GREENCOOL: Case Study of an International MOOC Course's Green and Communication Content Development

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Abstract: Sustainability and green matters are emerging issues among youth in the 21st century. The European Union (EU) emphasises youth discourse on greener thinking and lifestyle, which aims to build an open-minded, green, and digital future. Therefore, it is crucial to provide appropriate education and shape attitudes towards green issues. Regarding this scope, four universities of the European Capitals of Cultures (ECoC), the University of Pannonia (Veszprém, Hungary), University of Tartu (Estonia) Vytautas Magnus University (Kaunas, Lithuania), and West University of Timisoara (Romania), allied to develop a MOOC course interconnecting green related topics and communication skills and methods. The case study summarizes the main findings of the questionnaire (with 701 youth between 18-25 age), the desktop and focus group interviews research that gave the bases of developing the MOOC course material of GreenCool Erasmus projects. First the primary data, reflecting aspects of the involvement of young people in fighting climate crisis was analysed. The ultimate goal was to come up with a well-documented profile of students in tertiary education, reflecting their 'green' and 'communication' profiles as agents in fighting climate change. Second, taking the outcomes into consideration, the 4 universities carried out focus group interviews with 27 participants: influencers, green and communication experts and university students. As a result the green and communication topics were identified. This led to those methodological tools that were appropriate and effective in developing the GreenCool MOOC material and the corresponding blended Greenfluencer course with the provisional title: 'Attitudes shaping communication techniques and green related topics in the 21st Century'. The case study describes the process and the results.

Keywords: MOOC course, Green, Communication, University students, Case study

1. Introduction

Despite the widespread recognition of sustainability and green practices, there is a need to develop new innovative and creative solutions. Education has the key in this role in this development. Furthermore to reach out youth the power of online such as MOOC courses have vital impact. Within the GreenColol project four European Capitals of Culture universities and a Greek agency have developed the Grennflunecer MOOC course that is now piloted as bended university seminars. The case study describes the research before developing the online course syllabus and materials.

2. Literature Review

2.1 Sustainablity and Environmental Education

As Adam Tooze (2022) puts it, when our coping strategies and abilities to deal with problems become stuck, they become a crisis. The problem is that in recent years people have been hit by a number of shocks and crises (such as climate change, various natural disasters, COVID-19, the energy crisis, food and commodity problems, inflation, the Russian-Ukrainian war, the escalation of the Palestinian-Israeli conflict into war), the severity of which lies in their interaction with each other. According to the Eurobarometer 2023 survey, the five most important challenges currently facing the European Union are immigration, the war in Ukraine, the international situation, inflation and the environment and climate change. In the survey, 45% of respondents identified peace, 35% human rights and 31% respect for human life as the most important values. The World Economic Forum's Global Risks Report 2024 tops the list of risks, including extreme weather, misinformation and disinformation caused by artificial intelligence, social and societal polarisation, livelihood crisis and cyber-attacks.

The environmental, social and economic problems listed can all be classified under the key pillars of sustainable development and sustainability.

The impact of humanity on the environment is not a problem that has been identified today, as the first report of the Club of Rome (1972) already stated that the exploitation of natural resources and supplies must be slowed down and population stabilized. If humanity fails to do this, and consumption patterns and growth rates increase

exponentially in the 21st century, their model-based projections predict that by 2100 our world as we know it today will collapse (Meadows et al., 1972).

The term sustainable development as a policy term first appeared shortly afterwards in the Brundtland Report (Brundtland et al., 1987), which focused on the relationship between natural limits and human well-being, the quest for balance. The basic concept of sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

Sustainability therefore means the long-term maintenance of well-being, a process that is not synonymous with the environment. Although we are consuming natural resources and supplies at the expense of future generations, we are also producing knowledge that will serve to achieve future well-being (Kuhlman and Farrington, 2010).

