

PSYCHOLOGICAL SCIENCES

PSYCHOLOGICAL BARRIERS AND MOTIVES FOR THE FORMATION OF ENVIRONMENTALLY CONSCIOUS BEHAVIOR IN CONDITIONS OF URBANIZATION

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<https://doi.org/10.5281/zenodo.15754190>*

Abstract

The Russian-Ukrainian war has triggered psychological and ecological challenges in Ukraine, particularly in urbanized regions, where stress, PTSD, and alienation from nature hinder the formation of ecological consciousness. Pollution from hostilities and ecosystem destruction exacerbate anxiety, reducing motivation for sustainability. Urbanization, information overload, and consumerist norms create barriers such as cognitive dissonance and a sense of helplessness, impeding eco-conscious behavior. In cities, where information saturation and technogenic environments weaken connections with nature, education and media integrate knowledge, emotions, and social norms, promoting sustainable practices like waste sorting or supporting cycling. Meanwhile, the war fosters empathy for nature and social solidarity, encouraging volunteer initiatives, such as restoring green spaces. Psychological comfort provided by green areas reduces stress and motivates action. Urban design integrating parks and recycling infrastructure enhances ecological awareness. Education and media, particularly social networks, play a key role in enlightening youth, shaping sustainability values through localized content. Formal education via project-based learning about pollution fosters responsibility, reflecting global educational strategies. Localized messages tailored to urban challenges reduce helplessness, increasing engagement. Strategies to overcome barriers include awareness campaigns, greening, and psychological support. An interdisciplinary approach combining psychology, ecology, and urban studies is essential for fostering a sustainable society amid war, promoting Ukraine's psychological and ecological recovery.

Keywords: urbanization, ecological consciousness, psychological barriers, sustainable behavior, environmental education.

1. Urbanization and its impact on ecological consciousness

The Russian-Ukrainian war, escalated on February 24, 2022, has caused significant psychological and ecological consequences for Ukraine's population, creating a complex array of stressors, particularly in urbanized regions. The war has led to mass displacement, infrastructure destruction, and a rise in psychological disorders such as anxiety, depression, and post-traumatic stress disorder (PTSD). The ecological crisis, driven by hostilities, includes soil, water, and air pollution with toxic substances and the destruction of natural ecosystems, intensifying feelings of disconnection from nature and psychological discomfort.

The psychological challenges of the war manifest in high stress levels due to life threats, loss of loved ones, and instability. Studies indicate a significant increase in PTSD, anxiety, and depression among Ukrainians, especially youth, due to ongoing shelling, air raid alerts, and economic hardships. The war's ecological consequences, such as pollution from explosions and infrastructure damage, like the Kakhovka Dam, further deteriorate mental health, sparking fears

of long-term health and environmental impacts. Alienation from nature in urban settings, as noted by Nisbet et al. [19], reduces ecological consciousness, complicating the adoption of sustainable lifestyles. Information overload and social pressures in cities also hinder ecological initiatives, as survival and safety remain priorities.

1. Despite these barriers, the war stimulates motivational factors. Empathy for nature, triggered by its destruction, can enhance intrinsic motivation for sustainability, as Steg suggests [27]. Social solidarity, heightened during the war, supports collective ecological initiatives, such as volunteer efforts to restore green spaces. Urban design, particularly the creation of parks and green corridors, plays a crucial role in reducing stress and enhancing psychological comfort, as confirmed by Kaplan's research [14]. Such spaces promote psychological recovery and encourage eco-conscious behavior.

Strategies to overcome these challenges include awareness campaigns via social media, effective in Ukraine, ecological education programs, and psychological support to address PTSD. Local initiatives, like

greening or recycling, strengthen social norms of sustainability. Psychological comfort in cities, facilitated by access to nature, reduces anxiety and supports ecological decisions, as Schultz notes [24]. Education and media, particularly platforms like Telegram, are pivotal in shaping ecological consciousness, especially among youth.

In conclusion, the war and ecological crisis create psychological barriers, such as stress and alienation from nature, but also foster motivation through empathy and solidarity. Urban design, education, and psychological support are key to building a sustainable society amid war, contributing to Ukraine's psychological and ecological recovery.

