

Empowering Sustainable Recycling: The Influence of Startups and Awareness Among Generation Z

Shreya Girish Iyer¹, Prof. Shreya Saha²

^{1,2} GLS Institute of Design, Ahmedabad

ABSTRACT: Issues like urbanization, industrialization, and overconsumption have led to sustainability becoming a global priority. According to Schönherr & Pikkemaat (2023), social media, social norms, and the effects of COVID-19 played a role in shaping Generation Z's environmental attitudes. Their dedication to sustainability manifests itself in low-emission travel, selective mobility, and waste management. Dobrowolski et al. (2022) and Schönherr & Pikkemaat (2023) are of opinion that Generation Z agrees that both consumers and businesses share the responsibility toward achieving sustainability. Nonetheless, applying ecological awareness toward concrete pro-environmental actions is an ongoing challenge for all sectors (Gazzola et al., 2020).

Even with Gen Z being highly environmentally conscious, barriers such as unclear recycling rules, insufficient systems, and complicated solutions prevent their ability to adopt consistent recycling practices.

Leveraging innovation, technology, and the entrepreneurial spirit, startups are tackling the recycling issues faced by Gen Z. With the help of mobile applications, AI, blockchain, and gamification, recycling becomes not only easier but more rewarding. Using incentive-based app recycling and smartphone waste collection systems, companies such as Trashie and RecycleSmart strive to make recycling more rewarding and convenient. Other than technological solutions, companies combine digital awareness campaigns alongside partnerships with government, industry, and educational institutions to make the public conscious of the negative impacts of waste on the ecosystem. This underscores the values of Generation Z regarding the need for honesty and responsibility in public concern over the environment.

This study focuses on the use of digital technologies by entrepreneurs and their deliberate attempts to investigate their role in promoting sustainable recycling among Generation Z. The goal is to find practical ways to increase Gen Z's adoption of recycling by exploring the cooperation between entrepreneurs, legislators, educators, and the commercial sector. By encouraging the growth of a circular economy and long-term environmental accountability, the study ultimately hopes to support the larger sustainability goal.

KEY WORDS: Environmental sustainability, Generation Z, Responsible behaviour, Sustainable tourism, Social media.

INTRODUCTION

India is witnessing exponential growth in its Gross Domestic Product (GDP), marking its emergence as a key player in the global economy. Indian economy is also the 6th largest, based on the gross domestic product (GDP) and poised to become the third largest by 2030 (Investopedia, 2017). Nevertheless, advancement brings several challenges, with environmental pollution and the overuse of natural resources being among the most significant. Economic progress often leads to environmental issues like pollution, deforestation, biodiversity loss, and resource overexploitation, posing threats to public health, agricultural productivity, and ecological balance.

Sustainable development is defined as “development which meets the needs of current generations without compromising the ability of future generations to meet their own needs.” The definition evidence three important pillars – the economic growth, social equity and the environmental protection (Chillakuri, et al. 2020). Sustainable development (SD) is the key approach for addressing these concerns (Kenig- Witkowska and Maria, 2017). SD advocates for a balanced approach that integrates economic growth, environmental conservation, and social well-being. India's youth, (Gen Z) with their intellectual curiosity, innovative thinking, and adaptability, hold the key to ensuring a sustainable future. Gen Z's knowledge and creativity can drive transformative change across sectors, advancing green technologies and eco-friendly practices. Their engagement in policymaking, education, and grassroots initiatives is crucial for building a resilient and sustainable ecosystem.

The recycling ecosystem encompasses waste management, circular economy, and sustainable practices. Startups and entrepreneurs play a crucial role by introducing innovative technologies, creating new business models, and driving behaviour change. The circular economy aims to minimize waste through product design, while waste management involves environmentally friendly collection, processing, and disposal. (<https://surl.lu/pwklep>)

Startups increasingly play a vital role in the advancement of the SDGs (Bocken, 2015; Horne et al., 2020; Trautwein, 2021). According to Gianluca Gionfriddo and Andrea Piccaluga (2024), startups are crucial to drive the sustainable transition due to their unique characteristics and capabilities. One key aspect is their inherent capacity for innovation (Sehnm, Provensi, da Silva, & Pereira, 2022) which generates new technologies, products, and services that address pressing environmental and social challenges (Trautwein, 2021).