Sustainability envisages a fair life between generations in time, on the one hand, and between humans and nature in space, on the other. As early as 1977, at an intergovernmental conference in Tbilisi, world leaders recognised the importance of environmental education for the preservation and improvement of the world environment and for the healthy and balanced development of the world's communities. Environmental education is seen as a lifelong process, regardless of cultural, social or economic group. The Tbilisi Declaration (1977) identifies five environmental education objectives: 1. environmental awareness, 2. environmental knowledge, 3. environmental attitudes, 4. skills and 5. Participation. UNESCO carried out several surveys and studies (1985, 1987) on environmental education in the 1980s. It defines environmental education as a complex learning process consisting of the following elements:

- expanding people's knowledge and understanding of the environment,
- develops the skills needed to cope with environmental challenges,
- develops skills and competences to deal with environmental challenges, shapes attitudes, motivation and commitment,
- encourages responsible action.

According to Boca and Saracli (2019), the aim of environmental education is to teach and educate the public about the functioning of the terrestrial environment and the role of humans in the natural ecosystem, as well as their norms of behaviour and conduct.

> *"ESD is a lifelong learning process and an integral part of quality education that enhances cognitive, social and emotional and behavioural dimensions of learning. It is holistic and transformational and encompasses learning content and outcomes, pedagogy and the learning environment itself." (ESD Roadmap, UNESCO, 2020, p.8.)*

2.2 MOOC Method

The development of the Massive Open Online Courses (MOOCs) methodology dates back to 2008, when it was created in cooperation between companies and universities with the aim of providing a credit-free learning opportunity for anyone interested and willing to learn in an online environment, without a limit on the number of participants and without a formal admission procedure (Gaebel, 2013). The biggest MOOCs platforms are Coursera, edX, Udemy, Udacity, Futurelearn. MOOCs have the power of technology to trigger learning to massively scale without global limits (Bayne, 2023).

MOOCs are an option to traditional higher education, a popular form of blended learning today (De Moura et al.,2021). Higher education institutions, especially in developing countries, need to find solutions to challenges related to teaching quality, training costs and educational equity in order to ensure the sustainability of the education system (Gulati, 2008). MOOC-based blended learning can enhance personal participation and involvement in the classroom and develop the student's development as an active learner (De Moura et al., 2021).

2.3 Green Skills and Competences

The European Commission has developed the GreenComp sustainability competences reference framework, which "responds to the growing need for people to develop and acquire the knowledge, skills and attitudes needed to live, work and act sustainably." It also defines the concept of sustainability literacy (…). Sustainability competence applies to all aspects of life - both personal and collective."

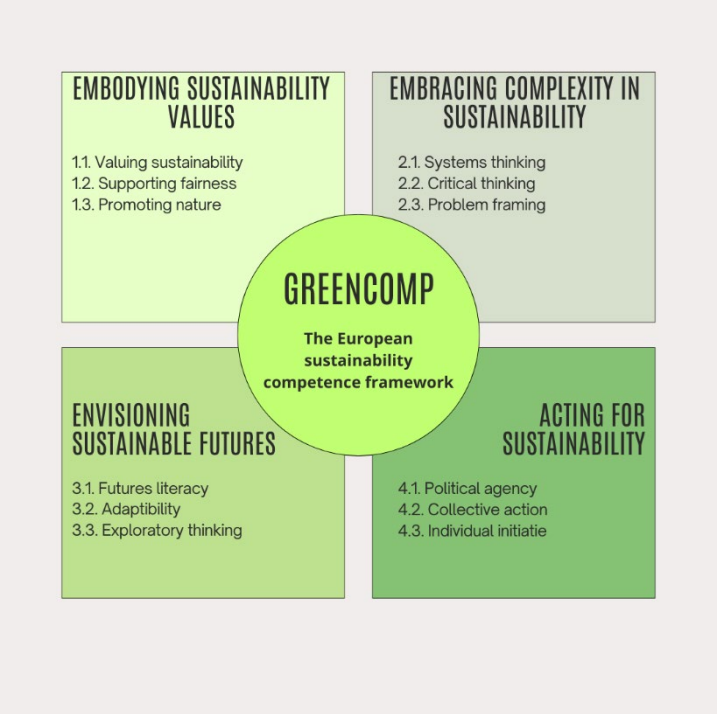


Figure 1: GreenComp identifies 4 key areas with 3-3 key competences based on the European Commission GreenComp, Bianchi et al. 2022, own editing

The European Union framework was preceded by several studies on sustainability-related competences between 2012 and 2020, which aim to understand sustainability education (SE) and education for sustainable development (ESD) by defining key competences.

