it a formality?"*

Individual Responsibility

A recurring theme is the perceived weakness of content related to the youth's individual responsibility to care for the environment in their daily lives. KI 02, 03, 04, and 05 discussed the crucial role of communicating adaptation techniques in daily life and the impact of environment-friendly as well as anti-environmental behaviours among youth with a focus on children and adolescents. KI 03 maintained that most people know about climate change to a certain extent, but that is not reflected in their behaviour. To remedy that, the participants discuss three sub-themes as follows,

Linking the Offline with the Online

This sub-theme focuses on connecting the offline with the online reality as a recommended method by all the participants to increase the engagement of youth in Jordan. KI 03 highlighted the importance of gathering content for climate change communication from local communities and advocates and considering on-the-ground awareness-raising campaigns as a learning opportunity to feed into online campaigns.

Four participants (KI 01, 02, 03, and 05) advocated for using more interactive tools to inspire the youth, like controversial virtual campaigns, simulation of policymaking events and playing the roles of negotiators and mediators to prepare youngsters for real-life circumstances, such as organising a peaceful protest. They point out that social media can be used to first announce these exercises and then to live stream them to indirectly raise awareness and call to action. KI 03 also proposed role-playing and connecting with nature, such as going camping with youth while vlogging or posting stories. This practice does not only raise awareness of the audience but also reduces violent extremism and increases

patriotism and nationalism. As KI 03 said, *"The person will be keen on it (nature) in front of the camera and behind the camera."*

A final strategy consisted of undertaking online and offline knowledge exchange sessions with other youth to continue the conversation and grow the community, thereby increasing access to information for more young individuals. As KI 05 said,

"We are supposed to follow the method of transferring knowledge, meaning that I give full and complete information to 10 youths in this field, and each one of the 10 gives the same to another 10 ... I expect that this can have the ease of access to information to the community to be a lot, which means it is large and faster."

Influencers: Potential Role Models

Another example linking online with reality comes from KI 04, who suggested a simple campaign encouraging people to take one environmental action and film it and post it on social media. In the same vein, KI 02 and 03 recommend role modelling on social media as they both attempt to be eco-friendly and inspire others. This can raise awareness and call to action at the same time.

KI 02 and 05 suggested enlisting the help of influencers to speak about the issues and as role models to showcase day-to-day awareness of small environmental behaviours with big impacts, like recycling. They believe that many people use social media in Jordan mainly for entrainment, so they recommend using short videos, reels, and stories or, as KI 05 called it, *"the idea in a minute,"* to reach more people than in the case of text posts and increase engagement. KI 04 concurs that the use of reels and stories can help interact with the audience by not only sharing knowledge but also asking for opinions, questions and starting a conversation. Both KI 02 and 05 mentioned the missed opportunity of using TikTok, which is currently suspended in Jordan.[7]

5.2.5. Tokenism vs Actual Engagement

This recurring theme came up when the interviewees were asked about ways to engage young people. The young activists believe that there is a shortage of concrete efforts to

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[7] Jordan has blocked or suspended social media platforms or some of their services, including Clubhouse during the sedition case, Facebook live streaming during the popular protests against the dissolution of the Jordanian Teachers Union, WhatsApp voice calls for competing with national telecom providers (ongoing), and the most recent case of TikTok's suspension, which coincided with the truck drivers' protests and strikes in the South over rising oil prices (See Abu Yahya (2023) in Arabic).

train young people to be better activists and communicators rather than simply raising awareness. KI 03 sums up the theme by saying,

"I discovered that there is a problem for us as young people at the level of policies. We do not exist; our presence and our representation are weak. ... they [MoE] bring you as part of a report and to allow them to say that they have sat down with some youth. The question is whether you, as a young person, have actually spoken or if they gave you the ownership of a skill to enable you to understand negotiations better. ... On the national level, we [the youth] are only on the level of a beneficiary. We are never on the decision-making table."