People born between 1997 and 2012 are referred to as Generation Z, or the generation of the future. Because they grew up with digital devices, this generation is frequently referred to as "digital natives." They are the ones who will have a significant influence on the future and will shape the society in the years to come hence playing a critical role in sustainability. Because Generation Z are used to technology, they may research and express their ideas on sustainability-related issues through social media and online forums. They have been found to have higher environmental awareness and more advanced green consumption understanding (Choudhary, 2020). According to Autio and Heinonen (2004), green consumer behaviors should be investigated because young people are aware of the value of green consumption but do not behave in accordance with it.

India's young entrepreneurs are building sustainable businesses that reduce waste and promote eco-friendly products while providing employment opportunities. Here are some notable start-ups: **Phool** (2017) – Converts temple flower waste into incense sticks and biodegradable products, reducing water pollution. Revenue: \$15 million. **Recharkha** – Upcycles plastic waste into bags and decor, reducing soil pollution and drainage blockage. Profit: ₹1 crore (2022). **Beco** – Produces biodegradable household products like tissue rolls, dishwashing liquids, and toothbrushes. Valuation: ₹1.2 crore. **ECOIL** – Converts used cooking oil from restaurants into bio-diesel, preventing drainage issues. Investment: ₹30 lakh; Valuation: ₹40 crore. **Chamar** – Recycles rubber waste into fashion accessories while empowering Dalit artisans. Turnover: ₹70 lakh+. **Carbon Craft** – Creates carbon tiles from air pollution, offering an eco-friendly alternative to construction materials. **Papla** – Produces biodegradable tableware and packaging from Arecanut leaves, reducing plastic waste. Revenue: ₹20 lakh annually. **Zogam Bamboo** – Crafts bamboo-based products, reducing single-use plastics while supporting rural artisans. Profit: ₹4 lakh annually. **Metastable Materials** – Extracts valuable metals from lithium-ion batteries and e-waste, contributing to sustainable resource use. **Carmesi** – Develops biodegradable sanitary pads, reducing plastic waste from menstrual products. These start-ups showcase India's growing commitment to sustainability, waste reduction, and employment generation through innovative business models (Vishnubhatla Naga Bhargavi, 2024).

Public participation is crucial for promoting recycling programs (Sidique, 2008). Assessing youth awareness, knowledge, and engagement in waste management is essential for evaluating a country's sustainability efforts. This study explores Gen Z's awareness of recycling startups and their role in sustainable waste management. The findings will help identify challenges, assess current initiatives, and recommend improvements for more effective recycling programs.

REVIEW OF LITERATURE

The emergence of R-startups is closely linked to the principles of the circular economy, which aims to enhance environmental, economic, and social performance by optimizing resource use. This is accomplished through strategies such as sustainable product design, repair, reuse, renewal, composting, and recycling (Adhikari et al., 2023). A circular economy (CE) can offer significant benefits to a country when waste is effectively managed and transformed into valuable resources (Sarpong and Alarussi, 2022). In this context, R-startups play a vital role by engaging in the collection of reusable materials, as well as in activities such as recycling, upcycling, remanufacturing, and reusing. These startups typically operate with an environmentally conscious approach, actively contributing to the protection of natural ecosystems. Although startups are increasingly viewed as key drivers of the innovation necessary for advancing the circular economy, there is still a limited empirical research exploring how these enterprises choose and implement circular strategies (Opstal and Borms, 2023).

The survey conducted by Chase India and the International Council for Circular Economy (ICCE) (2024) identify gaps and challenges in the circular economy from the perspectives of policy frameworks, infrastructure, technology adoption, and other crucial factors. The findings provide an overview of the state of circular economy startups, their regulatory interactions, consumer awareness levels, and the essential role of government support.



Gen Z, individuals born between 1995 and 2010, have demonstrated a profound concern for environmental issues. A study by Petro (2022) revealed that three-quarters of Gen Z consumers prioritize sustainability over brand names when making purchasing decisions. This eco-conscious mindset is further evidenced by their willingness to invest in sustainable products, with 54% of Gen Z willing to pay 10% more for such items, surpassing the 50% of Millennials and 23% of Baby Boomers who share this sentiment (Good Maker Tales, 2023). This generational shift underscores a growing demand for sustainable business practices and products. According to Shawn Radcliffe, 2024, Gen Z generation is deeply concerned about the negative impacts of climate change, acting in their own lives and pushing their employers to do the same. Gen Z currently makes up 27% of the global workforce. That share is expected to grow to 31% by 2035 and will have a massive influence on the future of sustainability initiatives in the workplace. Generation Z values sustainability in their consumption habits, often choosing eco-friendly and ethically sourced products over major brands (Wood, 2022). Their digital engagement keeps them well-informed on environmental issues, fostering both awareness and advocacy around topics like climate change and renewable energy (Hassim, 2021). As a result, their choices and policy support make them key players in advancing the sustainability agenda (<https://surl.lu/povskp>).