2. Psychological aspects of ecological consciousness in the urban context: scientific discourse

Ecological consciousness in the urban context is a complex psychological phenomenon shaped by the urbanized environment, social norms, and personal values. In cities, where technogenic landscapes dominate over natural ones, the psychological mechanisms of ecological consciousness gain particular relevance, as urbanization creates unique challenges and opportunities for fostering a sustainable lifestyle. This text analyzes the psychological aspects of ecological consciousness in urban settings, drawing on contemporary scientific discourse, and examines barriers, motivational factors, and strategies for overcoming them from an interdisciplinary perspective that integrates psychology, ecology, and urban studies.

Urbanization, encompassing a significant portion of the population, creates specific psychological conditions that influence the perception of ecological issues. The urban environment is characterized by information overload, limited access to nature, and a technogenic setting, which fosters alienation from the natural world. Research indicates that the loss of connection with nature reduces empathy for ecological issues and weakens motivation for sustainability. For instance, Nisbet et al. note [19] that urban residents, rarely interacting with natural objects, lose a subjective relationship with the environment, complicating the formation of ecological consciousness. Information overload distracts attention from ecological concerns, as daily challenges like transportation stress or economic instability dominate consciousness. Social pressure in urban communities, often dominated by norms of excessive consumption, also hinders sustainable behavior.

2. Scientific discourse emphasizes that ecological consciousness is formed through the interplay of cognitive, emotional, and behavioral components. Kollmuss and Agyeman [15] describe models of ecological consciousness where values of harmony with nature promote sustainable behavior, while anthropocentric attitudes, viewing nature as a resource, prevail in urban communities and, according to Gifford [10], contribute to ecological problems. Intrinsic motivation, rooted in values of nature preservation, is more enduring than external incentives, such as economic rewards, as noted by Steg and Vlek [27]. Awareness campaigns and social norms can enhance this motivation, fostering ecological behavior.

Psychological barriers to ecological consciousness in cities include a sense of helplessness, cognitive dissonance, and a lack of ecological education. A sense of helplessness arises when individual actions seem insignificant against global ecological challenges, reducing readiness to act. Cognitive dissonance occurs when urban residents recognize the importance of sustainability but maintain consumerist lifestyles due to convenience or social expectations. The lack of ecological education, as highlighted by Yarovenko S. and Ploshchenko Y. [33], limits knowledge about the human-nature relationship, hindering the development of an active civic stance. These barriers are amplified in urbanized settings due to limited access to nature and the dominance of technogenic values.

3. Motivational factors include social norms, intrinsic values, and psychological comfort. Positive examples, such as waste sorting or using public transport, promote the spread of ecological behavior through social influence. Research shows that engaging youth in ecological initiatives via social media fosters an active civic position. Psychological comfort, provided by green spaces in cities, reduces stress and increases readiness for ecological actions, as confirmed by Kaplan [14]. Urban design integrating natural elements, such as parks or green roofs, plays a key role in restoring connections with nature and stimulating ecological consciousness.

Strategies to overcome barriers encompass awareness campaigns, ecological education, and urban greening. Social media, as noted by Yarovenko S. and Ploshchenko Y. [33], serve as an effective channel for disseminating ecological information among youth. Educational programs incorporating sustainable development themes foster values of harmony with nature. Urban design aimed at creating green spaces enhances psychological well-being and builds infrastructure for sustainability, as seen in European cities like Copenhagen.

In conclusion, the psychological aspects of ecological consciousness in the urban context are shaped by alienation from nature, information overload, and social norms. Scientific discourse underscores the need for an interdisciplinary approach, combining psychology, ecology, and urban studies, to overcome barriers and promote sustainability. Awareness-raising, urban design, and social initiatives are key to forming an ecologically conscious society amid urbanization.

3. Psychological barriers to eco-conscious behavior in cities

Eco-conscious behavior in urban settings is a critical component of sustainable development, yet its formation is hindered by numerous psychological barriers stemming from the characteristics of urbanized environments. In cities, where technogenic landscapes, information overload, and social pressures overshadow natural elements, psychological mechanisms that impede ecological consciousness gain significant importance. This text, grounded in scientific discourse on the psychological aspects of ecological consciousness, analyzes the psychological barriers to eco-conscious behavior in cities, exploring their nature, mechanisms,

and impact on motivation for sustainability. An interdisciplinary approach, integrating psychology, ecology, and urban studies, enables a deep examination of these barriers and their connection to the urban context.