Four participants (KI 02, 03, 04, and 05) made the case for increasing the content on learning, communicating and training on negotiations. They would like to see more communication on how youth can be developed as policymakers and, notably, as negotiators, as they believed that Jordan's negotiations during COP 27[8] were, as KI 05 noted, *"weak; there are no strong claims, frankly, or strong negotiators from Jordan ... and they were leaving room for other countries to negotiate on our behalf."* - KI 05

In addition, KI 04 highlights the fact that one must possess a higher level of specialised knowledge in order to be a good negotiator.

"You find people present at Conferences of Parties, but they are unable to negotiate on a specific topic, okay? The idea is that everyone has the knowledge, but not everyone has specialised knowledge in a specific aspect, and this is the most important, and this is what is clearly and largely missing in the Jordanian context." - KI 04

KI 06 recognised some existing efforts as they explained that, as part of the Agriculture, Water and Irrigation Committee of the Youth Parliament,[9] they were encouraged to conduct research to explain and communicate climate change science. KI 04 recommended educating young people on how to use social media to locate relevant information and then creating online campaigns by condensing and sharing what they discovered on their own accounts. Additionally, KI 02 and 06 mentioned linking research skills with interactive dialogue by opening spaces for debates as a communication strategy. Simply put by KI 06, *"Let the youth research a topic and debate on it and adopt a point of view."*

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[8] Two of the interviewees represented Jordan within the Youth Delegate during COP 27.
[9] Two of the interviewees are part of the committee within the Youth Parliament

6. Discussion

The purpose of this study was to explore how the framing of climate change issues in Jordan on social media impacts its potential to engage the youth. The main research question examines how current practices by institutional actors, both from the government and civil society, can affect youth's participation in addressing climate change issues in Jordan.

6.1. Current Practices and Frames

The first sub-question focused on the current frames of climate change communication on social media in Jordan. The results did not only reveal the themes of framing climate change-related content posted on Facebook in Jordan but also compared these themes and the overall presentation of content across different categories of institutions as well as discussed the portrayal of youth in them.

Generally, the posts by the ministries had few to no hashtags and expressive visuals, and there was a shortage of participatory content, even limiting comments, and overall used the language of traditional mass media. Moreover, there seems to be a centralisation of efforts within MoE without connecting with other relevant ministries to engage the public. For example, only 2 per cent (7 out of 435) of the posts published by MoY within the timeframe of the study were related to climate change, even though there were some digital campaigns by other ministries where MoY could be included to maximise reach. This may be due to a worry of regular restructuring of the ministerial cabinet, which could lead to a ministry's abolition, merger, or creation of a new ministry for a very specific purpose, such as the recently established Ministry of Government Communication after almost 20 years of abolishing the Ministry of Media in 2003. This may suggest that the purpose of these pages is not to communicate information or share knowledge but rather to fulfil a requirement as part of modernising the country and to showcase each ministry's achievements.

On the other hand, civil society posts used more consistent hashtags and employed different types of visuals and other media, whose importance was emphasised by the young interview participants. This is consistent with a recent study on effective climate change communication strategies, which showed that videos provide better visuals than

charts and maps for audiences with limited awareness of or interest in climate change (Cameron et al., 2021).

On the other hand, there was wide use of English without necessarily having an Arabic translation. This may indicate that their use of social media may be required to fulfil the communication expectations for donor-funded projects, such as the podcast produced by YCJ or the youth climate action programme of GFP. Additionally, this demonstrates the competitive nature of their work to obtain funding by increasing their visibility and employing individuals specialising in social media content creation.

