

Fostering Sustainable Behavior through Informal Education on Social Media: The Role of Instagram in Shaping Student Lifestyles

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Abstract

In today's digital society, the quest for sustainable development requires a paradigm shift in policy making, education, and individual lifestyle choices. This study explores the impact of informal education through communication technologies, with a specific focus on the social media network Instagram, to promote education for sustainable development and resulting sustainable behaviors. Based on the understanding that informal learning plays a crucial role in shaping individual attitudes and behaviors, our research seeks to uncover how students learn about sustainability in a less structured, more spontaneous manner through social media. Using a semi-structured interview methodology, the study examines the impact of sustainability education on Instagram and its role in shaping sustainable lifestyles among student users. The findings highlight the importance of emotional connection to the learning content and the relevance of the topics to everyday life. Having role models and practical tips seems to be crucial not only for learning about sustainability, but also for promoting sustainable behavior. With its various format options and different content creators, Instagram seems to be an ideal medium to raise awareness about sustainability and encourage users to take concrete sustainable actions.

Keywords: sustainability; informal education; social media; Instagram; student behaviour.

Introduction

Quality education is the fourth goal of the 17 Sustainable Development Goals (SDGs). Of course, this includes all types of education, but with the 2030 Agenda, Education for Sustainable Development (ESD) has emerged as one of the key challenges to promote sustainable change globally. Around the world, ESD is being implemented as an important topic in school and university curricula and is becoming increasingly important in formal learning settings. However, several studies show that young people's learning about sustainability issues today is more likely to take place informally through social media than in formal learning settings (Bush et al., 2022). Therefore, ESD takes place not only offline but also in the digital society through communication technologies and digital tools.

With an ever-growing number of 4.95 billion users (Dean, 2023), social media are present in every corner of the world and their content reaches more people than any other media before (Lohmeier, 2023). The influence of social media on public discourse, communication styles, people's beliefs, and everyday behavior is well documented (Naeem, 2021; Olan et al., 2022; Walker et al., 2021; Zhao et al., 2020), and several studies show that social media can be effectively used as an informal education resource in various fields (Bennett & Morton, 2021; Greenhow & Robelia, 2009; Teng et al., 2022). This is also true for informal sustainability education (Bush et al., 2022). In a previous study of German university students, 58.7% of participants informally acquired sustainability knowledge and information from social media platforms (Bush et al., 2022).

Social media platforms allow users to communicate online and distribute different types of content (e.g., text, videos, photos, etc.) without expert knowledge or special technology (Lenzen, 2019). The flow of information is not limited to one direction, which speaks to an essential aspect of social media: its dialogical nature. Depending on the social media platform, users can contact each other individually, contact companies, or communicate within a group. This contact is usually asynchronous and therefore independent of time and place, but due to technological possibilities, real-time communication is also possible (Lenzen, 2019). In addition, many social media have a friending function. Users can befriend other profiles and thus enter into digital relationships with them. The algorithms of the social media platform usually prioritize content from these profiles. Although there are numerous social media networks, there are a few that have become dominant in recent years. This study focuses on the very popular social media network Instagram, which has approximately 2.4 billion users (Shewale, 2024). It's been proven that Instagram can contribute to identity building (Noon, 2020; Staniewski & Awruk, 2022).

Instagram is an application mainly for tablets and smartphones that was released in 2010 (Faßmann & Moss, 2016). Most users (32.3%) are between 18-24 years old, closely followed by 25-34 years old (30.1%; Oberlo, 2023). The average daily usage time worldwide in 2023 is 29 minutes per day, which is double the 15 minutes in 2019 (Vardhman, 2023).