2.4 Green Attitudes

An EU-wide survey conducted by the European Commission in December 2019 found that 53% of respondents consider the environment to be a very important issue, with 1) climate change, 2) increasing waste and 3) air pollution as the most important issues. The main concerns are the impact of microplastics, plastic products and chemicals on the environment. The most effective ways to address environmental problems, according to respondents, are 1. consumption, 2. changing the way we produce and trade, 3. research and development, 4. more education. 66% of respondents collect a significant proportion of their waste separately in order to reuse it. There is a perception that neither big business and industry, nor citizens and national governments are doing enough to protect the environment (Eurobarometer 501, 2019). Other research in different disciplines shows that the public is becoming increasingly sensitive to environmental issues at the individual level, particularly in wealthier countries. Green attitudes are reinforced by economic prosperity, as it provides greater opportunities for environmental education and facilitates green consumption (Ott and Soretz, 2018).

Zsóka and colleagues (2013) clustered the students surveyed according to their attitudes towards environmental issues:

1. *Active cluster:* mainly university students and showing active pro-environmental behaviour in their daily life. They are aware of environmental issues, are aware of the elements and benefits of sustainability.
2. *Familiar cluster*: mainly teenagers, aware of environmental problems and concerned about them, but less committed than the active cluster.
3. *Techno-optimist cluster:* a group of teenagers, students, young adults who believe that technological progress will solve environmental problems.
4. *Hedonist cluster*: a cluster of highly hedonistic consumers.
5. *Careless cluster:* not involved in environmental education programmes, not involved in environmental actions, often answer "don't know".

The clusters clearly show differences in behaviour and environmental awareness. The study shows that there is a significant correlation between environmental knowledge and skills, pro-environmental behaviour,

consumption and everyday behaviour (Zsóka et al., 2013.). Another study revealed that youth consider nature as a higher power than humans, and therefore people have to adapt the limits of nature (Kővári et al. 2023).

2.5 Green Universities

Since the 1970s, an increasing number of higher education institutions have been offering courses aimed at raising environmental awareness, increasing knowledge, skills and attitudes towards sustainability (Balcerak - Wozniak, 2022). Higher education institutions have a significant impact on training and preparing the next generation to become green societies. Universities need to place equal emphasis on the different dimensions of environmental education (Boca - Saracli, 2019). Young people can be agents of change. Therefore their involvement in different programmes and decision making is key for the successful implementation of environmental protection (Ramirez, 2017). Appropriate communication can influence people's behaviour, initiate dialogue and promote understanding. Continued visibility of sustainability efforts at universities is key to attitude formation and engagement (Franz-Balsen - Heinrichs, 2007).

3. Case Study of the Development of the GreenCool MOOC Course

3.1 Background

The GreenCool – 'Let me influence your green self! – skill development in the encouragement of mind-set towards environmental awareness and sustainable development has been implemented in partnership between 4 European Capitals of Culture Universities such as the University of Pannonia (coordinator), Vytautas Magnus University, the West University of Timisoara and the University of Tartu and Militos Consulting S.A. The general goal of the project is to develop environmental awareness among university students and to spread the thought of sustainable development among the widest possible age groups at events that attract large audience. The partners have been committed to develop an innovative online course material and to mainstream sustainable development in all curricula for higher education students. Furthermore, the goal is to equip students with communication tools and sustainable attitude to become effective advocates for advancing EU green economy and culture. This objective encompasses the following specific objectives:

- ***Greenfluence Practice Collection and Research***: methodological framework for implementation by exploring influencer tools and techniques and communication channels through youth can be approached in the 21st century.
- ***Developing the Massive Online Open Course***: course curriculum-design and development of material in two platforms.
- ***Blended ECoC Greenfluencer Pilot Course on national level***: the outcome of the course is a participation in an ECoC event/festival, where students can try and test their knowledge and influence audience offline.
- ***Blended ECoC Greenfluencer International Course***: mixed nationality students groups present at the final GreenCool ECoC event
- ***Online Interactive Platform:*** the MOOC material will also be available on an interactive platform where students, academics, influencers, green experts can access it.
- ***Professional Content and Guidelines*** for international online workshop for stakeholders to give suggestions how to integrate these techniques into subjects from any disciplines in order to provide the knowledge for any universities.

The present paper focuses on the first objective that includes the exploring the green issues and communication methods, tool to develop the Greenfluencer MOOC course material. In the following we introduce the case study which is an exploratory result that contains both a survey with university students and focus group interviews. The case study describes the topic elements which were important to implement into the MOOC material, while the focus group interviews aim were to see the communication channels and method as well as the green attitude in order to organize the style, structure and activates of the MOOC and blended course.

4. Analyses and Results

The secondary and primary analyses aim was to gather information about youth knowledge and attitude on two main issues: social media (following and using) especial focusing on influencers and green-related topics. The data collection and analyses period was between 28 February and 31 August 2022. The primary research included questionnaire (701 students) and focus group interviews (27 participants). The secondary research was a desk top analysis looking at articles, best practices, past and ongoing projects nationally and internationally to examine the similarities and differences among the 4 countries. The data were analysed with qualitative and

quantitative data methods. The aim of the desktop research as secondary data analyse was two-folded: firstly to examine the best practices, previous results and literate on and about youth attitude towards 'green', 'influencer' and 'communication' issues. Secondly, to provide a solid bases in order to develop a questionnaire and focus group questions to exploring the targeted 4 countries' youth attitudes in the previously mentioned topics. In the following the outcomes of the focus group interviews and questionnaire are summaries in reflection and connection to the secondary data analysee research outcomes gave the base of the MOOC material for ECoC Greenfluencer course.

5. The Questionnaire Survey Results

5.1 Outcomes on Communication Platform and Attitude

The majority of the respondents use the following social media platforms for communication to get information, post their thoughts and feeling and to follow opinion leaders, friends and influences on various topics. Instagram is the most preferred platform, followed by *Facebook, You Tube and TikTok* though the last two varies between countries. Interestingly WhatsApp, Telegram and Twitter are country specific. As *for communication techniques Instagram considered creative, TikTok considered funny but very powerful if it comes to specific videos (such as green topics), You Tube is perfect for storytelling that is relevant and give audience instantly what they want.* Subgroups on FB are for information and event sharing that would take place offline in an action. Snapchat is used by younger kids and mainly in Lithuania, while LinkedIn and Pinterest are rarely used.

5.2 Outcomes on Green Issues

The exploratory research did not want to limit the definitions of 'green' to just environmental topics, in order not to limit but broader the online teaching material varieties. Therefore the young people identified different kinds of green issues and approaches. Issues such as: *nutrition, responsible consumption, urban lifestyles, urban mobility, sustainability of public spaces, small household habits, energy saving, air quality, carbon footprint, critical recycling techniques, circular economy, zero waste/waste management, climate-phobia and anxiety, greenwashing, ethical thinking, green mobility and collective social responsibility*. About green education and communication youth want to feel these relevant, important, trendy and sexy. *"Small steps, big results"* and *"be pro-active" and "take social responsibility"* what green influencers emphasised. The *negative side of 'green'* was also considered: company using green as marketing and also pay influencers to do that, misinterpretation of labels (bio, but what it is really?). The concept of *green guilt* appeared, meaning that young people are afraid to be green as the majority might mock them. Also there are lots of misinformation on green topics, so 'grey zone', a kind of skill to filter green information is needed. Influencers should be simple and authentic on green issues to convey the right information and attract people to pay attention and act.