In terms of the framing of climate change issues in Jordan, the most predominant theme across all posts was 'Attribution of Responsibility' as institutions posted about their own commitments through reporting on their activities on the ground and assigned responsibilities to themselves, other organisations, or individuals. This is consistent with previous literature on framing in the media, including climate change (e.g., Abdellatif, 2022; Dirikx & Gelders, 2010; Pandey & Kurian, 2017; Semetko & Valkenburg, 2000). Interestingly, the dominance of the responsibility theme highlights the relevance and potential effect of the local political, social, and cultural context (Semetko & Valkenburg, 2000). While not explicitly stated, the 'Attribution of Responsibility' theme in many of the posts, especially in the governmental ones, discussed financial and technical commitments from a country historically responsible for climate change to an affected country, like Jordan. This is mirrored in the interviews through the emphasis of the participants that Jordan is an affected country and has the right to funding for related projects and policies.

Furthermore, the 'National Position,' 'Solutions,' and 'Human Development' themes were also more popular. The 'National Position' was expected to be prevalent as half of the analysed posts were published by the government. This is evidenced by the fact that the civil society posts featured this theme in only 18 posts. This deviates from the findings of previous research where climate change content was found to be frequently associated with national positions (e.g., Pandey & Kurian, 2017). This could be due to the project-based nature of Jordan's civil society, as opposed to a continuous institutional effort. This was discussed in the interviews where the youth reported seeing climate change action as a current trend (see pages 69-71)

The third dominant theme was the 'Solutions' across all posts as well as when analysing the posts of the government and civil society separately. This framing is more frequently

seen in more recent research, especially concerning Arab countries (e.g., Abdellatif, 2022; Al-Bashbishi, 2023) or action-based movements (e.g., Chen et al., 2023). This might suggest an increased awareness of the significance of climate change issues since COP 27 and COP 28 are being held in Arab countries. Additionally, research shows that emphasising solutions can help people become more environmentally concerned, as warning messages of disaster may lead to indifference, powerlessness and a belief that the situation is too large and personal actions are futile (Lowe, 2006).

Similarly, the 'Human Development' theme is a relatively new type of framing used. While it was the second most dominant theme within civil society posts, it was the fourth in governmental communication. This may also be related to the funding-dependent character of the work of the civil society in Jordan, which tend to require linking their projects with a larger development goal.

The last two common themes were 'Human Interest' and 'Morality.' The former was the fifth most common theme in civil society posts, while the latter was the fifth in government posts. This is in line with previous research (e.g., Abdellatif, 2022; Dirikx & Gelders, 2010; Pandey & Kurian, 2017; Semetko & Valkenburg, 2000). Interestingly, only one governmental post featured the 'Human Interest', and only five posts from civil society featured the 'Morality' theme. This may be because civil society emphasises past projects and the human and emotional side of their solution-driven initiatives, while ministries emphasise their responsibilities using religion and patriotism.

To summarise, the comparative analysis of government and civil society posts revealed differences in the priorities and nature of each category's work as well as the Jordanian political, social and economic context. The analysis showed how current practices in Jordanian climate change communication on social media could impact its reach and potential to engage the youth in related issues. Although there exists a substantial amount of information on current on-the-ground initiatives, there is less material pertaining to the lives and values of individuals, i.e., frames of 'Human Interest' and 'Morality.'

6.2. Perceptions of the Youth and Desired Change

The second sub-question focused on the engaged youth's perceptions of current climate change communication in Jordan and how the related practices may influence their engagement.

The findings showed some tension between the official agenda on social media from the government and the action-based organisations and the perspectives of the activists. The results from analysing the posts show an overall alignment with the 'National Position.' This reveals a top-down framing through the culture of viewing the royal family as agenda setters, then the government, represented by ministries, refining the framing to match the overall requirement for funding and public image. As a result, the findings highlight conflicting elements. First, the state is focusing on communicating the 'National Position' regarding climate change rather than focusing on localising and catering to the different socioeconomic groups. Second, communication from civil society was found to be relatively weak in terms of activism, with a focus on small-scale local solutions while aligning with the 'National Position.' Both the ministries and NGOs focused mainly on attributing responsibilities to certain individuals and organisations by reporting on past and current efforts. Finally, this may have contributed to incoherent communication that left the youth voicing dissatisfaction with current practices. This weak communication and disconnection are reflected in how Jordanians see environmental issues as they are most concerned about environmental concerns that affect their everyday life, and only 4% of respondents clearly link any concern to climate change (Arab Barometer, 2022).