4. The primary psychological barrier to eco-conscious behavior in cities is alienation from nature, caused by limited access to natural spaces. Urban environments, dominated by concrete structures and technogenic landscapes, weaken the emotional connection to nature, a key driver of ecological behavior. Research by Nisbet et al. shows [19] that urban residents, rarely interacting with natural objects, lose empathy for the environment, reducing their readiness for actions like waste sorting or resource conservation. This alienation is exacerbated by the scarcity of green spaces in many cities, limiting opportunities for psychological comfort restoration, which, according to Kaplan [14], is a prerequisite for eco-conscious decisions.

Information overload, characteristic of urban life, is another significant barrier. The constant flow of information through social media, advertisements, and news distracts attention from ecological issues. Kollmuss and Agyeman note [15] that in conditions of information saturation, people tend to prioritize urgent daily tasks, such as work or transportation, over long-term ecological goals. This creates cognitive overload, complicating awareness of sustainability's importance and hindering the formation of habits related to ecological behavior.

A sense of helplessness in the face of the scale of ecological problems also significantly impedes eco-conscious behavior. In cities, where individual actions seem insignificant against global challenges like climate change or pollution, people often lose motivation to act. Gifford [10] emphasizes that the psychological perception of ecological issues as overly complex or distant reduces belief in the effectiveness of personal efforts, particularly in urban communities where social fragmentation weakens collective responsibility. This barrier is intensified by the lack of visible results from individual ecological actions, demotivating urban residents.

Cognitive dissonance is another critical psychological barrier, arising when urban residents recognize the need for ecological behavior but continue consumerist lifestyles due to convenience, social expectations, or economic constraints. For example, a person may acknowledge the importance of reducing plastic waste but purchase single-use items due to their availability in city stores. Kollmuss and Agyeman [15] explain that cognitive dissonance is often resolved through rationalization of non-ecological actions, obstructing behavioral change. In urban settings, this barrier is amplified by social pressures and the dominance of consumerist culture, which encourages excessive consumption.

The lack of ecological education is a critical barrier limiting the formation of eco-conscious behavior. Insufficient knowledge about the human-nature relationship and practical aspects of sustainable living, as noted by Yarovenko S. and Ploshchenko Y. [33], reduces urban residents' ability to make informed ecological decisions. In cities, where education often focuses on professional skills rather than ecological values,

youth and adults rarely receive information on reducing their environmental footprint. This barrier is exacerbated by the limited availability of awareness initiatives tailored to the urban context.

Social pressure and conformity in urban communities also hinder ecological behavior. In cities where norms of excessive consumption or reliance on personal vehicles are prevalent, deviating from these standards may be perceived as a breach of social expectations. Steg and Vlek [27] highlight that social norms significantly influence behavior, and in urbanized environments, where ecological initiatives are not mainstream, people are less likely to engage in sustainable practices due to fear of social judgment or isolation.

These psychological barriers interact, forming a complex system that obstructs eco-conscious behavior. Alienation from nature reduces emotional motivation, information overload diverts attention, helplessness undermines belief in action efficacy, cognitive dissonance justifies non-ecological habits, lack of education limits knowledge, and social pressure perpetuates consumerist norms.

In conclusion, psychological barriers to eco-conscious behavior in cities, such as alienation from nature, information overload, helplessness, cognitive dissonance, lack of education, and social pressure, create a complex system that impedes sustainability. Scientific discourse underscores the need for an interdisciplinary approach, combining psychology, ecology, and urban studies, to overcome these barriers. Awareness-raising, education, urban design, and social initiatives are key to stimulating eco-conscious behavior, fostering a sustainable society in the urban context.

4. Motivational factors of ecological behavior in urbanized environments

Ecological behavior in urbanized environments is a critical element of sustainable development, particularly amidst rapid urbanization, which shapes specific psychological, social, and spatial contexts. Motivational factors that drive urban residents toward eco-conscious actions, such as waste sorting, energy conservation, or using eco-friendly transportation, represent a complex blend of internal and external stimuli interacting with the technogenic landscape, information dynamics, infrastructure, and urban social norms. This text, grounded in contemporary scientific discourse, thoroughly analyzes the motivational factors of ecological behavior in urban settings, elucidating their nature, mechanisms, and potential for fostering a sustainable society. An interdisciplinary approach, integrating psychology, ecology, and urban studies, explains how these factors can be amplified in the face of urban challenges, such as alienation from nature and social fragmentation.

