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Article

# The Opinion of University Students and Teachers of Education on Degrowth: A Mixed Exploratory Study

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**Abstract** Degrowth is proposed at a scientific and theoretical level as a possibility to curb climate change and thereby prevent a potential collapse. Educating about degrowth, therefore, emerges as an academic and social alternative for raising awareness among teachers and future generations. The objective of this mixed exploratory study is to understand the opinion of 419 university students and teachers with Education-related degrees (Bachelor's and Master's) regarding the climate crisis and degrowth education. A Likert-type questionnaire was used, which, as a pilot construct through the Delphi technique and the judgment of specialists and experts, enabled two analyses: one statistical-descriptive and the other content-based. In general terms, the results indicate that the participating students and teachers are partially aware of the need for a paradigm shift, recognizing that the future will involve experiencing a situation of planetary depletion and unsustainability. It is concluded that: a) the questionnaire surpasses its exploratory validation phase and maintains a correct relationship of relevance between items; and b) the educational opinion affirms that education on degrowth, as a cross-disciplinary content, is a key factor in counteracting collapse.

**Keywords** climate change; degrowth; sustainability; teacher training; questionnaires



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## 1. Introduction

The current growth-driven society in which we are immersed is unsustainable because it fails to consider the planet's regenerative capacity, while also creating staggering gaps and social inequalities. The truth, though uncomfortable, is that the primary driver of planetary degrowth is not carbon dioxide ($CO_2$), but rather the political, economic, social, and environmental consequences resulting from the capitalist model [1]. According to Oxfam-Intermon [2], in the past decade, the richest 1% has accumulated 50% of the world's new wealth; millionaires and corporations have seen their fortunes and profits grow, driving a surge in social inequality. Increasingly, millions of people are being pushed into extreme poverty, and the number of working poor (whose wages are insufficient to make ends meet) continues to rise. Additionally, increases in food prices (18% in 2022) and energy costs (59%) further exacerbate social inequality. The planet's wealth is concentrated in the hands of a few: 20% of the world's population holds 86% of natural resources, while 1.3 billion people live in extreme poverty (less than one dollar a day) [3].

Simultaneously, this growth-driven capitalist model is causing an ecosystemic crisis of immeasurable proportions. The climate crisis is impacting life on the planet, causing changes in the atmosphere, biosphere, and ocean, which indicates that the world has warmed, a trend associated with rising $CO_2$ levels [4]. Among the most concerning changes are: 1) A significant reduction in Arctic ice and glacier thickness; 2) The oceans have experienced rising levels, acidification,

and deoxygenation; and 3) Land temperatures are increasing at the extremes, which is leading to devastating wildfires and storms [4], negatively impacting health and well-being [5]. In Spain, between 2021 and 2023, the number of days with temperatures above 40 degrees has doubled [6,7].

According to Al Khourdajie et al. [8], climate change increases the adverse effects on humans, such as loss of lives, fewer means of livelihood (agriculture, fishing, etc.), physical and mental health problems, decreased perception of well-being, reduced economic resources, social issues, among others, especially in impoverished countries that face dwindling natural resources for survival and lack sufficient infrastructure to cope with more severe climatic conditions, such as earthquakes, wildfires, floods, etc. [4].

By the end of the 21st century, between three billion and six billion people could find themselves outside the Earth's habitable regions, facing intense heat, limited food availability, and high mortality rates [9].

Despite the existence of well-supported scientific data showing that climate change is humanity's most important challenge [10], there are still those who consider it an exaggeration with no immediate consequences, that it does not need to be prioritized on national agendas, or that it will eventually be resolved through some kind of future technical solution or advancement [11]. One of the most plausible and frequently reiterated hypotheses is that resistance to change in addressing current environmental problems is largely due to the fact that individuals and communities lack an "objective" and "real" understanding of what it entails and the consequences it has and could have [12,13]. For this reason, they emphasize that education is key to conveying scientific knowledge that enables understanding of the situation and acting accordingly.

However, according to González-Gaudiano & Meira-Cartea [12], the social sciences and education appear apathetic in the face of the environmental disasters that have emerged in this new century. This is concerning because it is precisely through social sciences and education that a change in the perception of young people and those preparing to teach others can be fostered [4]. Moreover, there is clear evidence that $CO_2$ emissions can be reversed through political measures [14].