Accordingly, the interviews served as a channel to voice the youth's perspectives on how to address the disconnection between current communication efforts and the level of awareness and activism on the ground. The study showed a disparity between youth's perceptions of what is needed and current practices on the ground. The trend of producing podcasts about climate change issues is an illustrative example. In the interviews, the youth explained how podcasts are only a trend, and some even undervalued these efforts as not effective. In the posts, three different podcasts were mentioned, which are or have been produced with international funding.

Another recommendation, which sometimes was expressed as a necessity by the youth, was to give more focus to the 'Benefit' framing, specifically on jobs and funding opportunities in the climate change field. This is not surprising as, according to the latest statistics, the youth unemployment rate in Jordan reached 39 per cent in 2022 (World Bank, 2023). A high unemployment rate is an indication that a country's economy is not effectively utilising its human resources (Alawad et al., 2020). In the analysis of the posts, some mentioned jobs and funding opportunities linked to climate change, but they were largely highlighting the institutions' achievements and project results rather than

disseminating information about the jobs to their audience. This demonstrates that there are potentially untapped career possibilities connected to climate change, but access to them is still limited and more systematic recruitment using digital methods was suggested. In addition, the general tone of the posts was adult-centric, placing young people in the role of passive receivers of training, instruction, and information.

Another recommendation was to use simple language and more visuals to communicate climate change science. In fact, some civil society posts echoed what the engaged youth recommended. For example, YCJ vividly mentions, *"... Our goal from the beginning ... was to ... simplify the issue of climate change in Jordan…"* in a post from 24 May 2023. This is exactly what the participants want to see. The question that remains here is whether these efforts are successful, and as KI 06 asks, *"Everyone is now including the issue of climate change, ... but how much do we ... effectively deliver these messages? ... This is somewhat difficult to measure, requiring effort and funding."*

Furthermore, the results of the interviews showed that there is a desire for more linkages between the online and the offline. This is consistent with prior research on how online discussions can inspire offline action. People in the Arab region were able to participate directly in political events and organise protests using digital media, which may have contributed to political instability (Badr, 2021). In response, regimes in the Middle East and North Africa tend to increase surveillance mechanisms on social media on the grounds that "politics, not media, come first" (Badr, 2015, 2021, p. 523). This has happened before in Jordan, with the latest case being TikTok's suspension after the protests in the South (see Footnote 7).

However, as mentioned in the theoretical part, there are some euphoric arguments supporting the overestimation of the influence of social media, which were later criticised (Badr, 2015). One euphoric argument that is relevant to this study is that social media have expanded the public sphere, even though it is, in fact, becoming smaller due to fragmentation and personalised online experiences (Badr, 2015). The interviews showed that there are more efforts made to spread climate change awareness using social media than meets the eye, for instance, the Water and Environment Community (see page 63).

Although this community is supported by MoY, the content analysis of the MoY posts does not have any mention of that community or its activities, despite that there has been at least one webinar during the timeline. Even though the sessions are open to anyone,

advertising for these sessions is limited to the efforts of the speakers and facilitators through posting from their own personal accounts. This shows that access to such sessions, even if seemingly open to all youth, is limited to those who are already connected to someone working in the field. Therefore, there is, as stated in the interviews, a need for more systematic communication from the government to improve access to information among those not directly connected to the community of climate change activists.