5.3 Communication and Green Topics to the ECoC Greenfluencer MOOC Course

Based on the previous research outcomes the following 12 communication techniques and 10 green issues are suggested to be included in the ECoC Greenfluencer MOOC course (Table 1)

Table 1: Communication and green topics (own editing)

Communication techniques and structure of discourse:	Green topics:
Storytelling on and offline	Nutrition and food-waste
Blogging/glossary writing	Sustainable fashion
Short film, video (You Tube, TikTok)	Urban lifestyles, sustainable public living
Instagram, TikTok techniques offline-acting	Responsible consumption: small household habits, individual's responsibility
How to create powerful picture content	Energy saving and alternative energy: air and water quality and quantity
Elevator pitch	Collective social responsibility: individuals, companies and institutions
Pecha Kucha	Critical recycling techniques, waste management and circular economy,
Oxford debate	Climate-phobia and anxiety,
TED talk	Greenwashing and ethical thinking
Gamification	Green mobility
Communication with art and music	
Round-table discussion	

These topics made up the main core of the MOOC course syllabus and materials.

6. Focus Group Interview Results

For the data analysis was employed applied thematic analysis to structure the data. The result is a rich, analytical description of the data that is accessible to interpretation. Themes are being actively generated by the researcher as it was chosen to conduct an inductive analysis, which led to an analysis driven by data rather than theory. The thematic analysis data have been derived from focus groups interviews made in four countries with young people, aged between 18 and 25: Hungary (6 participants), Romania (8 participants), Estonia (7 participants), Lithuania (6 participants), totally – 27 participants, (Figure 2).

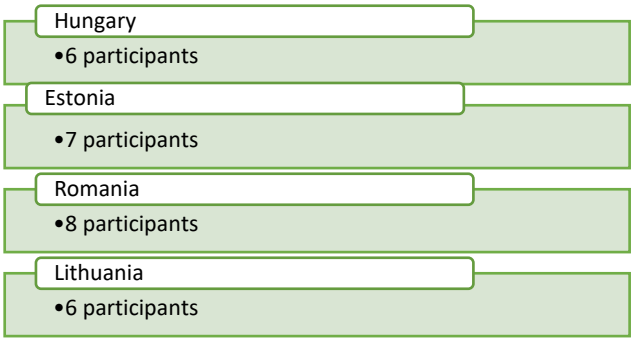


Figure 2: Focus group participants per country (own editing)

The Focus group thematic analysis is structured in two levels of depth. The first level defines fundamental analysis themes, linked to "What about" questions: What about profile of the participants?, What about influencing?, What about communication channels and techniques?, What about the content?, What about favourite influencers for young people?, What about young people and green attitudes?, What about dark side of green communication?, themes are presented in Figure 3.

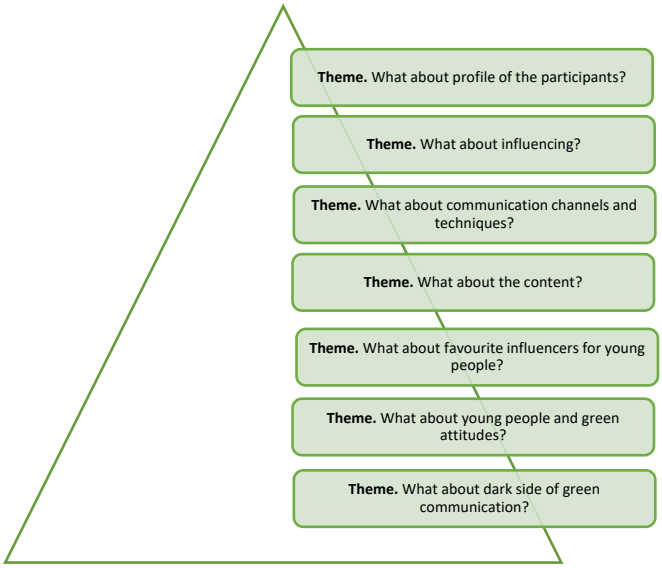


Figure 3: Themes of focus group thematic analysis (own editing)

