

YOUTH EMPOWERMENT THROUGH CHARACTER EDUCATION IN FACING CHANGE SOCIAL

Muhammad Tamimi¹, Raman²

^{1,2} Universitas Bina Bangsa

Article History

Received: February 22, 2025

Revised: March 30, 2025

Accepted: April 30, 2025

Abstract

Generation Z teenagers often face emotional pressure that comes from various sources, such as academic stress, social interactions, and societal demands. This has the potential to cause mental health problems, including anxiety and depression. This article aims to provide an up-to-date analysis of character management and emotional regulation relevant to Generation Z, with an emphasis on high moral and ethical values. Implementing strategies such as emotional education, wise use of technology, adequate access to mental health services, and creating a supportive environment is very important. Apart from that, parental involvement, training for teachers, and participation in extracurricular activities are also crucial factors.

Collaborative efforts from all stakeholders are needed to create an environment that can support positive growth for Generation Z. Character education management is key in ensuring their mental and emotional well-being. By understanding the challenges, they face and implementing the right strategies, we can help Generation Z develop the skills needed to deal with pressure and become healthy, competitive individuals in the digital era.

Keywords: Character Education; Generation Z; Mental Health

DOI:

10.46306/bbijbm.v5i1.123

Homepage:

<http://bbijbm.lppmbinabangsa.ac.id/index.php/home>

I. Introduction

Generation Z, which generally includes individuals born between the mid-1990s and early 2010s, has grown up in an environment filled with intense stress and stimulation. In facing these various challenges, their ability to manage emotional

conditions becomes very important to achieve well-being and success in various areas of life.

In the context of emotional conditions, generation Z shows critical, adaptive traits and has a high level of technological literacy (Setiyowati et al., 2022). They are known as an intelligent generation and are able to adapt quickly, although they often experience difficulties in understanding political issues and religious education (Kertamukti, 2022; Beriansyah and Qibtiyah, 2023). More than that, they tend to express themselves through social media and utilize technology as an effective communication tool and source of information (Kaze et al., 2025)

Generation Z teenagers often face emotional pressure that arises from various sources, such as academic demands, social dynamics, and expectations from the surrounding environment. These factors can impact their mental wellbeing and potentially lead to mental health problems, such as anxiety and depression. Therefore, it is very important for educators and parents to understand this condition and help them manage their emotional states well (Miah et al., 2025).

Generation Z often feels the burden of increasingly fierce educational competition, exams that determine the future, and high expectations for achieving academic success (Xie and Derakhshan, 2021). This pressure can cause stress, anxiety and feelings of insecurity among teenagers. Apart from that, social interactions are also a source of emotional stress for them. Many adolescents feel pressured to meet social standards, gain recognition from peers, and adapt in complex social environments (Grundmann et al. , 2021; Smith et al. , 2018). Pressure from social media, expectations to appear perfect, and comparisons with other people are increasingly worsening Generation Z's emotional condition.

Character management is an approach used to shape, develop and strengthen individual or group character. This approach focuses on managing and developing positive traits, moral values, attitudes and behavior that are important in forming a good and ethical personality. Character management is not only related to personal character formation, but can also be applied in the context of education, organizations and society as a whole. In the world of

education, character management includes implementing strategies and programs to educate students about ethics, morality and leadership.

The aim of this article is to present a contribution to the latest analytical studies regarding character management specifically for Generation Z, by prioritizing high moral and ethical values. This includes developing policies, procedures and practices that encourage ethical behavior, cooperation and social responsibility. In society, character management can involve activities such as training and coaching which aim to take positive steps in shaping the character of the younger generation (Juras et al., 2025).

Character management is an approach that aims to shape, develop and strengthen individual and group character. The main focus of this concept is the management and development of positive traits, moral values, as well as attitudes and behavior that are considered important in forming a good and ethical personality. Character management is not only relevant in the context of personal development, but can also be applied in education, organizations and society at large (Tunn et al., 2025).

In the world of education, character management includes implementing strategies and programs that educate students about ethics, morality and leadership. This article aims to contribute to the latest analytical studies regarding character management, especially in the context of generation Z which is based on high moral and ethical values. This includes developing policies, procedures and practices that encourage ethical behavior, teamwork and social responsibility (Hadian et al., 2025).