As an alternative to this model of unlimited growth, movements have emerged that promote a culture focused on raising humanity's awareness of the crucial importance of consuming only what is necessary and minimizing the excessive use of renewable and non-renewable raw materials found in nature.

This alternative emerged at the beginning of the 21st century when the concept of degrowth (*décroissance* in French, degrowth in English) began to be discussed as a project aimed at reducing production and consumption to what is necessary for achieving social and ecological sustainability [15]. Degrowth is a proposal for radical change, in the sense of addressing the root causes of the system [16]. According to Demaría et al. [15], the term first appeared in 1972 as a description of social change. From then on, it was mentioned in various conferences (Paris, Barcelona, Montreal, Venice, Leipzig, Budapest, Malmö, Mexico City, etc.) and different texts. In 2002, it was adopted for the first time as the name of a social movement in Lyon, France, due to protests promoting car-free cities, street meals, and anti-consumerist advertising.

The construction of this degrowth society involves an entire process of cultural deconstruction of the current mindset, which establishes a direct relationship between economic growth (more production, more consumption) and development, and prosperity; assuming that "more" (a newer, larger, higher-powered car, a bigger house with more amenities) equals "better". In this way, competitiveness, higher performance, and growth have become mantras that are systematically repeated as solutions to any crisis [17].

At the same time, a reconstruction of a new culture is needed to learn how to live better with what is necessary. In this cultural reconstruction, educators bear a significant responsibility in their professional practice, as they can positively influence behaviors and perceptions that help minimize human actions negatively impacting nature, promote reduced consumption in the communities where they work, and contribute to the care of the ecosphere and the planet.

The current education law [18], indeed emphasizes sustainability from its preamble, recognizing this approach as one of the key elements of the law. Title IV establishes that the education system cannot remain indifferent to the challenges posed by the planet's climate change and that schools must become places of stewardship and care for the environment [19–21]. Furthermore, it highlights that Higher Education must promote both initial and ongoing teacher training that

incorporates these approaches [22], even though it remains within the sustainable development model, which is essentially a form of greenwashing growth.

But it is not only the responsibility of the Faculties of Education that train future generations of teachers and professors. Universities, in general, need to promote actions in the field of Educational Social Responsibility (RSEdu) regarding teaching, research, management, and infrastructure, which should also align with the principles of degrowth. Therefore, it is essential to offer the university community both initial and ongoing training to help all university faculty and students understand the ecosocial needs of our time, raise awareness, and promote responsible and fair citizenship toward society, the planet itself, and future generations [23–26].

Given the current state of the planet, as described, due to its impact and urgency, it is considered necessary to study the opinions of university students and educators in Education (Bachelor's and Master's) regarding climate change and degrowth education. This research group, in line with [27], and through this pilot study, emphasizes the importance of prioritizing the increase of present and future pedagogical knowledge and training through the mixed-method study presented here, aiming to raise awareness of the seriousness of the situation and enable members of society to actively participate in implementing public policies that help improve the environmental conditions of their surroundings from a genuinely sustainable perspective. Thus, the purpose of this research has not only been to partially validate a pilot questionnaire to gather information on degrowth but also to determine whether current and future educators perceive the need to be trained in degrowth during their initial education and whether they are adequately prepared to face the social and educational challenges posed in their future teaching. We must develop plans, actions, strategies, and policies that mitigate the adverse consequences of climate change and move toward the degrowth model [8].

## 2. Methodology

This study is part of an open and international project aimed at enhancing teacher training by examining the perspectives of students and educators on degrowth education for teachers, within the framework of a European Jean Monnet project. Over the past two years, this project has implemented various tools for data collection and analysis, including focus groups, open-ended surveys, classroom observations, recorded interviews, and the pilot questionnaire presented here, among others.

This research was conducted using a mixed methodological approach [28], and employed a Likert-type questionnaire, with responses ranging from 1 (strongly agree) to 4 (strongly disagree), in its exploratory relevance phase. Multiple-choice questions were also included to support the significance of the results extracted from the Likert-type questions. However, understanding that the study's objective is predominantly quantitative and represents an initial exploration of the topic, which has not been extensively addressed in contemporary literature [17], a final open-ended, reflective-theoretical question was included at the end of the questionnaire. This allows participants to express, in an expository, reasoned, and more developed manner, aspects or issues that may not have been addressed in the questionnaire. For its initial construction, other questionnaires describing scientific university education from the students' perspective were considered, such as the University Students' Beliefs Questionnaire on Innovations in Higher Education (C-RENOVES) [29,30].