Halder and Singh (2018) found that social influences play a key role in shaping recycling intentions among Indian youth. To promote recycling, authorities should integrate it into social norms and ensure convenient access to facilities. Educational institutions also play a crucial role by raising awareness and encouraging student involvement in household waste management. The objective of this research is to investigate Gen Z's awareness, attitudes, and behaviors toward sustainable recycling methods, as well as their understanding of the role of recycling startups. Gaining insights into these aspects is crucial for advancing the circular economy.

OBJECTIVES

The study was conducted keeping the following objectives

1. To assess the level of awareness towards recycling and sustainable development among the Gen Z.
2. To identify their attitude, behaviour and challenges towards recycling practices.
3. Awareness towards green startups in India and their role in sustainable recycling.
4. To Assess the Impact of Awareness Campaigns on Generation Z's Recycling Habits.
5. To know the environmentally sustainable start-ups in India.

METHODOLOGY

This study uses a quantitative survey method with a structured questionnaire to gather detailed information from participants through a cross-sectional survey, aiming to understand their attitudes and behaviours. Convenient sampling was chosen due to its ease, cost-effectiveness, and ability to overcome research limitations among students. Target population chosen was students between the age groups 13 -28 irrespective of their gender, course, study level, and age consisting of approximately 250 participants. The questionnaire was sent to Gen Z through online google form. The questionnaire consisted of the following questions in different sections (Asmaa and Zawawi, 2022).

Section 1 – Demographics; Section 2 - Awareness toward Recycling – Attitude, Behaviour toward Recycling and challenges faced by Gen Z towards adopting recycling practices; Section 3 - Awareness and attitudes towards green startups in India and their role in sustainable recycling; After collection of the responses, analysis of the data was done to understand the level of awareness and attitude for recycling and green start-ups in India.

RESULTS AND DISCUSSION

The responses and feedback of the respondents were analysed thoroughly. Responses were collected from 250 participants. The following observations were made from the response data. The link for feedback responses collected are attached herewith for reference. https://docs.google.com/forms/d/1IvBXwUkUCtLqzJZdtZL9SS-B_irvMfhh529Q_XIEH6w/edit#responses

Table 1.0 Demographics

Age group	13-18 (29.5 %)	19-24 (64%)	25-28 (6.5%)
Gender	Male (24.3%)	Female (75.3%)	Prefer not to say (.4%)
Occupation	Student (93.6%)	Professional (4.8%)	Self-employed (1.6%)
Educational Qualifications	School (4.8%)	Undergraduate (78.5%)	Postgraduate (15.5%)



Out of 250 participants, 64% of the respondents participated in the survey out of 250 was in the age group of 19-24 years and 75.3% of the respondents were females. Students represented 93.6% of the and 78.5% were undergraduate students (Table 1.0).