In society, character management can involve activities such as leadership training, personality development programs, and social activities aimed at strengthening moral values and inspiring positive action in the community. However, it is not uncommon for the phenomenon of expectations from the environment, including family, school, and society, to provide emotional pressure for generation Z. Expectations for success, achieving certain standards,

and meeting other people's expectations can be a significant emotional burden for teenagers in this generation (Sun, 2021)

Holistically, this research examines urgent problems in a social context, considering that the Generation Z population continues to increase. Therefore, this research seeks to identify challenges in character management in order to create an environment that supports positive personal growth and development, both in individual, group and organizational contexts. This includes managing values, attitudes, and behavior to achieve goals related to a better quality of life and a better society (Filip et al., 2023).

The use of gadgets in Generation Z's daily life has a significant impact on their emotional condition. Although technology offers unlimited access to information and connectivity, it also carries risks such as digital addiction and sleep disorders. Therefore, it is important to understand how technology affects the emotional states of Generation Z teenagers and find strategies to manage them in a healthy way (Pyykkönen & De Beukelaer, 2025).

Excessive use of technology, especially social media, can cause emotional distress and stress. Generation Z is frequently exposed to unhealthy content, experiences adverse social comparisons, and cyberbullying, all of which can have a negative impact on their mental and emotional health (Graciyal and Viswam, 2021; Horwood and Anglim, 2019; Ranieri et al., 2021).

On the other hand, excessive use of technology also disrupts the balance between time in the virtual world and social interactions in the real world. This can lead to social isolation, difficulties in building healthy interpersonal relationships, and feelings of loneliness (Nur and Panggabean, 2021; Charan, 2024; Ranieri et al., 2021). It is important to remember that the role of the social environment should not be ignored in managing the emotional conditions of Generation Z teenagers. Schools, families and peers have a crucial role in providing support and guidance to teenagers to regulate their emotions.

Thus, strengthening collaboration between educators, parents and the community is very important in efforts to manage character education for Generation Z teenagers.

When we discuss character education management for Generation Z youth, it is important to consider their individual development and specific needs. Every teenager has their own uniqueness and challenges in managing the emotional conditions they face. Therefore, the character education approach taken must be holistic and responsive to the context of each individual in the Generation Z group.

However, the challenges in implementing character education management for Generation Z teenagers also include the need for adaptation to conventional educational methods. Generation Z teens generally have different preferences in how they learn and interact, with a tendency to favor hands-on experiences, technological engagement, and open communication. Therefore, an innovative approach is needed that suits their needs in order to increase the effectiveness of character education (Kelly et al., 2025).

Thus, research on character education management for Generation Z teenagers in managing their emotional conditions is becoming increasingly relevant, especially amidst the complex challenges faced in the era of technology and globalization. This research can provide valuable insight into effective strategies to help Generation Z teenagers manage their emotions healthily and build strong character. In this way, we can create an educational environment that is supportive, inclusive and empowering, so that Generation Z teenagers can grow and develop optimally in various aspects of their lives (Newbutt & Bradley, 2025).

II. Theoretical Review

Character education is an effort to instill moral and ethical values in the learning process, so that students can develop into good and responsible individuals. The following are several theories that are relevant in implementing character education, especially for Generation Z teenagers:

Kohlberg's Theory of Moral Development

This theory emphasizes that moral reasoning develops through a number of stages. Generation Z teenagers need to be guided to reach a higher level of moral reasoning, where they are able to understand universal ethical principles and make responsible moral decisions. In the context of Generation Z growing up in the digital era, it is very important to discuss the moral dilemmas that arise due to technology, such as cyberbullying, data privacy, and the spread of false information (Wickson et al., 2025).

Generation Z teenagers learn a lot from the digital environment, including social media and public figures in cyberspace. Character education should take advantage of the positive influence of the digital environment, by highlighting inspirational figures and online communities that support positive values. This theory emphasizes the importance of the ability to recognize, understand, and manage emotions. Generation Z teenagers are often faced with pressure and stress due to academic, social and digital demands. Character education needs to develop their emotional intelligence to face challenges wisely, build healthy relationships, and make responsible decisions (Koh et al., 2025).

This theory emphasizes the importance of cultivating universal values such as honesty, responsibility, empathy and tolerance. These values are the basis for ethical and moral behavior. Considering the diversity of Generation Z, emphasis should also be placed on the values of inclusivity, respect for differences, and global awareness. Generation Z grew up in a dynamic and global digital era. Character education must take this context into account and equip them with the skills to adapt, think critically, and act ethically in a variety of situations (Wehden et al., 2025).