Indeed, all the participants described depending on their own communities and connections for information and staying engaged. Here, the impact of agenda-setting through social media may be seen. Research shows that predictive algorithms tailor social media users' experiences based on their social context and prior activity, and people who encounter specific information on Facebook become more interested in related issues, and they find these agendas more significant when their trusted network shares or posts about them (Feezell, 2018). Another layer of agenda-setting can also be detected in the posts. Intermedia agenda-setting was originally used to explain how bigger press outlets affected the agendas of smaller media outlets (Roberts and McCombs, 1994), but it can also explain how Facebook pages influence other pages. As mentioned earlier, even though the analysed posts included only one mention of political activism, i.e., the environmental marches, there is alignment from the civil society posts with the government's plans, including it in their efforts, and gaining legitimacy in the eyes of the public and the state.

6.3. Intersectionality

Lastly, this youth-focused study investigated how engaged youth in a developing country from the global South perceive their engagement as well as limiting obstacles. Three intersectionalities appeared in the interviews, namely, gender, class, and regionality.

The first apparent intersectionality was that of class, as all the interviewees emphasised the criticality of having communication better tailored to the different socioeconomic groups in Jordan that speak to each group's priorities. Secondly, gender-related obstacles were highlighted. To begin with, it was more difficult for me, as a researcher, to reach female candidates for the interviews. In the follow-up call, KI 00 confirmed that even though she sees more dedication from the young women and girls working in the field of climate change, sometimes cultural challenges limit their potential. For example, KI 05 repeatedly

highlighted the importance of targeting older people in Jordan as their lack of awareness around climate change issues may affect youth engagement, especially that of young women and girls.

In Jordan, although there is no gender gap in youth education, there are still gender-related disparities in the labour market (Alawad et al., 2020). KI 05 struggled to earn farmer acceptability as a female farmer and entrepreneur; she was told by the older farmers that *"as a girl, your place is at home ... you should find a groom to marry. What are you doing here?"* KI 05 explained that this is attributed to the conservative culture of Jordan. However, respecting the elderly as culturally appropriate, KI 05 waited until her project had results, and the same farmers wanted to know more and try her innovative solution to the local issue. This illustrated the importance of including the 'Human interest' and 'Solutions' framing in climate change communication in Jordan to advance women's empowerment. These frames can help better explain climate change science and raise awareness of the issues considering the different contexts.

Another intersectionality to be considered is regionality within Jordan. None of the interviewees are from the Southern region, even though the region is mostly desert and prone to climate change issues, such as lack of water resources. KI 00 confirmed working with engaged youth from the region and clarified some reasons they may not be as visible and active as their counterparts from the Northern and Centre regions. First, cultural restrictions influence the engagement of Southern youth, as they tend to oppose joint initiatives involving men and women working together. From previous experience, KI 00 reported that this might negatively impact the engagement of youth from the South, even when a project focuses on including all three regions. In addition, KI 00 also mentioned the difficulty of reaching youth in the South, as the region includes underserved and unserviced areas, and, thus, its population has other priorities, such as basic infrastructure. The Jordanian South lags behind the North and the Centre in Development Indicators, including Human Development Index, indicators related to health, education and environment, as well as in unemployment and poverty rates (Al Rawashdeh et al., 2016). Therefore, there should be more focus from the government as well as civil society on engaging youth from the region, taking into consideration the challenges.

6.4. Limitations and Future Research

This exploratory project can be viewed as a first step towards understanding climate change communication in Jordan and improving Arab youth's engagement in climate change issues. Nevertheless, research with more representativeness and diversity in gender and region of the engaged youth is needed.

Here, it is important to reflect on the research process. While there is a direction to recognise qualitative social science research as a cocreation (Connor et al., 2018) and young people as active, instead of passive, research subjects (Gillies & Robinson, 2012), there is still a long way to go to understanding youth's perspectives. Researchers may perpetuate power hierarchies by continually portraying participants as vulnerable (Schulz, 2021). Therefore, participatory and ethnographic methodologies are being increasingly employed in development studies, where research participants are meant to be viewed through their agencies, not only their vulnerabilities (Schulz, 2021).