Regarding validity status, the ad hoc-designed questionnaire was created using Google Forms [31]. Before applying the instrument to the participants of this research, it was piloted with a small group of 30 university educators and students to review potential difficulties in understanding the items. Simultaneously, it underwent an initial validation process for review and evaluation, centered on the Delphi technique [32]. This involved soliciting the judgment of five experts in the field of education and teacher training in CTS (Science, Technology, and Society) subjects, who were asked to provide a rating between 1 and 5 regarding the relevance and clarity of each item, with average scores exceeding 3. Based on the feedback received, 11 items were restructured and distributed into five categories.

The process followed with the experts was as follows: sending the questionnaire and modifying it based on their feedback, and then jointly validating all the results. At the same time, a detailed validation process was conducted within the working group that carried out this research. In total, there were three evaluators. All were PhDs; one held a doctorate in education, one in economics, and one in research methodology. Regarding the research questions framing the descriptive-interpretative and categorical content analyses, the following are proposed: a)

What perceptions do university educators and students have about current degrowth in relation to the economy, production, consumption, and education? and b) What level of relevance and reliability does the questionnaire provide in its exploratory phase based on the results obtained?

### 2.1. Sample and Context

This research was conducted within the framework of the international project "*Degrowth and Education*", linked to a research team from the Universidad Internacional de La Rioja (UNIR), the University of León (ULE), the University of Alcalá (UAH), the Corporación Universitaria del Caribe in Colombia (CECAR), and the Virgen de Europa University Center in La Línea (Cádiz), affiliated with the University of Cádiz (UCA), in relation to the current perspective and teacher training regarding the apparent and inevitable degrowth (Table 1).

The study sample comprises 419 participants, 83.1% of whom are students (holding Bachelor's and Master's degrees), and the remaining 16.9% are educators. Regarding gender descriptors, 81.4% of the participants are women, and the remaining 18.6% are men, with ages ranging from 18 to 60 years. Sampling was purposive and non-probabilistic, involving the selection of participants based on the characteristics of the study population and the research objectives [33–35]. Some participants attended classes at different educational levels, while others participated through LinkedIn to ensure accessibility, adhering to the basic principles for protecting individuals in research processes, as outlined in the Belmont Report. Specifically, informed consent was requested from students in accordance with the European Union's policy on personal data protection and processing, ensuring anonymity and the exclusive use of responses by educator-researchers.

The questionnaire was distributed in person to students in various classes, including Primary Education, Early Childhood Education, Social Education, and Master's Degree programs. Likewise, they were asked via email to apply the questionnaire in class with their students. Likewise, it was presented through social networks, accompanied by specific instructions tailored to those who met the required criteria. The subjects themselves who responded to the questionnaire indicated whether they intended to participate in a future in-depth interview. Therefore, the primary objective of this work was to address an open question through a focused and semi-structured in-depth interview [36] with 20 students in their initial training period, in the degrees already described.

**Table 1.** Sociodemographic data.

| Autonomous Community | No. | % |
|---|---|---|
| Andalucía | 251 | 59.9 |
| Aragón | 1 | 0.2 |
| Canarias | 2 | 0.5 |
| Cantabria | 2 | 0.5 |
| Castilla and León | 57 | 13.6 |
| Castilla-La Mancha | 10 | 2.4 |

Source: Own elaboration.

The response rate of participants in the Andalusian community was significantly higher than in other communities, as evidenced by the higher response rates from educational centers and teachers compared to other communities nationwide. The involvement of the professionals who completed the questionnaire in their schools was higher.

### 2.2. Analysis Procedure

The coding process and quantitative data analysis were performed using the Statistical Package for the Social Sciences (SPSS v24) to obtain frequencies and percentages. For the qualitative analysis of the data collected from the final open-ended question, analytical induction [37], coding [38], and constant comparisons throughout the analysis process [39] were employed. Analytical induction involved examining the collected data for categories and relationships between them. This facilitated the initial coding of emerging categories that arose during the analysis. This process enabled the organization of the results into these categories and the establishment of relationships between some of them. Additionally, a comparison was made between the

responses to the open-ended question and the data obtained from the previous quantitative questions (Table 2).