Table 2.0 Awareness, Attitude, Behaviour and Challenges Towards Recycling

Questions	Responses (percentage)	Questions	Responses (percentage)
How familiar are you with the concept of recycling?	Very familiar (51.2%) Not familiar (45.6%) Neutral (3.2%)	Where do you typically learn about recycling?	School or university (87.2%) Social media platforms (58.8%) News and media outlets (35.2%) Family and friends (35.6%) Govt. campaigns (27.2%)
Are you aware of the environmental benefits of recycling?	Yes, very aware (73.2) Neutral (27.2) Not aware at all (1.2%)	Are you familiar with recycling regulations or guidelines in your area?	Yes (64.4%) No (35.6%)
How often do you encounter recycling-related content on social media?	Daily (11.6%) Weekly (32%) Monthly (18.4%) Rarely (33.6) Never (4.4%)	How important do you think recycling is for environmental sustainability?	Extremely important (61.6%) Very important (36.8%) Not very important (1.2%) Not important at all (.2%)
What motivates you to recycle?	Helping the environment (86.4%) Social responsibility (66.0%) Peer pressure/social norms (15.6%) Economic benefits (e.g., rewards, Incentives (30.8%)	Do you believe individual recycling efforts make a difference?	Yes (76.1%) No (18.2 %) May be (5.7)
How likely are you to support policies or initiatives promoting recycling?	Very likely (60.4%) Neutral (38%) Very unlikely (1.6%)	How often do you recycle at home?	Always (24.4%) Often (24.4 %) Sometimes (36%) Rarely (11.2%) Never (4%)
Do you think your generation (Gen Z) is more concerned about recycling compared to other generations?	Yes (40.4%) No (22%) Not sure (37.6%)	Do you face challenges in recycling?	Yes (81.2%) No (18.8%)
What materials do you recycle regularly?	Paper (77.6%) Food waste (56.4%) Plastic (64%) Glass (35.6%) Metal (27.2%) E-waste (27.2%)	How often do you use technology-based solutions (e.g., apps, platforms) to help you recycle?	Regularly (17.6%) Occasionally (32.4%) Rarely (36%) Never (14%)
If yes, what are the challenges?	Lack of clear guidelines (56.4%) Limited access to recycling facilities (66%) Lack of time or Convenience (42.8%) Uncertainty about what is recyclable (32.4%)		

The survey analysed (Table 2.0) Generation Z's awareness, attitudes, behaviours, and challenges regarding recycling. The results indicate that 51.2% of respondents were familiar with the concept of recycling, and most of them had learnt about it in school or college. Additionally, 73.3% were acknowledged the benefits of recycling. Regarding exposure to recycling-related content, 33% of respondents reported rarely encountering such content on social media, while 32% encountered it weekly (Fig.2). Attitudinally, 61.6% of participants recognized recycling as extremely important for environmental sustainability. Moreover, 86.4% expressed motivation to contribute to environmental conservation, and 76.1% believed that individual recycling efforts make a difference. Furthermore, 60.4% of respondents expressed willingness to support policies or initiatives promoting recycling. In terms of recycling preferences, paper (77.4%) and plastic (66.0%) were the most recycled materials. Despite being a technology-driven generation, respondents showed minimal concern for e-waste recycling and rarely utilized technology-based solutions, such as apps or platforms, to facilitate recycling practices. The survey also identified several barriers to recycling among Generation Z. The primary challenges reported included limited access to recycling facilities (66.0%), lack of clear guidelines (56.4%), lack of time or convenience (42.8%), and uncertainty about what materials are recyclable (32.4%). Schools and universities (87.2%) are the primary sources of recycling awareness, followed by social media (58.8%) (Fig.1). While 64.4% are familiar with recycling regulations, 35.6% lack awareness, indicating a need for better communication (Fig.3). A strong 98.4% recognize importance of recycling, with 6.1% believing individual efforts matter. Despite high awareness, 81.2% face challenges in recycling, suggesting barriers such as accessibility and convenience. Additionally, technology-based recycling solutions remain underutilized, with only 17.6% using them regularly, while 36% rarely and 14% never use them. These findings emphasize the need to bridge the awareness-action gap, improve accessibility, enhance policy communication, and leverage technology to encourage sustainable recycling habits among Gen Z.

Where do you typically learn about recycling? (Select all that apply)

250 responses

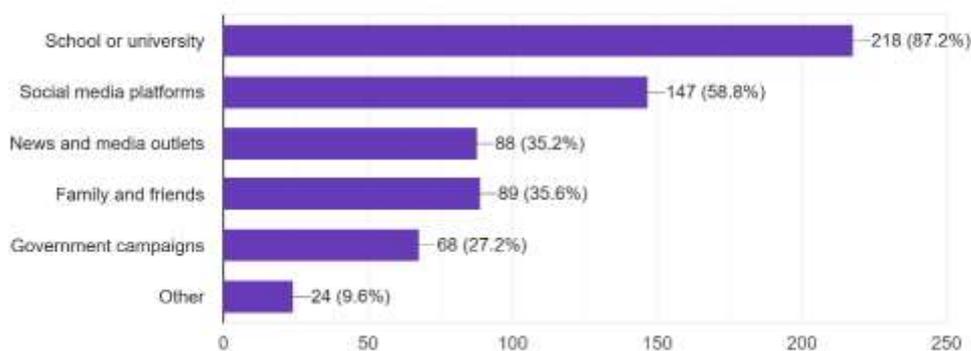


Fig. 1.