Summarising focus group data thematic analysis derived from focus groups interviews there is not noticeable very big difference among the participants' opinions per countries. When discussing communication channels and techniques, it could be noted that all group participants are active sharing their ideas and experiences in various platforms such as: Tik Tok, Instagram, Youtube, Facebook, WhatsApp, LinkedIn, etc., and noticing that "platforms are changing by time to time". When discussing the content, participants of all groups share their ideas about visual content as well as the content using various storytelling tools and inspirations, noticing that: "people really like simplicity and authenticity". And when discussing the role of young people to green attitudes, it could be seen more active participants from Hungary and Romania, noticing that "reflecting green topics is of

real interest to young people in a heterogeneous approach". However, it can be noted, when discussing the dark side of green communication, more critical opinions emerge among Estonian and Lithuanian participants. Thus, summing up the experiences of the research participants, it is noticeable, that the research participants revealed as active and creative young members of nowadays society, paying attention not only to green communication, but also seeking to be active participants, changing the public's attitudes to climate change issues. When survey outcomes were discussed the participants agreed with the green topics and communication tools and method to be included in the MOOC course, furthermore 20 mentioned that these issues are vital to be taught regardless of the field of study of the university students. Drawing our initial conclusions from the findings at this research phase of the GreenCool project, we will try to outline the 'green' and 'communication' persona of our target group, which consists of young people at the age of 18-25, summing up key-characteristics that seem to be valid across the four project countries (Hungary, Estonia, Lithuania, and Romania), as well as across digital identities as constructed in the online world and are rather border-free.

7. Conclusion

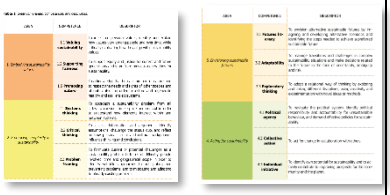
In the table below we summarise the findings of the primary and secondary data research as demonstrated in this document across two axes:

- In the left column of the table we provide 'statements' on the 'green' and 'communication' profile of young people (focusing on the age group 18-25) as drawn from the findings (what young people think, feel, do).
- In the middle column we provide recommendations (what should be amplified, moderated, eliminated, transformed towards making young people becoming knowledgeable and actively engaged in fighting against climate change?).
- In the left column we provide challenges (which are the challenges for the GreenCool partnership in turning the suggested recommendations into a methodological approach for the development of the GreenCool MOOC material and the corresponding ECoC Greenfluencer course)

It should be noted, that 'Recommendations' and 'Challenges' should here be considered as complementary to each other towards indicating and suggesting educational material as planned, in the sense of both its direction and scope, as well as the considerations in the process of fleshing out this direction in the form of educational/pedagogical content (challenges).

Table 2: Empowering the 'green self's' of young people as agents and influencers in fighting climate crisis (own editing)

'Green' and 'communication' self of young people	Recommendations	Challenges
Extremely worried, amplified by feelings of fear, sadness, anxiety, angriness, helplessness, powerlessness.	Channelling depressive feelings and emotions towards agency at personal and collective level – Making them conscious of their determining role as a distinct social group.	Identifying the correct discursive means, that can overcome the feelings of 'nothing can be done' vis-a-vis 'a damage done'.
Higher levels of involvement at the individual (activism at home), rather than collective level.	Encouraging 'activism at home', but however, endowing it with the notion of a collective life-style that can be communicated through actions that have a collective impact themselves (making individual life-style publicly known by promoting it through digital and not only means).	Infusing the responsibility of the individual towards society. How impactful practices and everyday activities fighting climate change in own micro-world should be communicated and promoted - to schoolmates, friends, family, irrespective of the result.