**Table 2.** Categories, variables, and items.

| Categories | Variables | Number of Items |
|---|---|---|
| General data | - Gender<br>- Degree<br>- Autonomous Community<br>- Studies/work | 4 |
| Global Warming | - Perception of Global Warming | 1 |
| Economic growth | - Social justice and happiness<br>- Inequality<br>- Sustainability | 3 |
| Socioeconomic system, production, and consumption | - Destruction of the Planet<br>- Reduction of Production and Consumption<br>- Break with the Capitalist System<br>- Voluntary Simplicity<br>- Principle of the "5Rs" | 3 |
| To educate<br>To train in degrowth | - Concept of degrowth<br>- The need to educate in degrowth | 4 |

Source: Own elaboration.

## 3. Results

A descriptive analysis of the data was conducted. Descriptive statistics for multiple-choice questions were calculated based on the number of responses selected by the subjects. For Likert-type questions, the percentages were calculated by grouping response options associated with values 1 (strongly agree) and 2 (somewhat agree) as "agree", and those associated with values 3 (somewhat disagree) and 4 (strongly disagree) as "disagree". Below are the main results obtained after administering the questionnaire:

Regarding the 1st area studied, "Global Warming", a majority of 95% of participants ($n$ = 398) agree that global warming stems from accelerated consumption and pollution, and could lead to the destruction of the planet. However, there are still individuals who believe it is a hoax.

Concerning the 2nd area, "*Economic Growth*", we found that:

- 82.8% believe that the current economic growth has not brought greater social justice or happiness to human beings ($n$ = 347).
- Additionally, 93.6% consider that current economic growth has enriched only a few while increasing inequality and the planet has been exploited excessively ($n$ = 392).
- Moreover, 74.7% think it is not possible to achieve sustainable economic growth if current consumption levels are maintained ($n$ = 313).

In the 3rd area, "*Socioeconomic System, Production, and Consumption*", the results reveal that:

- 95% of participants believe that the economic system and consumption are destroying the planet we inhabit ($n$ = 398).
- 80.9% think that we must live with less, limiting production solely to the satisfaction of basic needs ($n$ = 339).
- 91.7% of respondents ($n$ = 384) consider it essential to reduce production and consumption (especially in wealthy countries) to preserve the environment for future generations.
- 93.8% believe that we cannot afford to consume beyond the planet's resources ($n$ = 393).
- 68.8% think that only breaking away from the capitalist system, with its consumerism and productivism, can prevent the destruction of the planet ($n$ = 288).
- 92.6% advocate for educating within a social model of "voluntary simplicity", where consumption is based on real basic needs ($n$ = 388).

- 95.9% believe that we must base the economy and life on principles of relocalization, reuse, recovery, cooperation, self-production and exchange, durability, and simplicity ($n$ = 402).

Regarding the 4th area, "*Educating: Training in Degrowth*", the data show that:

- 59.7% believe that degrowth challenges the concept of infinite growth postulated by capitalism and advocates for the preservation of natural resources through a balance between humans and nature ($n$ = 250).
- 20.5% have never heard the term ($n$ = 86).
- 17.4% think it involves reversing growth to enable sustainable development that prevents pollution and planetary destruction ($n$ = 73).
- 71.1% consider that educating about degrowth in the educational system is fundamental and a priority ($n$ = 298).
- 91.2% believe that future teachers of Early Childhood Education, Primary Education, and Secondary Education should receive training on degrowth during their initial university education ($n$ = 382).
- 47% think this training should be integrated transversally ($n$ = 197), while 21.5% believe there should be at least one specific subject on this topic ($n$ = 90), and 26% state that both options should be implemented simultaneously.

Based on the responses provided in the questionnaire, it is worth noting that 75 respondents answered the open-ended question, representing 17.9% of the sample. The dimensions and subdimensions were derived from the responses (Table 3). Although the response rate of 75 subjects is a low percentage compared to the total sample, it provides sufficient information to contrast and comment on the most significant aspects of the results, solidly complementing the qualitative part of this experimental research. At the same time, this percentage indicates that qualitative (open) questions require time for reflection and elaboration which not all respondents allow.

There are no significant differences in the responses between teachers and future education professionals regarding their engagement with the causes and effects of climate change.