Technology Integration: Utilizing technology as a tool for character learning through educational games, simulations, and online platforms for moral discussions. Project-Based Learning: Engaging teens in real projects that require them to apply character values, such as community service projects or social awareness campaigns. 21st Century Skills Development: Equipping youth with critical thinking, problem solving, communication and collaboration skills, which are critical in facing challenges in the digital era. Parental and Community Involvement: Building partnerships between parents, teachers, and the community to create an environment that supports youth character development (Silversides et al., 2025).

Multicultural Education: Equipping teenagers with an understanding and acceptance of cultural diversity. By understanding the basis of these theories and applying them contextually, character education can help Generation Z teenagers grow into individuals with integrity, responsibility and positive contributions to society. Reflects an emphasis on moral and spiritual values that are universal and eternal. Character education is designed to develop the ideal individual, with a focus on virtue and truth (Byrne & Giuliani, 2025).

Focuses on character development that is in line with the realities of life. Character education aims to prepare individuals to be ready to face the challenges and demands of society. Emphasizes the importance of experience and action in the process of character formation. Character education functions to develop individuals who are able to think critically, creatively and adaptively. Describes the stages of individual moral development, starting from pre-conventional to post-conventional levels. Character education aims to help individuals reach a higher moral level (Knorr & Augustin, 2025).

Highlights the important role of the social environment in character formation. Character education is aimed at creating an environment conducive to the development of positive values. Underlines the importance of developing individual potential optimally. Character education focuses on helping

individuals develop self-awareness, self-esteem, and responsibility. States that society has a vital role in forming individual character. Character education aims to instill values that support social integration and stability. Emphasizes the importance of social interaction as a character-forming factor. Character education aims to hone an individual's ability to interact positively with other people (Gütte et al., 2025)

Emphasizes the development of three aspects of character: moral knowledge, moral feeling, and moral action. Character education aims to help individuals understand, appreciate and practice moral values in everyday life. Introducing the "Among" concept which emphasizes humanist education and is oriented towards developing students' potential holistically. He also proposed the concept of "Tri Centers of Education," which includes family, school, and society as three important elements in forming the character of students (Martín-Gutiérrez et al., 2025).

The Character Education Theory proposed by Thomas Lickona highlights the importance of developing three fundamental aspects of character, namely moral knowledge, moral feelings, and moral actions. The aim of character education is to help individuals understand, appreciate and implement moral values in their daily lives.

Meanwhile, introducing the concept of "Among" which focuses on character education, namely, so that teenagers focus more on developing students' potential as a whole. He also put forward the idea of a "Tri Center of Education," which involves the important role of family, school, and community in the process of forming the character of students. Meanwhile, Generation Z, individuals born between the mid-1990s and early 2010s, experience unique emotional conditions due to technological advances, social changes and high academic pressure. The influence of intense social media use is felt in their lives. While this generation is highly digitally connected, which provides numerous benefits, they also face significant risks. Social media can be a means to get social

support and express oneself, but on the other hand it can also cause feelings of anxiety, low self-esteem and isolation due to constant social comparison and exposure to cyberbullying (Radtke, 2025).

III. Methodology

In this research, we adopted a qualitative method through a literature review approach to explore the management of character education among Generation Z teenagers in dealing with their emotional conditions. By using a qualitative approach, researchers can explore complex and subjective phenomena, such as the emotional experiences experienced by teenagers, in more depth (Tang et al., 2025).

The first step in this method involves collecting literature from various sources, including scientific journals, books, research reports, and other related documents. The collected material is then analyzed systematically to identify findings that are relevant to the research topic, such as theories of emotional management, character education, and special characteristics of Generation Z. Next, the data that has been collected from various literature sources will be analyzed further using reading, comparing, and assessing methods (Fisseha et al., 2024).

In the process of synthesizing existing findings, researchers attempt to identify patterns, trends, and conclusions that emerge from the literature that has been researched. During analysis, an interpretive approach can be used to explore the hidden meaning behind the literary texts. This approach allows researchers to explore various points of view, analyze social and cultural contexts, and identify practical implications of the findings obtained.

The results of this analysis will later become the basis for developing a solid theoretical framework that is relevant to the research topic. This theoretical framework will provide a basis for developing concepts and recommendations in

research regarding character education management among Generation Z teenagers. Thus, qualitative methods that use a literature review approach can provide in-depth understanding and valuable insights regarding this research topic. Next, the theoretical framework used as a research basis will be explained further (Burgess & Dunbar, 2025).