The following section explains the Instagram features relevant to this study. A profile is the basis for using Instagram, and every registered user automatically has one. They must choose a username and can add a profile picture, among other things (Potter, 2022). They can then follow other profiles and publish, comment on, and repost content. The profile overview - called the grid - displays the user's biography, profile picture, and all uploaded posts in chronological order (Potter, 2022). Instagram offers the option to make your profile private. Only those who follow your profile can see your uploaded posts. The main overview, also known as the Instagram feed, displays uploaded posts and stories (the latter only visible for 24 hours) from followed profiles (Instagram, 2022b), as well as promotional posts from, for example, businesses. These can be liked, commented on, saved, and sent (Faßmann & Moss, 2016). There is also an "explore" function. This can be used to specifically search for other profiles and hashtags, or to view interest-based content to discover new profiles. When the explore window is open, different posts appear in an overview. Users can select content by tapping on it to enlarge it. Scrolling down displays more posts in an endless list. The posts displayed in this overview are selected by an algorithm (Instagram, 2022a; Shah et al., 2021). As mentioned above, Instagram also displays advertisement reels and posts to its users. The ad content is selected based on an internal Instagram algorithm and depends on the user's app usage (e.g., what content they post, like, comment on, watch, ...; Shah et al., 2021). Content creators with an exceptionally wide reach due to their number of followers and online activity are called influencers and are often paid by companies to promote their products on Instagram and other social media platforms (Ruiz Gómez, 2019).

The educational function of social media suggests that informal education through Instagram could contribute to influencing users' values, attitudes, and behaviors in a sustainable direction (Bush et al., 2022). Therefore, this research examines how Instagram influences sustainable education and how this influences users' perceptions of sustainability and their behavior. To this end, eight in-depth interviews were conducted with young adults about their use of Instagram, their sustainable knowledge, attitudes, and behaviors, and their desires for sustainable content on Instagram.

1. Materials and Methods

In this study, we investigated how students learn about sustainability using Instagram and how it influences their sustainable behavior. Since previous studies-as cited in the introduction-have mostly relied on quantitative data, we decided to gain in-depth information about users' actual use of Instagram and their learning processes. Given the exploratory nature of our research question and the need to understand complex individual processes of sustainable behavior development, we chose a qualitative research approach.

Using an interview guide, we conducted eight semi-structured in-depth interviews with German university students who use Instagram on a daily basis. The students were between 22 and 26 years old and studied different subjects.

The material was examined using qualitative content analysis based on Rädiker and Kuckartz (2019). The analysis was done using MAXQDA software.

The development of our category system followed an inductive approach. Through initial text reading and annotation, four main categories emerged organically from the interview material: Instagram usage, Instagram's influence on ESD, Instagram's influence on sustainable behavior, and content desires. Building on this foundation, we further refined our category system by inductively developing subcategories from the coded segments. These subcategories were created by systematically analyzing text passages assigned to each major category. To ensure reliability and relevance, we retained only subcategories that appeared in at least two different interviews. The results of the major categories are presented below.

2. Results

2.1. Instagram usage

As mentioned above, all participants use Instagram on a daily basis. They reported varying durations ranging from 40 to 90 minutes per day. Some participants set personal time limits for using the app. In terms of personal evaluation, some participants perceive their Instagram usage time to be too long, with one participant feeling that the time spent is not meaningfully invested.

Most respondents post content occasionally or infrequently, while some only consume content without contributing. Only one participant was very active, creating weekly stories and monthly posts. The main purpose of using Instagram is to connect with friends and keep up with the activities of social circles. All respondents value content from friends and acquaintances and actively follow social and journalistic topics. Keeping up with current events and news is essential for some participants. Instagram also serves as a source of entertainment, distraction, and information about various topics and products. Reasons for consuming content include interest in specific topics, inspiration, and fun. Participants use it in moments of inactivity, boredom, or when they need to relax. Some open the app in uncomfortable situations, while others use it primarily to document and share moments. The places where they access the platform are diverse, including at university, at home, at work, or in public spaces.

All participants consume stories, primarily viewing them immediately after opening Instagram. Participants use Instagram's Explore page based on their interests, selecting content they find beautiful or aesthetically pleasing. Visual appeal, layout, and detailed explanations within the post can influence the selection. However, some participants couldn't identify specific criteria for selecting posts.