'Green' and 'communication' self of young people	**Recommendations**	**Challenges**
Pronounced, real-life exposure and experiences to climate crisis consequences, that go beyond the scientific discourse discussing the issue.	Provide young people with skills that can transform scientific, journalistic, expert discourse about climate crisis into creative communication discourse (e.g. drawing connections between climate crisis topics and future planning, professional and personal aspirations which initially seem to be disconnected from 'today's' climate crisis discussion)	Development of meaningful examples. Explaining the processes of abstract thinking, that connect the future agency of a young person with climate change. Building on selected skills according to EU GreenComp 
Active participation in worldwide impactful activities and movements (e.g. FFF, Extinction Rebellion etc.) is not massive and consistent, and also varies across countries.	Identification and demonstration of the reasons for that, as well as the outcome, the impact of those movements (what is/was attractive and what not?). Connecting young people with collective action and movements of the past – creating an intergenerational community through time, that is, from the past, to the present and into the future	Overcoming methodological difficulties in approaching and making the recommendation meaningful and presentable (i.e. attending the respective socio-cultural contexts and intergenerational tensions in their own historical contexts)
Blaming the older generations for climate crisis but not explicitly. Higher trust and hopes for fighting against climate change are invested in NGOs, local communities, rather than governments, the leaders in economy and industry.	Promoting the concept of intergenerational equity rather than intergenerational conflict Promoting intergenerational learning through climate communication (e.g. climate communication as intergenerational or cross-generational as for example from persons at the upper cohort of the age group 18-25 to them at the lower cohort i.e. 18 or less) Deploying methodologies like for example role-playing workshops where participants represent past, present and future generations, taking responsibility and being accountable to each other.	Developing inspirational material (preferably visual and scenario-based, rather than narrative) that promotes climate change as an urgency of today, while at the same time transcends into the long duration (past and future).
Easily influenced by social media influencers Prefer credible and entertaining content Prefer visual, short but meaningful content rather than narrative Co-creation of content The wide outreach (followers) of an influencer doesn't always work in a positive way Spend much time online and on social media in particular, running the risk of FOMO and the related anxiety issues (Fear-Of-Missing-Out)	Allowing for high levels of co-creation of content (i.e. not instructional, top-down approach). Ensuring credibility of content. Promoting visual elements and short to medium duration in topics integration. Promoting 'influence' on the basis of valid and verifiable arguments, rather than the influencer as agent and authority	Adjust content, style, and discourse used on the issue and goal of promoting 'greenfluencing' to several socioeconomic profiles of young persons within the age group 18-25 (e.g. gender, educational background, national identity, relationship with social media etc.)

'Green' and 'communication' self of young people	Recommendations	Challenges
Can become confused and eventually neutral, disengaged, or worse, negative, when they can't relate to or understand the climate change jargon	Avoiding scientific jargon as a means of communication climate change and crisis (discourse), while deploying at the same time scientific jargon as a means of validation (i.e. as a way to explain why rather than what)	Need of glossary and conceptual guidance that should be tested and validated as effective
Credibility, trust worthiness, sympathy, originality, uniqueness are the 'winning' qualities of an influencer Quality of communicated material or opinion matters more than quantity of followers and audience	Development of skills that allow credibility, worthiness, sympathy, originality, uniqueness to be expressed in written discourse (online, social media), but also in visual, audio or other means of communication	The mentioned skills that have to do with the recommendation as provided might be hard to be formed, as well as 'taught' within the scope of educational material, as they touch upon interpersonal as well as intrapersonal skills, which can be challenging for the particular age group (18-25)
Having to deal with scattered, unstructured and often not well-documented information Lack critical assessment and thinking skills Having to deal with misinformation which can be hard identifiable as such	Developing skills for the creation, communication, as well as the critical assessment of 'what is written online' and especially social media	The recommendation can have a very wide scope and touch upon various areas (e.g. use of emotive and rational language, assessing credibility and validity of information by cross-examination of multiple sources, assessing credibility and validity from the visual, narrative or other context that complements the information etc.)

The Greenfluencer course has been piloted both at national and international level and the educators and students involved in the project are giving feedback and analyses to professionalize the open platform to be available soon to everyone.

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