How often do you encounter recycling-related content on social media?

250 responses

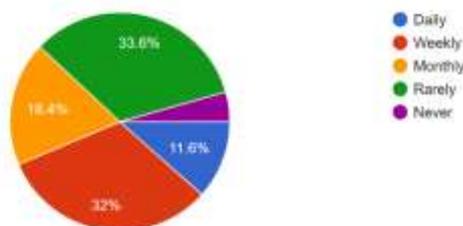


Fig.2.

How likely are you to support policies or initiatives promoting recycling?

250 responses

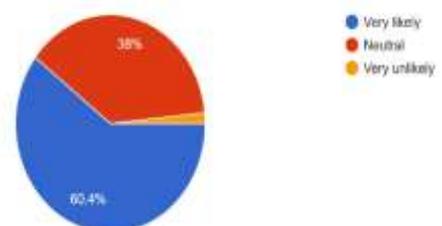


Fig.3.

Fig. 1,2 & 3 : Feedback response images from google form collected.



Table 3.0 Awareness and Attitude Towards Green Startups for Recycling

Have you heard of any startups focused on recycling or waste management?	Yes (70.4%) No (29.6%)	If yes, can you name any recycling-focused startups?	Minus Degre (48.4%) Ecoreco (32.4%) Phool.co (38%) Green Buddies (26.4%) Regrip (17.6%) Recharkha (26.4%) ECOIL (21.2%) Chamar (18%) Metastable Materials (16.4%)
How did you learn about these startups?	Social media (79.6%) News and articles (29.2%) Friends or family (18.4%) School or university (34%) Other (16%)	Are you aware of apps or platforms that incentivize recycling through rewards or gamification?	Yes (59.2%) No (40.8%)
Have you ever used a recycling-focused app or platform?	Yes (71.6%) No (28.4%)	How important do you think green startups are for promoting recycling?	Extremely important (51.2%) Very important (45.6%) Not very important (2.4%) Not important at all (0.8%)
Do you believe startups are effective in encouraging people to recycle?	Yes, very effective (67.2%) Neutral (29.6%) Not very effective (3.2%)	Would you be willing to use technology-based solutions (apps, platforms) from startups to recycle more effectively?	Yes (63.6%) No (5.6%) Maybe (30.8%)
Do you trust startups to handle recycling responsibly and transparently?	Yes, completely (41.2%) Somewhat (31.2%) Neutral (18.4%) Not much (8.4%) Not at all (0.8%)	Which of the following startup driven solutions do you find most impactful?	Gamification of recycling (46.8%) Mobile Apps for waste pickup (53.6%) Awareness campaigns through social media (64%) Engagement with influencers to spread awareness (42.8%) Podcast or digital story telling focussing on recycling (36.4%)
How can startups better engage Gen Z to promote recycling?	Social media campaigns (82.4%) Collaboration with educational Institutions (68.8%) Offering monetary or tangible Reward (37.6%)		