Internal motivation, rooted in ecological values and personal responsibility, is a central driver of ecological behavior in cities. Despite limited access to nature, urban environments can activate these values through awareness of local ecological issues, such as air pollution or the scarcity of green spaces. Research by Schultz et al. [25] demonstrates that individuals with strong biospheric values, who prioritize harmony with nature, are more likely to engage in ecological actions,

such as recycling or supporting green initiatives, even in technogenic conditions. In cities where youth actively participate in ecological movements, this motivation is reinforced through the formation of an ecological identity, encouraging actions as a form of self-expression.

Social influence and community norms are powerful motivational factors in urban communities, where high population density and intense interactions facilitate the spread of behavioral patterns. In cities where ecological practices, such as using reusable bags or public transportation, become socially endorsed, they gain popularity rapidly through the effect of social imitation. Cialdini [5] emphasizes that descriptive norms (what others do) and injunctive norms (what is deemed appropriate) motivate urban individuals toward ecological behavior when they observe positive examples in their environment. Community initiatives, such as greening campaigns or eco-challenges on social media, reinforce these norms, fostering a sense of belonging to an eco-conscious community.

Access to green spaces in cities plays a significant role in motivating ecological behavior by enhancing psychological well-being and emotional connections to nature. Urban environments, marked by stress and technogenic pressures, often diminish readiness for sustainable lifestyles. Hartig et al. [11] demonstrate that green spaces, such as parks or urban gardens, have a restorative effect, reducing anxiety and increasing motivation for ecological actions. In cities where urban design integrates natural elements, such as in Vienna or Stockholm, residents are more likely to support sustainability, perceiving it as part of a comfortable urban lifestyle.

Digital awareness-raising through social media is a significant motivational factor for youth audiences in urbanized environments. Social platforms enable the creation of interactive content that appeals to emotions and values, raising awareness of ecological issues. Ojala [22] notes that social media campaigns focusing on local challenges, such as river pollution or green space shortages, effectively engage youth in initiatives like plastic reduction or cycling advocacy. In urban settings where youth actively consume digital content, these campaigns foster motivation through a combination of information and social pressure.

Infrastructure support and external incentives significantly influence ecological behavior in cities. The availability of accessible recycling points, bike lanes, or subsidies for public transportation lowers barriers to sustainable lifestyles. Bamberg [2] highlights that urban infrastructure facilitating ecological actions, such as automated sorting systems or subsidies for energy-efficient appliances, motivates residents to participate. Urbanized environments with integrated incentives, like Copenhagen, exhibit higher levels of ecological behavior due to convenience and economic benefits.

Emotional engagement, triggered by awareness of ecological crises, is a potent motivational factor in cities where pollution effects, such as smog or urban heat islands, are tangible. Van der Linden [28] notes that emotions, such as concern for health or future genera-

tions, drive ecological actions, particularly when reinforced by local contexts. Campaigns highlighting the consequences of pollution or climate change motivate urban residents to participate in initiatives like greening or sustainability advocacy, driven by a sense of moral responsibility.

These motivational factors—internal values and others—create a synergy that promotes sustainability.

5. The role of urban design in stimulating ecological consciousness

Urban design, as an interdisciplinary practice shaping the physical and social environment of cities, plays a pivotal role in stimulating ecological consciousness amid rapid urbanization. In cities where technogenic landscapes, information overload, and social fragmentation often weaken connections with nature, thoughtful urban space design can activate psychological, social, and behavioral mechanisms that promote sustainable behavior. This text, grounded in contemporary scientific discourse, deeply analyzes how urban design influences ecological consciousness, fostering motivation for ecological actions through the integration of green spaces, infrastructural solutions, and social spaces. An interdisciplinary approach, combining psychology, ecology, and urban studies, reveals the potential of design to overcome alienation from nature and strengthen ecological values in urban communities.

Green spaces, such as parks, squares, green roofs, and vertical gardens, are a central element of urban design, stimulating ecological consciousness by restoring emotional connections with nature. Urbanized environments often limit access to natural landscapes, diminishing empathy for the environment. Research by Bratman et al. [3] shows that regular interaction with green spaces reduces stress and enhances cognitive readiness for eco-conscious decisions, such as waste sorting or resource conservation. In cities like Singapore or Melbourne, where green spaces are integrated into the urban fabric, residents more frequently exhibit ecological behavior, perceiving nature as an integral part of city life. These spaces not only promote psychological well-being but also serve as visual reminders of sustainability's importance.