2.2. Instagram's influence on ESD

Participants perceive information about sustainability topics on Instagram to varying degrees. Three interviewees were aware that there are influencers who deal with sustainability topics and they have seen tips on how to implement them in their everyday life. However, one said that she felt that she was rarely exposed to such content. Another respondent does not intentionally come across sustainable content, but rather through influencers who focus on other areas, particularly do-it-yourself (DIY) content. Another follows the activist group Fridays for Future and learns about upcoming campaigns through Instagram. He also appreciates learning about how such an activist group works and builds sustainability campaigns through behind-the-scenes material uploaded to Instagram. In addition to activist channels, he watches channels that focus on sustainable food and regularly sees sustainable products advertised. One respondent also noticed this advertising aspect. She actively follows accounts that educate people about sustainability and sees projects and products that promote a sustainable lifestyle in the reels and posts (that are filtered by the algorithm).

Participants attribute advantages to Instagram in educating about sustainable issues compared to other media, such as websites or non-digital formats. In particular, respondents cited Instagram's informal communication style and the app's presentation capabilities. Influencers on Instagram can effectively engage their followers by tailoring content to their interests. The communication and access of the platform is seen as more direct, fostering a closer relationship between the educator and the audience through regular two-way contact and identification.

The role model function is seen as a valuable aspect offered by Instagram, allowing individuals to demonstrate how a sustainable lifestyle can be implemented. Role modeling on Instagram makes the adoption of sustainable behaviors more accessible and relatable to users. Ease of access and identification with fellow users on Instagram are highlighted as opportunities offered by the platform. Participants noted that Instagram evokes more emotion than formal educational settings, and engages users more in learning about sustainability and acting sustainably.

A significant benefit that most participants recognize is the diversity of topics on Instagram. Users can engage with content that aligns with their interests, and the platform serves as an informal educational tool, covering areas not covered by formal educational institutions. For example, one participant explained that when looking for tips on sustainable living, Instagram provided significantly more information than he received in school. Another perceived benefit of Instagram is its wide reach. Some participants emphasized that the platform makes it possible to reach a broader audience compared to a classic information text, with the added benefit of global distribution.

Usability is another feature of Instagram that was positively evaluated by participants. They see the platform as offering diverse design possibilities, presenting content in an understandable, illustrative and audience-appropriate way. Participants emphasize the platform's ease of access, which requires relatively little time and concentration, and allows for consumption in different situations and contexts, such as commuting. Overall, Instagram emerges as a versatile and impactful platform for sustainable education, leveraging its unique features to effectively engage and educate users.

2.3. Instagram's influence on sustainable behavior

The influence of Instagram on users' sustainability knowledge and their sustainable behavior is evident among the participants. Most attest to its effective influence on their sustainability education and resulting sustainable behavior. Two say Instagram has no discernible impact. Others see an increase in their engagement through the platform. For example, one participant actively searches for vegetarian and vegan recipe inspiration on Instagram and finds the outreach of organizations like Fridays for Future motivating. Another participant reports that he learned about the Fridays for Future demonstrations through Instagram, which led to his active participation. Some say that Instagram has strongly influenced their sustainability awareness and behavior. They use the platform to learn about sustainable issues and to get inspiration for sustainable travel. Participants also report that they have discovered or rediscovered sustainable products through their use of Instagram, such as reusable and plastic-free lunchboxes and water bottles.

External incentives are perceived as beneficial in different ways. Some participants see the potential for external encouragement from key individuals when behavior change is deferred. Specific prompts are seen as a stimulus, especially when collective behavior change is possible. Role models play a crucial supportive role, with participants emphasizing the importance of demonstrating options for action and proving the feasibility of sustainable lifestyles.

Tips and inspiration from others are universally recognized as essential support. Participants expressed a desire for information on meaningful engagement and guidance on which organizations to support. In addition, they find practical tips and suggestions for implementing sustainable behaviors helpful in exploring new opportunities and approaches.

Respondents envision various forms of support in cultivating sustainable behaviors, emphasizing tips, implementation suggestions, external role models, and incentives. A sense of collaboration and community is also seen as critical, with participants recognizing the value of resources in their environment and sharing ideas with others. Observing others practicing sustainable behavior serves as a motivating factor. Exchanging ideas with others also emerges as a valuable support mechanism, with most participants finding it helpful to share ideas and support each other. A sense of collaboration in terms of working towards a common goal is highly valued and associated with positive emotions.