IV. Results

Strategies for managing emotional conditions in Generation Z

Generation Z, which includes individuals born between the mid-1990s and early 2010s, faces a unique range of emotions as a result of technological developments, social change, and high academic pressure. Their emotional condition is often influenced by massive use of social media. In this era, they are connected digitally, which brings many benefits but also significant risks. Social media can function as a source of social support and a means of self-expression, but on the other hand, it can also give rise to feelings of anxiety, low self-esteem, and isolation due to constant social comparison and exposure to cyberbullying.

Academic pressure and high expectations, both from themselves and the environment, also contribute to the emotional condition of Generation Z. They often face intense competition in achieving achievements at school and struggle to enter prestigious universities, which can increase stress and anxiety levels. In addition, future uncertainty related to employment and climate change adds to the emotional burden they face. Generation Z is also more susceptible to anxiety and depression than previous generations, largely due to the demand to always appear perfect and successful in every aspect of their lives.

The results of this research show that Generation Z, as the largest group in Indonesia today, is facing significant challenges in terms of mental and emotional health. Various factors, such as excessive use of social media, high academic pressure, and uncertainty about the future, have a major impact on their mental

and emotional state. Therefore, character education management and emotional condition management are very important to help Generation Z face this challenge.

Effective strategies for managing emotional conditions include education about emotions, prevention efforts against cyberbullying, creativity development, and support in mental health and character values. With a holistic approach and the right support, Generation Z can hone the skills needed to deal with stress, so they can grow into healthy individuals and thrive positively in society.

Discussion

Generation Z's Mental Development in the Technology Era

Based on the Indonesian Gen Z Report from IDN Media in 2024, Indonesia is currently enjoying a demographic bonus with 70.72% of its population in the productive age, namely between 15 and 64 years. It is hoped that this will be a driving force for this country to reach its golden age in 2045. Generation Z, born between 1997 and 2012, is now the largest generation group in Indonesia, covering around 27.94% of the total population, equivalent to 74.93 million people. The significance of their existence is very large in the context of social development and national progress.

In fact, this figure may be greater than the millennial generation, which is the second largest group in Indonesia, reaching 25.87% of the total population, namely around 69.38 million people. Nearly half of Generation Z have entered working age, while others will soon join the workforce in the next few years. As a generation that grew up after the 1998 political reform in Indonesia and is known as a digital native, Generation Z certainly has different attitudes and behavior compared to previous generations.

Understanding the characteristics of Generation Z—from their lifestyle, perspective, values, to the goals and challenges they face—will provide important insight in facing Indonesia's golden era. The Indonesian Adolescent Mental Health Survey (I-NAMHS) in 2022 shows that around 1 in 20 teenagers aged 10 to 17 years, namely 5.5%, have been diagnosed with a mental disorder in the last 12 months, which is usually referred to as individuals with mental disorders (ODGJ). Additionally, about a third of them, or 34.9%, had at least one mental health problem, thereby categorizing them as individuals with mental health problems. The correlation between the above data and this research shows that good mental health allows individuals to manage their emotions more effectively. Conversely, if mental health is compromised, as in the case of anxiety or depression, their ability to regulate emotions will also be affected. Generation Z often faces significant mental health challenges, and this has a direct impact on the way they feel and express emotions.

For example, chronic stress can result in excessive emotional reactions or, conversely, cause an inability to feel certain emotions. The relationship between mental and emotional conditions is very important for generation Z. Research shows that mental emotional disorders (GME) are experiencing an increase in prevalence, especially among individuals aged 15-24 years (Andriani et al., 2022).

Various factors, such as central obesity, smoking habits, physical activity and working conditions, play a role in influencing the mental and emotional condition of generation Z (Pibriyanti, 2018). Apart from that, the school environment, support from peers, and media exposure, such as K-Drama shows, can also influence emotional mental disorders in generation Z (Nawawi et al., 2021; Yunere et al., 2021).

Stress, resilience and work efficacy also have an influence on the mental health of generation Z (Ismail et al., 2023; Putri and Indrawati, 2020). Generation Z tends to want autonomy, freedom at work, and good relationships with superiors. Therefore, authentic leadership and empowering leadership can influence the

turnover intentions of generation Z employees (Pinandito and Savira, 2022; Afandi et al. , 2022).

Character education has a crucial role in helping Generation Z manage their mental and emotional conditions. By instilling positive values, stress management skills, and effective coping strategies, character education can support teenagers in developing mental and emotional strength. Apart from that, aspects of self-concept, consumer behavior and use of technology also have a significant influence on the mental and emotional state of this generation (Yuniasanti and Nurwahyuni, 2023).