Infrastructural solutions, such as recycling systems, bike lanes, and energy-efficient buildings, are vital tools of urban design for stimulating ecological consciousness. Convenient infrastructure lowers barriers to sustainable lifestyles, making ecological actions accessible and habitual. For instance, automated waste sorting stations in residential areas simplify recycling, while extensive bike lane networks, as in Copenhagen, encourage eco-friendly transportation. Scholars note that infrastructural support enhances the perception of ecological actions as socially approved, motivating participation. Such solutions also foster ecological awareness by demonstrating the practical value of sustainability in daily life.

Social spaces created through urban design promote ecological consciousness by reinforcing community norms and collective responsibility. Public squares, community gardens, or spaces for eco-festivals become platforms for social interaction, where ecological ideas spread through social learning. Pretty et al.

[23] emphasize that shared spaces encouraging community initiatives, such as greening campaigns or eco-challenges, foster a sense of belonging to an eco-conscious community. In cities with integrated social spaces, like Barcelona with its superblocks, residents are more likely to engage in sustainability, feeling social support and motivation.

Visual aesthetics and informational elements in urban design also play a significant role in shaping ecological consciousness. Aesthetically appealing green spaces or innovative ecological structures, such as solar panels at bus stops, create positive perceptions of sustainability. Informational signs about the benefits of recycling or energy efficiency, placed in public areas, raise awareness. Chawla [4] notes that visual and informational stimuli in urban environments contribute to forming ecological values, particularly among youth sensitive to aesthetics and digital messaging. Urban design leveraging these elements makes sustainability relevant and appealing.

Psychological comfort, provided by thoughtful urban design, is a key factor in stimulating ecological consciousness. Urban life, marked by noise and technogenic pressures, often reduces readiness for the additional effort required for ecological behavior. A harmonious blend of green spaces, pedestrian zones, and energy-efficient infrastructure alleviates psychological exhaustion, boosting motivation for sustainability. In cities where design prioritizes comfort, such as Freiburg, ecological consciousness becomes part of everyday culture rather than an added burden.

Urban design also influences ecological consciousness through education and community engagement. Integrating educational spaces, such as ecological centers or interactive park exhibits, fosters knowledge about sustainability. Scholars highlight that urban projects involving residents in planning green spaces or infrastructure increase their responsibility for the environment. Initiatives like community consultations in Toronto create a sense of ownership, motivating ecological actions.

These aspects of urban design - green spaces, infrastructure, social spaces, visual aesthetics, psychological comfort, and education - interact to create a synergy that enhances ecological consciousness. Green spaces and comfort build emotional connections and motivation, infrastructure and social spaces provide practical support, while aesthetics and education raise awareness. The effectiveness of design depends on its adaptation to urban realities, where social fragmentation and information overload may weaken impact. Scientific discourse underscores the need for an interdisciplinary approach to maximize urban design's potential.

In conclusion, urban design plays a crucial role in stimulating ecological consciousness by integrating green spaces, infrastructure, social spaces, aesthetics, comfort, and education to foster a sustainable society. In urban settings, these elements can be amplified through thoughtful planning and community engagement, promoting harmony between humans and the environment.

6. Strategies for overcoming psychological barriers

Psychological barriers, such as low awareness, alienation from nature, cognitive dissonance, and lack of motivation, significantly hinder the formation of ecological behavior in urbanized environments, where technogenic landscapes, information overload, and social fragmentation exacerbate these obstacles. In cities, where daily life often distances people from nature, strategies to overcome these barriers are critically important for stimulating ecological consciousness and sustainable lifestyles. This text, grounded in contemporary scientific discourse, deeply analyzes strategies for overcoming psychological barriers, integrating psychological, social, and urbanistic approaches to foster motivation for ecological actions. An interdisciplinary approach enables the development of comprehensive solutions that account for urban contexts and promote harmony between humans and the environment.

A key strategy is enhancing ecological awareness through education and digital outreach, addressing the barrier of low awareness. Many urban residents are unaware of the consequences of their actions due to insufficient knowledge about ecological issues, such as pollution or climate change. Kaiser and Fuhrer note [13] that targeted educational programs explaining the link between individual actions and global outcomes increase readiness for sustainability. In cities, digital platforms, particularly social media, enable the creation of interactive content that appeals to youth's emotions and values. For example, campaigns highlighting local issues, like river pollution, engage urban residents in initiatives such as plastic reduction, leveraging relevance and emotional impact.