The survey also analysed awareness and attitude of Gen Z Towards Green Startups for recycling. According to the survey, 70.4% of respondents are aware of startups focused on recycling or waste management, with notable mentions including Minus Degre (48.4%), Ecoreco (32.4%), Phool.co (38%), Green Buddies (26.4%), Regrip (17.6%), Recharkha (26.4%), ECOIL (21.2%), Chamar (18%), and Metastable Materials (16.4%) (Fig.4). In addition to the above-mentioned startups, respondents were aware of many other startups working for sustainable recycling to mention a few are Trash to treasure, Ecoline, Saahas zero waste, Namo e-waste management LTD, Attero, Banyan Nation, Loop Industries, Ambercycle, CMR green technologies Ltd, Karma recycling private limited, Carbon Master, LanzaTech, The Kabadiwala, Citizengage etc. The primary sources of information about these startups were social media (79.6%), news and articles (29.2%), school or university (34%), and personal recommendations from friends or family (18.4%). Regarding technology-driven recycling solutions, 59.2% of respondents were aware of apps or platforms that incentivize recycling through rewards or gamification (Fig.5), while 71.6% had previously used such a platform. Moreover, 63.6% of respondents expressed willingness to use technology-based solutions from startups to recycle more effectively, though 30.8% were hesitant and 5.6% were unwilling (Fig.6). Respondents largely viewed green startups as crucial in promoting recycling, with 51.2% rating them as extremely important and 45.6% as very important. Additionally, 67.2% believed that startups are highly effective in encouraging recycling. 41.2% of the respondents expressed complete trust in role of startups in recycling. Regarding impactful startup-driven solutions, 64% of respondents identified social media awareness campaigns as the most effective, followed by mobile apps for waste pickup (53.6%), gamification of recycling (46.8%), engagement with influencers (42.8%), and digital storytelling through podcasts (36.4%) (Fig.7). To further engage Gen Z, respondents suggested strategies such as social media campaigns (82.4%), collaboration with educational institutions (68.8%), and offering monetary or tangible rewards (37.6%). Awareness & Engagement. Gen Z survey respondents suggest engaging youth through awareness campaigns, social media, and influencers. They recommend educational workshops, dedicated recycling bins, clear recycling instructions, and mobile apps for scheduling and tracking. Recycling efforts can be significantly improved with data analytics for route optimization, the introduction of mandatory recycling policies, boosting the market for recycled products, and offering incentive-based programs. When these approaches are adopted, recycling startups can achieve greater public participation, operational efficiency, and environmental benefits. These insights underscore the value of technology and strategic engagement in increasing Gen Z's active role in recycling initiatives.

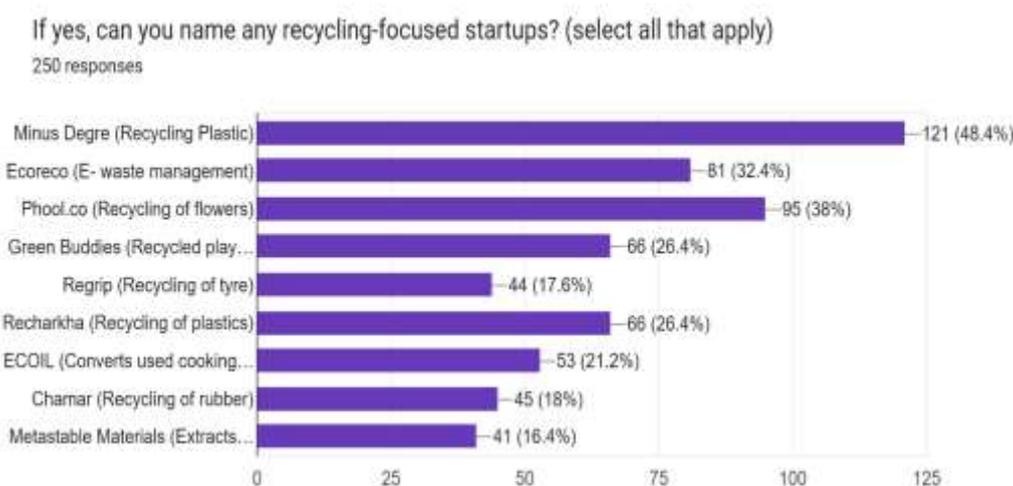


Fig. 4.

Are you aware of apps or platforms that incentivize recycling through rewards or gamification?
250 responses

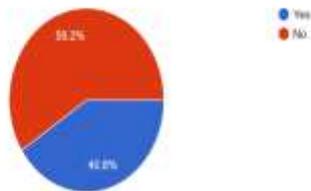


Fig. 5.

Would you be willing to use technology-based solutions (apps, platforms) from startups to recycle more effectively?
250 responses

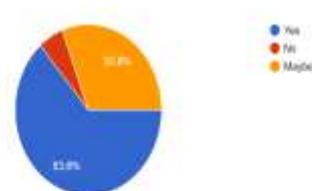


Fig.6.

Which of the following startup driven solutions do you find most impactful? (Select all that apply)
250 responses

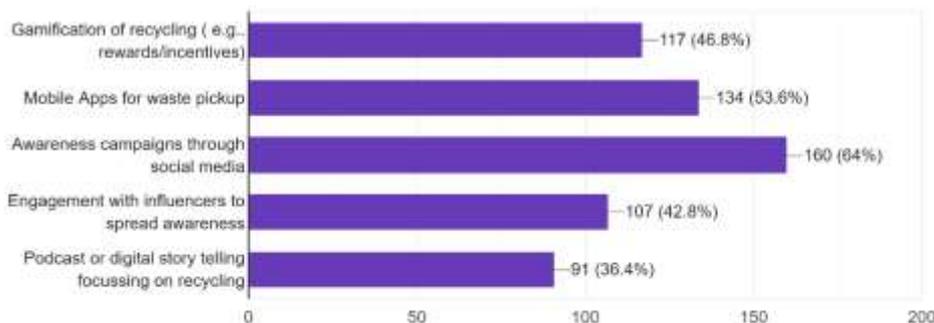


Fig.7.