However, one participant criticized the perceived but non-existent closeness between influencers and users. Two other respondents questioned whether advertised sustainable products are truly sustainable or perhaps greenwashed (i.e., falsely or misleadingly advertised as sustainable). They said they lack trust in the seriousness and accuracy of content on Instagram. Because of this, they usually search for more information (mostly using Google) to verify information they find on Instagram. Three other respondents wished for more source references in Instagram posts.

2.4. Desired content on Instagram

The desire for sustainability education on Instagram is multifaceted, with participants expressing preferences for what content to post, in what format, and how to engage with users. A common response was a preference for informative and supportive content, delivered in a positive and motivational communication style. When it comes to post formats, participants have varying opinions. While some participants do not specify a post format for sustainability content, others emphasize the importance of using both stories and the feed. Preferences range from video to photo posts.

Activity preferences also vary. Some participants find daily stories meaningful. Regular story uploads are appreciated, and opinions vary on the frequency of feed posts, with an emphasis on maintaining visibility and balancing quality and quantity.

Wishes for content included a desire for a variety of posts, from DIY content to informative pieces that highlight different action concepts and the impact of sustainable actions. A connection to suggestions for action is desired, as well as insights into everyday life. Three respondents would like to know more about the impact of specific sustainable behaviors or projects to understand their importance.

Some respondents suggest implementing theme weeks or blocks to effectively organize content. Motivation is derived from well-presented topics, backed up with sources, and collaboration between influencers is suggested to increase reach. Promotion of sustainable products and actions is also mentioned.

The preferred communication style is non-judgmental, emphasizing that sustainability education should not involve accusations. An empathetic and accessible communication style is desired, with some participants appreciating direct communication with the community, presented with humor and satire. Conscious use of words is encouraged, with most content conveyed through images and selectively included text. In terms of emotions to evoke, participants expressed a desire for posts to provoke thought, shock, and surprise, while also generating positive feelings and motivation.

Respondents valued the ability to influence the selection of topics on an account. Some suggested tailoring channel topics to followers and addressing diverse topics to engage everyone in the community. Overall, all participants envisioned Instagram as a platform for impactful sustainability education achieved through diverse and engaging content.

3. Discussion

3.1. Instagram usage

With reported usage of 30-90 minutes per day, our participants' Instagram consumption is consistent with typical patterns for German teens and young adults, who spend approximately 62 minutes per day on social media platforms (Koch, 2023). Participants reported Stories as the most viewed and used feature of Instagram, which is consistent with global trends (Dixon, 2024).

Most respondents reported that they actively use Instagram to share stories or posts on an irregular basis, while some only use it passively to consume others' content. Ozimek et al. (2023) found that active usage of social media was more associated with depression, anxiety, and stress than passive usage. In contrast, passive use was more often associated with social comparison orientation, social media addiction, and fear of missing out. We did not examine patterns of psychological problems, but one participant mentioned that their time spent on Instagram was not invested in a meaningful way.

3.2. Instagram's influence on ESD

One of the most important aspects of social media is the rapid dissemination of information to a wide audience. (Lenzen, 2019; Shah et al., 2021).. Respondents recognized Instagram as a source of information and informal learning about sustainability. They see its wide reach as a huge advantage compared to formal learning settings and other media.

An emotional connection to the content and perceived relevance to everyday life are facilitators of successful learning. (Kember et al., 2008; O'Regan, 2019). As described by the interviewees, the Instagram content leads to both, with an emerging emotion-based awareness of everyday problems and solutions in the form of tips on how to live, travel, work, etc. more sustainably.

3.3. Instagram's influence on sustainable behavior

In order for people to not only learn about sustainability, but also act more sustainably, it is important for Instagram users to have role models they feel connected to, with whom they can interact digitally, and to see DIY projects they can get involved in. Literature supports that feelings of self-efficacy are important in shaping behavior (Keller, 2004), as well as a sense of the effectiveness of the endeavor (Chwialkowska, 2019; Hamann et al., 2023)..