Integrating green spaces into urban environments is an effective strategy for overcoming alienation from nature, which diminishes environmental empathy. Urbanized landscapes often limit contact with nature, reducing motivation for ecological actions. Shanahan et al. [26] demonstrate that parks, green roofs, or urban gardens have a restorative effect, reducing stress and fostering an emotional connection with nature. In cities like Singapore, where green spaces are woven into the urban fabric, residents are more likely to engage in sustainable behavior, perceiving nature as part of daily life. Urban design that ensures access to such spaces promotes psychological comfort and motivation.

Social influence and the establishment of community norms help overcome cognitive dissonance, where individuals ignore ecological actions due to inconsistencies between beliefs and behavior. In urban communities with intense social interactions, the visibility of ecological practices, such as waste sorting or cycling, creates normative pressure. Nolan et al. [20] emphasize that showcasing positive examples, such as through neighbors or opinion leaders, motivates imitation. Community initiatives, like eco-festivals or greening campaigns in cities like Barcelona, reinforce these norms, fostering a sense of collective responsibility that reduces psychological resistance to change.

Psychological support through motivational incentives, such as gamification or rewards, addresses the barrier of lacking motivation. In urban settings, where people often feel overwhelmed, additional incentives can simplify ecological actions. McKenzie-Mohr [18] developed a social marketing approach showing that gamification, such as apps tracking carbon footprints with rewards, boosts engagement. In cities like Toronto, programs offering discounts for using public transport or recycling motivate residents through economic benefits and a sense of achievement, making sustainability appealing.

Emotional engagement through strategic communications helps overcome indifference to ecological issues. In cities where impacts like smog or urban heat islands are tangible, emotional messaging can activate concern for health or the future. Lorenzoni et al. [20] note that campaigns emphasizing local consequences of climate change motivate action through moral responsibility. In urban settings, such as Kyiv, where air pollution is pressing, these communications encourage participation in initiatives like greening, driven by emotional resonance.

Infrastructure adaptation in urban environments reduces the barrier of inconvenience associated with ecological actions. Convenient recycling systems, bike lanes, or energy-efficient buildings simplify sustainable behavior. Verplanken and Roy [30] demonstrate that infrastructure facilitating ecological actions, as in Copenhagen, increases their frequency, forming habits. Urban solutions addressing daily needs make sustainability accessible, reducing psychological strain.

These strategies - education, green spaces, social norms, motivational incentives, emotional engagement, and infrastructure - interact to create a synergy that overcomes psychological barriers. Education and emotions shape consciousness, green spaces and infrastructure provide comfort and accessibility, while norms and incentives sustain motivation. Effectiveness depends on adaptation to urban realities, where social fragmentation may weaken impact. An interdisciplinary approach, combining psychology, ecology, and urban studies, is crucial for their implementation.

In conclusion, strategies for overcoming psychological barriers to ecological behavior in urbanized environments include education, green space integration, social influence, motivational incentives, emotional engagement, and infrastructure adaptation. These comprehensive solutions, tailored to urban contexts, foster a sustainable society, harmonizing human interaction with the environment.

7. The impact of psychological comfort on ecological behavior

Psychological comfort, as a state of emotional well-being and reduced stress, is a significant factor influencing ecological behavior in urbanized environments, where technogenic pressures, noise, and social fragmentation often undermine motivation for sustainable lifestyles. In cities, where daily life is marked by overload and alienation from nature, psychological comfort can activate internal resources for eco-conscious actions, such as waste sorting, resource conservation, or using eco-friendly transportation. This text,

grounded in contemporary scientific discourse, deeply analyzes the impact of psychological comfort on ecological behavior, elucidating its mechanisms through the lens of psychology, ecology, and urban studies. An interdisciplinary approach explains how creating a comfortable urban environment fosters a sustainable society, harmonizing human interaction with the environment.

Psychological comfort, facilitated by green spaces, reduces stress and enhances readiness for ecological actions. Urbanized environments often cause psychological exhaustion, weakening motivation for the additional efforts required for sustainable living. Research by Cox et al. [6] shows that access to parks, squares, or green areas has a restorative effect, reducing anxiety and promoting cognitive clarity necessary for eco-conscious decisions. In cities like Stockholm, where green spaces are integrated into the urban fabric, residents more frequently engage in recycling or greening, as a comfortable environment boosts their emotional readiness for such actions.