CONCLUSION

Startups play a vital role in encouraging sustainable recycling practices among Generation Z by driving innovation and fostering engagement. Survey results show that although Gen Z is generally supportive of recycling and sustainability, challenges such as limited access to recycling facilities, unclear guidelines, and confusion about what can be recycled continue to hinder active participation. Despite these obstacles, the growing use of tech-based recycling solutions presents a promising opportunity to boost involvement. Tools like social media outreach, mobile applications, and gamified experiences have proven particularly effective in building recycling habits among young people. To move forward, startups should prioritize improving accessibility, partnering with educational institutions, and harnessing digital tools to promote lasting behavior change. By doing so, they can contribute significantly to developing a more environmentally responsible generation.

REFERENCES

- Adhikari, D. R., Prakash. S., Adhikari, B.R. (2023). New perspectives on people management dimensions in recycling startups. *Journal of Small Business and Enterprise development*. DOI 10.1108/JSBED-09-2022-0400.
- Asmaa M. A, Zawawi D. (2022). A Study of High School Students Awareness towards Recycling Activity and its Relationship with their Attitude and Behaviors related to Recycling Practices. *Recent Trends in Civil Engineering and Built Environment* Vol. 3 (1) 748-759. DOI: <https://doi.org/10.30880/rtcebe.2022.03.01.089>
- Autio, M. & Heinonen, V. (2004). To consume or not to consume? Young people’s environmentalism in the affluent Finnish society. *12(2)*, 137-153. DOI: 10.1177/1103308804042104.
- Bocken, N. M. P. (2015). Sustainable venture capital – Catalyst for sustainable start-up success? *Journal of Cleaner Production*,108, 647–658. DOI:10.1016/j.jclepro.2015.05.079
- Chillakuri, B., Vanka, S., Mogili, R. (2020). ‘Linking sustainable development to startup ecosystem in India – a conceptual framework’, *Int. J. Business and Globalisation*, Vol. 25(2) 139–153. DOI:10.1504/IJBG.2020.107884