In this study, youth were placed at the heart of this study, recognising their capacity and right to generate knowledge (Connor et al., 2018). This thesis has highlighted youth's perspectives that can disrupt established power relations in Jordan, particularly by calling into question institutional efforts, whether they be governmental or non-governmental. However, due to time limitations, all the participants were over 20 years of age, which can be considered a weakness. Thus, there is a need for more research with younger participants through fieldwork in partnership with educational institutions such as schools.

While I endeavoured to analyse all of the content, including the visuals, I focused primarily on the text and main posts. Thus, a future step can be to focus on analysing auditory and visual content as well as comments and other types of engagement. For example, the impact of not restricting comments on public pages, like that of the MoA. Another focus can be on individuals, especially the young influencers, and how they are tackling climate change communication from the more influential institutions and the power relations within it.

7. Conclusion

This research examined how Jordanian social media framing of climate change issues may be affecting youth engagement. The study analysed current posts related to climate change from Jordanian ministries and civil society actors and explored the perceptions of engaged youth in the field in Jordan.

The results indicate that the most prevalent framing themes within the analysed social media posts were frames of 'Attribution of Responsibility,' 'National Position,' 'Solutions,' and 'Human Development'. The content was mostly around related efforts of different institutions and organisations. The results also suggest that the use of 'Human Interest' and 'Morality' framings was less prevalent. Overall, analysed Facebook posts by the Jordanian civil society were mostly aligned with the governmental posts. However, the latter used traditional mass media language and exhibited little use of hashtags, visuals, and other media, and the former used English more. This suggests that institutions use social media to showcase their achievements rather than raise awareness and engagement in climate change issues.

The engaged youth expressed dissatisfaction with the current practices on social media, calling for more targeted communication catering to the different socioeconomic groups in Jordan. They also recommended using more visuals and media as well as simpler language. Another conclusion that can be drawn from the findings is the need for reframing as the engaged youth expressed a preference for more use of the 'Benefit,' 'Human Interest,' and 'Solutions' frames. They feel that these frames could better encourage the younger generations to actively engage in the field of climate change, thereby fostering more meaningful involvement at the policy level.

Future studies can expand upon the results of this exploratory study in order to further understand the impact of climate change communication in enhancing the involvement of Arab youth in climate change matters. The thesis gives an overview of the framing of climate change issues on Facebook in Jordan, as well as an examination of the perspectives held by actively involved youth about the communication strategies used in relation to these topics. Further research could potentially provide valuable insights by expanding the scope to include communication practices of other active institutions in

Jordan, particularly those of an international nature. Furthermore, future studies could explore other social media platforms and ensure the representativeness of engaged youth.

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Appendices

Appendix 1: Interview Guide

- Purpose of the research: To explore youth's perceptions of climate change communication in Jordan.
- Interview course: Informal. I will ask you about your own experiences with climate change communication, like how you joined climate change action activities, how to learn and keep yourself informed about climate change, and how you and others interact with each other.
- Length: about 60 minutes, depending on how much is shared.
- Confidentiality: You can end this interview at any time or choose not to answer a question. Of course, everything you say will be kept confidential, and your identity will not be shared with anyone.

Verbal consent

- To participate in this interview
- To record this interview so that I don't miss out on important comments
- Thank you for participating

Warm-up

1. Can you tell me briefly about yourself and your background?

Climate Change in Jordan

2. What are the most important climate change issues in Jordan? Your city?
   - For you, what is the most important?
3. When you hear the term climate change (action), what comes to mind?
   - What feelings does it evoke?
   - What three emotions do you attribute to the current status of the environment in Jordan and your city?
4. Tell me about your motivation and inspiration to join climate change action.

5. How would you rank the current importance of communicating climate change science? (1 = not important, 10 = most important issue facing my generation)

6. How did you first learn about important climate change and environmental issues?
   ○ What is your source? [prompt] parents, friends, newspapers, school, or social media?

7. What about currently? How do you keep yourself updated?
   ○ How do you have regular access to information about events and developments on climate change in your local communities?