Emotional stability, arising from psychological comfort, strengthens ecological identity, a key driver of sustainability. In urban settings where people feel secure and supported, they are more likely to associate themselves with ecological values. Whitburn et al. [32] note that a positive emotional state, induced by a comfortable environment, fosters intrinsic motivation for actions like reducing plastic use or supporting green initiatives. In cities like Melbourne, where urban design emphasizes pedestrian zones and natural elements, residents exhibit a stronger ecological identity, reflected in their behavior.

Social comfort, provided by community spaces, promotes ecological behavior by reinforcing social norms. In cities where public spaces, such as squares or community gardens, facilitate interaction, people are more likely to adopt ecological practices through social learning. De Groot and Steg [8] emphasize that comfortable social environments, where ecological actions are visible, such as through cleanup campaigns or eco-festivals, motivate imitation. In Barcelona, where superblocks enhance social cohesion, residents more frequently engage in sustainability, feeling community support.

Infrastructural comfort, such as convenient recycling systems or bike lanes, reduces psychological barriers related to the inconvenience of ecological actions. In urban settings, where daily life is hectic, the simplicity of sustainable actions is critical. Kollmuss and Agyeman [15] note that infrastructure minimizing effort, such as automated sorting stations, increases the frequency of ecological behavior. In Copenhagen, where bike lanes and energy-efficient buildings are part of everyday comfort, residents more often choose sustainable practices, as they are not perceived as burdensome.

5. Psychological comfort also influences ecological behavior by reducing cognitive dissonance. In stressful urban conditions, people may ignore ecological actions to avoid internal conflict between beliefs and behavior. Van der Werff et al. [29] demonstrate that a comfortable environment supporting psychological

well-being helps align values with actions, promoting sustainability. In cities like Freiburg, where urban design creates a harmonious environment, residents more consistently act in accordance with their ecological beliefs.

Educational initiatives integrated into comfortable urban environments enhance ecological behavior by raising awareness. Interactive spaces, such as ecological centers or informational signs in parks, foster knowledge in a relaxed atmosphere. Zelezny and Schultz [34] emphasize that education in comfortable settings, such as workshops in community gardens, boosts motivation for sustainability, particularly among youth. In Toronto, where such initiatives are part of urban design, residents show greater ecological engagement.

These aspects of psychological comfort - green spaces, emotional stability, social comfort, infrastructural convenience, dissonance reduction, and education - interact to create a synergy that stimulates ecological behavior. Green spaces and infrastructure provide comfort and accessibility, social spaces and education shape norms and awareness, while emotional stability and dissonance reduction sustain motivation. Effectiveness depends on adaptation to urban realities, where stress and fragmentation may weaken impact. An interdisciplinary approach is key to maximizing comfort's potential.

In conclusion, psychological comfort significantly influences ecological behavior in urbanized environments, promoting sustainability through green spaces, emotional stability, social comfort, infrastructural convenience, dissonance reduction, and education. Tailored urban solutions and awareness-raising can amplify this impact, fostering harmony between humans and the environment.

8. The role of education and media in enhancing ecological consciousness

Education and media play a pivotal role in enhancing ecological consciousness in urbanized environments, where rapid urbanization, information overload, and alienation from nature complicate the formation of sustainable lifestyles. In cities, where high population density and intense information flows create unique opportunities for influence, these tools can effectively shape the knowledge, values, and behaviors necessary for ecological actions, such as waste sorting, resource conservation, or supporting green initiatives. This text, grounded in contemporary scientific discourse, deeply analyzes the role of education and media in stimulating ecological consciousness, elucidating their mechanisms through the lens of psychology, ecology, and urban studies. An interdisciplinary approach enables the development of strategies that account for urban realities and promote harmony between humans and the environment.

Formal education, integrated into school and university curricula, forms the foundation for developing ecological knowledge and values. In urban settings, where youth constitute a significant portion of the population, educational programs can foster ecological responsibility from an early age. Research by Ardoin et al. [1] shows that interactive methods, such as project-

based learning or ecological workshops, increase awareness of local issues, like pollution or green space shortages, and motivate action. In cities like Oslo, where ecological education is part of curricula, students more frequently engage in sustainable behavior, perceiving it as an integral part of life.