6. Choudhary, A. (2020), Generation Green is leading the sustainability agenda. Retrieved from <https://www.capgemini.com/insights/expertperspectives/generation-green-is-leading-the-sustainability-agenda/>.
7. Dobrowolski, Zbyslaw & Drozdowski, Grzegorz & Mirela, Panait. (2022). Understanding the Impact of Generation Z on Risk Management—A Preliminary Views on Values, Competencies, and Ethics of the Generation Z in Public Administration. *International Journal of Environmental Research and Public Health*. 19. 1-13. DOI:10.3390/ijerph19073868
8. Gazzola, P., Pavione, E., Pezzetti, R & D. Grechi. (2020). Trends in the fashion industry. The perception of sustainability and circular economy: a gender/generation quantitative approach *Sustainability*, 12 (7), 2809.
9. Gianluca Gionfriddo and Andrea Piccalug. (2024). Startups' contribution to SDGs: A tailored framework for assessing social impact. *Journal of Management & Organization*, 1- 29. doi:10.1017/jmo.2024.3
10. Good Maker Tales. (2023). Does Gen Z care about sustainability? Stats & facts in 2023. Retrieved from <https://goodmakertales.com/does-gen-z-care-about-sustainability/>
11. Hassim, A. 2021. *Why younger generations are more willing to change in the name of sustainability*. GreenBiz. <https://www.greenbiz.com/article/why-younger-generations-are-more-willing-change-name-sustainability>
12. Horne, J., Recker, M., Michelfelder, I., Jay, J., & Kratzer, J. (2020). Exploring entrepreneurship related to the sustainable development goals – mapping new venture activities with semi-automated content analysis. *Journal of Cleaner Production*, 242, 118052. DOI:10.1016/j.jclepro.2019.118052
13. <https://enlightio.com/why-is-recycling-important-benefits>
14. <https://environbuzz.com/generation-z-the-new-pioneers-of-sustainability-and-environmental-responsibility/>
15. <https://fastercapital.com/topics/the-importance-of-recycling-in-sustainable-living.html>
16. <https://green.org/2024/01/30/how-recycling-reduces-landfill-waste-and-pollution/>
17. <https://greensuccessstories.com/the-role-of-startups-and-entrepreneurs-in-the-recycling-ecosystem/>
18. <https://thephonenerd.com/huaweis-approach-to-sustainability/>
19. <https://www.autodesk.com/design-make/articles/gen-z-and-sustainability>
20. <https://www.chase-india.com/media/qqfc0xyh/startup-accelerating-circular-economy-report-revised.pdf>
21. <https://www.graygroupintl.com/blog/responsible-consumption-and-production>
22. <https://www.green.earth/waste-management>
23. <https://www.greenandhappymom.com/post/why-is-recycling-important>
24. <https://www.larswinkelbauer.com/explain-how-recycling-practices-can-lead-to-environmental-sustainability/>
25. <https://www.starlanguageblog.com/explain-recyclings-role-in-environmental-sustainability/>
26. <https://www.visionfactory.org/post/the-importance-of-recycling-in-promoting-environmental-sustainability>
27. Investopedia. (2017). The World's Top 10 Economies [online] retrieved from <https://www.investopedia.com/articles/investing/022415/worlds-top-10-economies.asp>
28. Kenig-Witkowska, Maria (2017) "The Concept of Sustainable Development in the European Union Policy and Law," *Journal of Comparative Urban Law and Policy*: 1(1) 6. <https://readingroom.law.gsu.edu/jculp/vol1/iss1/6>
29. Mugisa Paul and Omuna Daniel. (2024). Students' Awareness of Waste Management Practices at Kampala International University. *Newport International Journal of Scientific and Experimental Sciences (Nijses)* 5 (3), 1-9. DOI:10.59298/NIJSES/2024/10.5.3119
30. Opstal W. V and L. Borms. (2023). Startups and circular economy strategies: Profile differences, barriers and enablers. *Journal of Cleaner Production* 396 (2023) 136510. <https://doi.org/10.1016/j.jclepro.2023.136510>
31. Petro, G. (2022). Gen Z And Sustainability: The Disruption Has Only Just Begun. *Forbes*. Retrieved from <https://www.forbes.com/sites/gregpetro/2022/02/18/gen-z-and-sustainability-the-disruption-has-only-just-begun/>
32. Schönherr, Sarah & Pikkemaat, Birgit. (2023). Young peoples' environmentally sustainable tourism attitude and responsible behavioral intention. *Tourism Review*. 79. 10.1108/TR-01-2023-0022. DOI:10.1108/TR-01-2023-0022
33. Sehnem, S., Provensi, T., da Silva, T. H. H., & Pereira, S. C. F. (2022). Disruptive innovation and circularity in start-ups: A path to sustainable development. *Business Strategy and the Environment*, 31(4), 1292–1307. DOI:10.1002/bse.2955



34. Sidique, S.F., (2008). Analyses of recycling behavior, recycling demand, and effectiveness of policies promoting recycling. Michigan State University. Department of Agricultural Economics. <https://doi.org/doi:10.25335/4q5j-9466>
35. Trautwein, C. (2021). Sustainability impact assessment of start-ups – Key insights on relevant assessment challenges and approaches based on an inclusive, systematic literature review. *Journal of Cleaner Production*, 281, 125330. <https://doi.org/10.1016/j.jclepro.2020.125330>
36. Vishnubhatla Naga Bhargavi. (2024). A Study on Environmentally Sustainable Start-Up Models That Boost India's Economy. *Gap Bodhi Taru - A Global Journal of Humanities*. 7 (1): 193-197.
37. Wood, J. (2022). *Gen Z cares about sustainability more than anyone else – and is starting to make others feel the same*. World Economic Forum. <https://www.weforum.org/agenda/2022/03/generation-z-sustainability-lifestyle-buying-decisions/>

Cite this Article: Iyer, S.G., Saha, S. (2025). Empowering Sustainable Recycling: The Influence of Startups and Awareness Among Generation Z. International Journal of Current Science Research and Review, 8(10), pp. 4968-4977. DOI: <https://doi.org/10.47191/ijcsrr/V8-i10-10>