Empowerment, community intervention, and attention to balance between work and personal life are also very important to maintain the mental health of Generation Z (Sa'idah et al., 2022). Programs designed to improve emotional resilience and mental health can give people the tools they need to face life's challenges.

Overall, Generation Z's mental and emotional health are closely linked. External factors such as technology, academic pressure, and social relationships play an important role in shaping their mental and emotional well-being. Therefore, efforts to improve the welfare of this generation must adopt a holistic approach that addresses both aspects simultaneously.

Case study of Generation Z Youth Education

Character education has a very crucial role in empowering teenagers to be able to face various social changes. By instilling positive values, character education equips them with strong character development, firm morals, and adequate social skills. This allows teenagers to adapt better and contribute actively in an ever-changing society.

Challenges facing generation Z

Digital Divide, Even though Gen Z is known as the digital generation, gaps in access to technology and the internet can create inequalities in education and employment opportunities. Generation Z often faces significant stress regarding education, work, and life expectations. This can cause mental health problems, such as anxiety and depression. Engagement and motivation, Gen Z may need an interactive and personalized learning approach, and feel the relevance of the subject matter to their lives.

Digital Ethics, It is important to pay attention to how they use technology, including use of social media and potential risks such as cyberbullying.

V. Conclusion

Generation Z today faces complex emotional challenges, fueled by technological advances, social change and increasing academic pressure. Although social media offers advantages in terms of connectivity and social support, its intense use also carries significant risks such as anxiety, feelings of insecurity and social isolation. In addition, the pressure to do well in school and to be accepted into top universities further exacerbates the stress levels experienced by this generation. Uncertainty about the future adds to the emotional burden they feel.

To help Generation Z better manage their emotional states, various effective strategies are needed. Education that focuses on emotional and social aspects, wise use of technology, easy access to mental health services, and a supportive environment at home, school and community are crucial. Teaching effective coping skills, encouraging participation in extracurricular activities, and providing training to teachers to support students' emotional health can have a significant positive impact. Apart from that, parental involvement and collaboration between various stakeholders are also very important in creating comprehensive support for teenagers.

Overall, managing character education and managing emotional conditions in Generation Z is very important to ensure their mental and emotional well-being. By understanding the unique challenges they face and implementing appropriate strategies, we can help them develop the skills they need to better face life. Joint efforts from families, schools and communities will play a significant role in supporting Generation Z to grow into individuals who are healthy, tough and able to compete in the ever-growing digital era. Character education has an important role in helping the younger generation face social change. With the values taught, they can grow into individuals who are responsible, moral and have integrity. Apart from that, character education can also motivate the younger generation to become agents of positive change in society.

Character education plays a very important role in empowering teenagers to face various social changes. By instilling positive values, character education equips teenagers with the development of strong character, firm morals and adequate social skills. This makes it easier for them to adapt and contribute to an ever-dynamic society.

REFERENCES

- Burgess, M., & Dunbar, R. I. M. (2025). A quantitative model of trust as a predictor of social group sizes and its implications for technology. *European Economic Review*, 175, 105012. <https://doi.org/10.1016/j.euroecorev.2025.105012>
- Byrne, J., & Giuliani, A. P. (2025). The rise and fall of the girlboss: Gender, social expectations and entrepreneurial hype. *Journal of Business Venturing*, 40(4), 106486. <https://doi.org/10.1016/j.jbusvent.2025.106486>
- Filip, D., Macocinschi, D., Nica, S. L., Condurache, B., Stoleru, E., Mihaela, D., Barga, A., & Zaltariov, M. (2023). Jo ur na l P. *International Journal of Biological Macromolecules*, 127571. <https://doi.org/10.1016/j.metip.2025.100183>
- Fisseha, S. E., López, M. L., Brummelaar, M. ten, & Hibiso, H. W. (2024). Sources of resilience for refugee youth in Ethiopia: Exploring the role of education, work, community, religion, and family. *Child Abuse and Neglect*, 162(July 2023), 1-14. <https://doi.org/10.1016/j.chiabu.2024.106978>
- Gütte, A. M., Zscheischler, J., Sieber, S., & Chevelev-Bonatti, M. (2025). A typology of rural femininity and identity among women coffee producers – A qualitative case study from Costa Rica. *Journal of Rural Studies*, 114(December 2024), 103560. <https://doi.org/10.1016/j.jrurstud.2024.103560>