Non-formal education through community initiatives and ecological centers complements formal education, engaging a broader audience. Urbanized environments offer platforms, such as community gardens or eco-festivals, for experiential learning. Wals et al. [31] note that practical activities, like greening or waste sorting, foster a sense of responsibility and reduce psychological barriers to sustainability. In Toronto, where community programs involve residents in ecological projects, participants exhibit higher ecological consciousness, as learning is accessible and relevant.

Media, particularly social networks, are powerful tools for raising ecological consciousness through emotional and social influence. In cities where youth actively consume digital content, media campaigns can appeal to values and create a viral effect. Corner et al. [7] emphasize that visual content, such as videos on pollution consequences or success stories of green initiatives, motivates action through empathy and social pressure. Instagram campaigns highlighting local issues, like river pollution in Kyiv, effectively engage youth in plastic reduction or cycling advocacy.

Traditional media, such as television and print, contribute to shaping societal norms, particularly for older audiences. In urban settings, where information competes for attention, reports on ecological crises or successful sustainable projects raise awareness. Leiserowitz et al. [16] demonstrate that media emphasizing local consequences, like smog or urban heat islands, activate health concerns, spurring action. In Singapore, where television campaigns promote energy efficiency, residents more often adopt sustainable practices, perceiving them as socially approved.

The synergy of education and media amplifies their impact by integrating knowledge and emotional engagement. Educational programs provide a factual foundation, while media add emotional resonance and social context. Monroe et al. [21] note that combined strategies, such as school projects reinforced by media campaigns, enhance motivation for sustainability. In Copenhagen, where schools collaborate with media to promote cycling culture, ecological behavior becomes part of urban life, especially among youth.

Interactivity and localization of content are key to the effectiveness of education and media in cities. Urbanized environments require adaptation to local challenges, such as pollution or space shortages. Kollmuss and Agyeman [15] emphasize that personalized educational and media messages, tailored to local contexts, reduce feelings of helplessness and increase engagement. In Barcelona, campaigns focusing on green space preservation motivate residents to participate in initiatives, driven by a sense of belonging to the city.

These aspects - formal and non-formal education, social and traditional media, their synergy, and localization - create a comprehensive impact on ecological

consciousness. Education shapes knowledge and values, media provide emotional and social motivation, and their integration amplifies the effect. Effectiveness depends on adaptation to urban realities, where information overload and social fragmentation may weaken impact. An interdisciplinary approach is crucial for maximizing potential.

In conclusion, education and media play a central role in enhancing ecological consciousness in urbanized environments, promoting sustainability through knowledge, emotional engagement, social norms, and localized strategies. Their integration and adaptation to urban contexts can amplify impact, fostering harmony between humans and the environment.

9. Education and training in achieving sustainable development goals

Education and training play a pivotal role in achieving sustainable development goals by fostering a conscious approach to sustainability and ensuring balanced societal development. In this context, education and training not only impart knowledge but also shape values, attitudes, and skills essential for sustainable living.

The significance of education and training in cultivating a conscious approach to sustainable development lies in their ability to raise citizens' awareness of the importance of ecological, social, and economic sustainability. This includes understanding the causes and consequences of environmental issues, recognizing social inequalities, and grasping the economic demands of sustainable development. Education and training promote critical thinking, enhance decision-making skills, and encourage responsible action.

The role of educational programs in nurturing ecologically and socially responsible citizens is to instill values and practical skills necessary for living in harmony with nature and others. These programs may cover ecology, ethics, social responsibility, global challenges, cultural diversity, and other sustainability-related aspects. They foster skills such as understanding complex ecological systems, appreciating cultural differences, respecting other cultures, collaborating, and engaging in constructive dialogue.

In conclusion, education and training are crucial for achieving sustainable development goals, fostering a conscious approach to sustainability and nurturing ecologically and socially responsible citizens. This contributes to sustainable societal development and the preservation of natural resources for future generations.

Thus, urbanization creates both challenges and opportunities for fostering eco-conscious behavior. Psychological barriers, such as alienation from nature, information overload, and social pressure, hinder urban residents' engagement in sustainable lifestyles. Meanwhile, motivational factors, such as intrinsic values, social norms, and urban design, can enhance ecological consciousness. Strategies focused on integrating nature into urban environments, raising awareness, and fostering supportive social norms are key to overcoming barriers and promoting ecological behavior. Research underscores the importance of an interdisciplinary approach to building a sustainable society in the context of urbanization.

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