8. What do you think about climate change communication in Jordan?
   ● Do you find localised information easily? How?
   ● Do you think anybody can gain access to that? Especially youth?
   ● Why (not)?

9. Which entity/ party do you think is responsible for climate change communication?
   ● The state, educational institutes, NGOs, etc.
   ● Which ones exactly?
   ● How much do you agree that "acquiring knowledge and informing others about climate change is a public responsibility"?
   ● Who should be in the conversation?
   ● Who needs more information/ to be reached?

10. What do you think of the outreach of climate change communication on social media in Jordan?
    ● Do you think climate change communication reaches all socioeconomic groups equally?
    ● Are there any obstacles to reaching everyone?
    ● Are there any opportunities/ possibilities?

11. Have you ever been part of climate change communication or awareness events, efforts, etc.?
    ● What strategies were used?
    ● What messages were dominant?
    ● How were these messages framed?
    ● What did you think about these strategies, messages, and frames?

12. How do you, yourself, share information with others?
    ● Tell me about the last time (or the most memorable) you did. What happened? How did you approach it?
    ● What platform(s) do you use?
    ● What do you talk about?
    ● How do you approach the subject with other youth?

13. In your opinion, how does living in Jordan shape your view of the environment?
    ○ What is the priority of Jordan regarding the environment?
14. In your opinion, what methods are missing or not used enough to attract youth/student involvement?
    ○ What could be done to increase the youth's engagement?
    ○ Would social media be an option?

The end

- Demographics
    - Age
    - Gender
    - Governorate
    - Urban/ Rural
    - Education Status
- Thanks again for participating.
- Questions?

Observations

- Body language
- New ideas and insights
- Additional impressions

Appendix 2: Codebook

Facebook Posts

Theme	Description	Example
National Position	Describes Jordan's climate change policies and attitudes	
National Plans and Strategies	describes the current efforts to address climate change effects	"The Secretary General of the Ministry of Water and Irrigation inaugurates the "National Plan for Water Conservation in the Agricultural Sector" workshop"
Appreciation of local, regional, and international cooperation	describes the gratitude of the government for the (inter)national community	"Prime Minister Dr. Bishr Al-Khasawneh expressed his thanks to the US President's Special Envoy for Climate Affairs for Jordan's support in facing climate-related challenges, especially those that have impacts on water and the environment."
Attitudes	Describes the way of thinking and feeling around climate change issues	"The national carrier is continuous and a priority for national water security"
Attribution of Responsibility	Describes a responsibility assigned to a specific actor or stakeholder in relation to a climate change issue	
Individual Responsibility	Describes a responsibility assigned to individuals or citizens	#Don't_underestimate_a_drop ... #A_Drop_makes_a_Difference #Reducing_the_loss_is_our_responsibility_all
Organisations Responsibility	Describes a responsibility assigned to an (inter)national organisation	"This memorandum will work to consolidate cooperation between the Ministry of Agriculture and the Himma Wa Lamma Initiative - Towards a Cleaner Jordan"
State Responsibility	Describes a responsibility assigned to the government	"There is no turning back in the application of the provisions of the framework law for waste management"
Solutions	Describes or recommends solutions to address climate change issues	"... preparing a digital map of water harvesting based on the global geodetic system and coordinate systems for all layers of the map, using the latest technologies and advanced computer servers."
Human Development	Describes climate change issues and solutions in relation to sustainable development	"We will work to promote innovation and creativity to help change systems and face the challenges that stand in the way of achieving the goals of sustainable development."
Morality	Describes the climate change issue in religious, patriotic, or moral terms.	"Jordan suffers from a severe shortage of water resources. By attacking the water networks, you are exposing yourself and many citizens to the danger of irregular water access to many areas."