- Hadian, M. S. D., Barkah, M. N., Khadidjah, U. L. S., Yuliawati, A. K., Aryanti, A. N., & Suhardiman, S. (2025). Urban geotourism development in the perspective of stakeholders. *International Journal of Geoheritage and Parks*, 13(1), 102–116. <https://doi.org/10.1016/j.ijgeop.2024.12.001>
- Juras, A., Reavley, N., Mehr, M. A., Wang, S., Nguyen, T. D., Santosa, S., Tran, D. B., Gui, W., Dumuid, S., Phung, S., Antony, E. S., Turner, A., & Neelakantan, L. (2025). “No co-design process can ever truly cater to every single person”: Perspectives of young people in Australia on co-design for the prevention of mental health challenges. *Mental Health and Prevention*, 38(March), 200414. <https://doi.org/10.1016/j.mhp.2025.200414>
- Kaze, K., Balta-Ozkan, N., & Shrimpton, E. (2025). Connecting power to people: Integrating community renewable energy and multi-level governance towards low-carbon energy transition in Nigeria. *Energy Research and Social Science*, 121(October 2023), 103938. <https://doi.org/10.1016/j.erss.2025.103938>
- Kelly, B., van Breda, A. D., & Frimpong-Manso, K. (2025). “You are nothing and you have nothing”: Exploring social justice for youth leaving care in African contexts. *Children and Youth Services Review*, 172(December 2024), 108291. <https://doi.org/10.1016/j.childyouth.2025.108291>
- Knorr, D., & Augustin, M. A. (2025). Towards resilient food systems: Interactions with indigenous knowledge. *Trends in Food Science and Technology*, 156(December 2024), 104875. <https://doi.org/10.1016/j.tifs.2025.104875>
- Koh, D. M. Y., Au, A. D. M., Jones, L., Chandrasekara, D., Wu, L., Cardamone-Breen, M., Olivier, P., & Yap, M. B. H. (2025). Localising the Partners in Parenting program for Malaysia (PiP Malaysia): A qualitative study of cultural considerations. *Children and Youth Services Review*, 172(March), 108260. <https://doi.org/10.1016/j.childyouth.2025.108260>
- Martín-Gutiérrez, Á., Fernández-Salinero Miguel, C., García-Mora, M. E., & Montero-Pedrerá, A. M. (2025). Effectiveness of the PEIEO program to develop the entrepreneurial potential of Spanish students in Secondary Education and Vocational Training. *Social Sciences and Humanities Open*, 11(February). <https://doi.org/10.1016/j.ssaho.2025.101365>
- Miah, M. T., Aiupova, N., Erdei-Gally, S., & Fekete-Farkas, M. (2025). Digital entrepreneurship ecosystems: Then vs. now-a future perspectives. *Digital Business*, 5(1). <https://doi.org/10.1016/j.digbus.2025.100110>
- Newbutt, N., & Bradley, R. (2025). Exploring ethical research issues related to extended reality technologies used with autistic populations. *Journal of Responsible Technology*, 21(December 2024), 100102. <https://doi.org/10.1016/j.jrt.2024.100102>
- Pyykkönen, M., & De Beukelaer, C. (2025). What is the role of creative industries in the Anthropocene? An argument for planetary cultural policy. *Poetics*, 109(October 2024). <https://doi.org/10.1016/j.poetic.2025.101971>
- Radtke, J. (2025). E-participation in energy transitions: What does it mean? Chances and challenges within Germany’s Energiewende. *Technological Forecasting and Social Change*, 210(June 2023). <https://doi.org/10.1016/j.techfore.2024.123839>
- Tunn, J., Müller, F., Hennig, J., Simon, J., & Kalt, T. (2025). The German scramble for green hydrogen in Namibia: Colonial legacies revisited? *Political Geography*,

- 118(July 2024), 103293. <https://doi.org/10.1016/j.polgeo.2025.103293>
- Wehden, S., Garber, H., Aichinger, M., Hempel, E., Creutzig, F., & Janda, K. B. (2025). Choosing photovoltaics installation as a job emerges as a pro-environmental behaviour in the context of low-carbon transitions' skill shortages in Germany. *Journal of Cleaner Production*, 491(December 2024), 144534. <https://doi.org/10.1016/j.jclepro.2024.144534>
- Wickson, F., Lambert, L., & Bernstein, M. (2025). Growing through transformation pains: integrating emotional holding and processing into competence frameworks for sustainability transformations. *Current Opinion in Environmental Sustainability*, 74(February), 101525. <https://doi.org/10.1016/j.cosust.2025.101525>