The advantage of Instagram is that it connects people all over the world, opening up the possibility of educating and connecting people from different parts of the world about general and region-specific sustainability issues and projects. As mentioned by two interviewees, Fridays for Future provides new information on Instagram that would not be available to such a broad international audience without social media. In fact, the global Fridays for Future demonstrations are a phenomenon that was only possible because they used social media networks such as Facebook and Instagram as organizational and communication tools in the first place. (Brünker et al.; Herrmann et al., 2023). This is not limited to Fridays for the Future, but to other youth activist movements around the world. (Yuen & Tang, 2023).

3.4. Desired Instagram content

Some of our study participants mentioned that there should be more content on sustainability topics, for example, posted by influencers. Several studies have shown that products promoted as sustainable are more likely to sell and that consumers are willing to pay more for sustainable products (Moilanen, 20-23; van Loo et al., 2015). However, it is important to recognize that there is a tendency to greenwash products and projects to increase consumer interest and sales (Parguel & Johnson, 2021; Sailer et al., 2022). In our interviews, people also shared their concerns about seeing greenwashed products on Instagram without knowing the actual sustainable impact of the product.

Some interviewees want explanations about how a particular behavior promotes sustainability. Therefore, just talking about the desired effects of a certain behavior could be enough to promote sustainable behavior (Chwialkowska, 2019). In this way, Instagram users could identify possible outcomes and effects before deciding whether or not to act in a certain way. Showing the consequences of an action could also strengthen the users' sense of responsibility, which is important to reduce the attitude-behavior gap according to Kropp (2019) and Terlau and Hirsch (2015).

The visual representation on Instagram through images and videos bridges the need for physical presence (Zielinski, 2016). Those who cause negative, sustainable consequences through their behavior could also be confronted using visual tools in social media. This could create the necessary willingness to take responsibility, as interviewees also mentioned that a sense of shock could be helpful in promoting learning and behavior change.

4. Conclusions

By examining Instagram usage patterns among college students, our research shows that while daily engagement is consistent with typical social media consumption patterns, the platform serves different purposes for different users. Differences between active content creators and passive consumers suggest different engagement patterns, which may influence how sustainability content is received and internalized. This finding has important implications for how sustainability education should be approached on social media platforms.

Instagram's role in education for sustainable development (ESD) is particularly important because of its unique ability to facilitate rapid information dissemination and create emotional connections to sustainability issues. The platform's informal communication style and diverse presentation capabilities make sustainability education more accessible and relatable than traditional educational formats. The combination of emotional engagement and practical, everyday relevance appears to be particularly effective in promoting sustainability awareness and learning.

The platform's influence on sustainable behavior is manifested through its ability to showcase actionable examples and foster global connections. Our findings highlight the critical role of role models and DIY projects in translating sustainability awareness into concrete action. Instagram's effectiveness in facilitating global movements, such as Fridays for Future, demonstrates its potential as a tool for collective action and global sustainability initiatives. The platform's ability to connect users with like-minded individuals and sustainability advocates around the world creates a supportive environment for the adoption of sustainable behaviors.

In terms of future content development, our research shows a clear need for more transparent and verifiable sustainability content. While demand for sustainable products and lifestyle content is growing, concerns about greenwashing underscore the importance of providing detailed impact explanations and evidence-based information. Visual storytelling through images and video is proving particularly effective in illustrating both the positive and negative consequences of sustainable and unsustainable behaviors, potentially helping to bridge the gap between attitudes and behaviors.

From an educational perspective, while Instagram serves as a valuable platform for sustainability education, its algorithm-based content distribution creates potential limitations in reaching users who are not already engaged with sustainability issues. This underscores that while social media platforms such as Instagram should be integrated into formal education systems to enhance ESD, they should complement rather than replace structured curricula. Future research should explore how to effectively combine formal and informal learning approaches to maximize the impact of sustainability education and behavior change initiatives.

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