Benefit	Describes climate change as beneficial for a certain group, like a job or funding opportunities.	".. stressed that such initiatives, in response to the royal directives, enable Jordanian youth in the governorates, in particular, to obtain employment opportunities for the people of the region, and benefit the national economy…"
Scientific Certainty	Highlights that climate change is a scientifically proven issue that should be addressed.	"Pointing out... the need to respond to these reports and studies based on mathematical models, to avoid these conditions or mitigate their severity locally and internationally, and to work to support and develop the most vulnerable sectors affected by climate change by all possible means."
Intergenerational Justice	Emphasises that future generations should not pay for environmental deterioration.	"... to empower and motivate young people because they are the future generation, stressing the importance of holding such training programs to build youth leadership capacities for a safe future."
Economic Consequences	Describes how a climate change issue is or will economically affect a person, group, organisation, area, or country.	"Al-Hanifat was briefed on the situation of some crops and cultivations and the impact of rain on them"
Disaster Warning	Describes the immediate danger that climate change poses.	"He pointed out that dangers threaten us all, and we have gathered to coordinate efforts and confront the global food crisis"
Policy Reforms	Describes and calls for policy changes related to climate change.	"...the Ministry of Environment worked with the World Bank to prepare a draft "Jordanian Policy Framework for Collaborative Approaches under Article VI of the Paris Agreement and other international carbon markets.""
Human Interest	Describes a climate change issue or related solution from a human or emotional point of view.	"...There are a large number of success stories registered for joint projects with youth associations..."

Semi-Structured Interviews

Theme	Description	Example
Climate and Intergenerational Justice	Perspectives in relation to climate justice and intergenerational justice	"This reinforced the idea that I have to go towards achieving climate justice and advocating for things to be somehow not in this situation as one of our rights"
The Anthropogenic Factor	Perspectives regarding the responsibility of humans for their part in climate change	"Why sad? Because you know, in one way or another, humans have a fundamental role in the situation that we have reached."

Responsibility for Climate Change Communication in Jordan	Perspectives on who is responsible for communicating around climate change in Jordan	"On the level of civil society and the United Nations who work in Jordan, I think that they present somewhat closer messages to people and more understanding"
Current Access to Information: Communities and Networking	Perspectives on access to information and how the youth enhanced their access	"Once you have entered this community, let's say, you will be able to know when reports are published."
Current Practices and Recommendations	Perspectives about how existing communication efforts can be improved	"The topic (climate change communication) is limited only to the context of being mentioned within the policy papers and (action) plans papers.
Different Strategies for Different Social Groups	Describes the need for tailored communication strategies for Jordan's various social groups	"But, the ease of its access, I mean, depends on the category that wants to reach this content "
Simplification for Maximum Reach and Facing Scientific Uncertainty	Describes the need for simplified science in communication practices	"I see that this simple speech reaches people more than if I show them a Diagram."
Human Interest Stories	Describes the need for communication from a human or emotional viewpoint	"Actually, farmers and pasture owners are people who are really able to give you the difference"
Solutions	Describes the need for communication around solutions to address climate change issues	"For example, why don't I build the capacities of young people with how they can adopt climate-smart agriculture methodology,"
Benefit: The Positive Part of Climate Change	Describes the need for communication around how climate change can be beneficial through job creation or funding opportunities	"I try as much as possible to share the opportunities that I feel might be suitable for Jordanian youth, according to their (eleigibility) criteria, on my social media."
Individual Responsibility	Describes the need for communication assigning responsibility to individuals	"let's say, they (should) change their individual activities or their carbon footprint in order to adapt more to climate change"
Linking the Offline with the Online	Describes the need for connecting on-the-ground efforts with digital campaign and vice versa	"How can you be part of the advocates, for example, for climate change in the conferences of the parties? How can you be part of the people who write action plans for organizations?"
Influencers: Potential Role Models	Describes the need for communication assigning responsibility to influencers as role models	"Maybe we can invest in ... Social media celebrities"

| Tokenism vs Actual Engagement | Perspectives in relation to the efficacy of current practices | "If they sit down, does the coordination really exist, or is it a formality?" |