**Table 3.** Dimensions and subdimensions derived from the open-ended question.

| Dimensions | Subdimensions |
|---|---|
| Global Warming/Depleted Planet | High temperatures |
| | Excessive consumption |
| | Lack of use of the "5Rs" (refuse, reduce, reuse, recycle, and reinstate) |
| | No solutions |
| | Problem intensification |
| | Measures for all social classes |
| | Raising awareness of the real situation |
| | Importance of scientific studies related to different climatic periods on Earth with less human influence |
| | Irreversible process |
| | The countries that pollute the most are unlikely to change their ways. |
| Economic growth | Pollution vs. Respect for the environment |
| | Respect and care for the place we live in |
| | Health of current and future generations |
| | Misuse of raw materials |
| | Fires |
| | Excessive production |
| | Destructive values |
| | "Makeup" with terms like well-being |
| | Holding multinationals and business owners accountable |
| | Media manipulation in favor of large transnational corporations |
| | Letting large corporations fail as a means of salvation |
| | Large corporations are gaining More profits while blaming Citizens for the Planet's situation |
| | Control policies not aimed at breaking with capitalism |

**Table 3.** (*Continued*)

| | |
|---|---|
| Socioeconomic system, production, and consumption | Unsustainability |
| | Change of doctrine |
| | Development to meet global needs |
| | Making poor countries wealthy |
| | Capitalism is not the problem |
| | Restructuring its mechanisms of functioning |
| | Degrowth does not necessarily mean a reduction in quality of life |
| | Misinformation |
| | Consumerist technological society |
| | Short-term thinking system/collective change needed |
| | Circular economy |
| | Inability to abandon the system due to its principles contradicting the common good |
| | Excessive consumerism |
| To educate<br>To train in degrowth | Educating on emotions |
| | Awareness |
| | Implementing it from early childhood Education |
| | Unawareness vs. Awareness: "Living with less" |
| | Importance of future generations |
| | No educational indoctrination |
| | Education in values, not in degrowth |
| | Degrowth = impoverishment of countries |
| | Degrowth from an eco-socialist perspective |
| | Degrowth = Utopia/failure from its conception |
| | Implementing the Sustainable Development Goals in all educational stages would be an achievement |
| | Continuing to educate ourselves |

Source: Own elaboration.

The responses from the quantitative portion of the questionnaire provide a series of noteworthy data: the importance attributed to global warming, which, according to the respondents, is largely due to the current economic growth paradigm promoted by the inherent characteristics of the capitalist system. This system has solutions. However, in the qualitative portion (open-ended question), there are discrepancies in explaining the phenomenon, its causes, consequences, and the impact it is having and will continue to have in the near future.

As an illustration, we present in each of the areas or dimensions several responses that significantly contrast with the results obtained in the quantitative section (Table 3).

a) Global Warming/Depleted Planet:

- "I would find it much more interesting if scientific studies on the evolution of global temperatures and atmospheric composition throughout history were taken into account. These studies show that there have always been warmer and colder climatic periods and reflect that there isn't such a 'tremendous' human influence on the current situation. While humans do have some impact, it is much less significant" (R43).
- "I believe that today, humans have normalized global warming and the destruction of our planet, and this is the worst thing we can do. Sometimes we do not seek solutions but instead simply continue to exacerbate the problem without doing anything to change it" (R22).
- "I think measures should be taken to mitigate the effects of climate change, but they should apply equally to all social classes and not just to the lower-middle-class population" (R14).
- "In my opinion, it is vital to raise awareness about the situation we are in due to the condition of our planet. This way, we can collectively work to eliminate existing pollution. It is essential to make the population aware of the current situation and its repercussions" (R33).
- "I think many people are aware of the existing problems, but out of selfishness and because they think they won't experience them, they do nothing to change them. Until everyone changes their mindset, or at least a large part of the population, we'll remain in the same situation" (R50).

b) Economic Growth:

- "I believe we are destroying the planet through how we use its materials and productions, as there are many fires and pollution that lead to increased neglect of the planet. For this reason, I think we should all contribute to making a better world, where more attention is given to the environment and its components, reducing the problems that currently exist" (R58).
- "I think destructive values for the planet are being spread, but they are disguised as well-being for humans. We fail to realize that without the Earth, humans could not exist; we owe everything to it" (R72).
- "We always focus too much on individual action. It's obviously important and influential, but legislative inaction and corporate permissiveness are too often overlooked. For example, it makes no sense that hydroelectric plants—where so many politicians settle after their terms—saw increased profits even during an economic crisis, that they could empty reservoirs during droughts to make more profit, and then claim that the problem lies with us individuals for not flushing the toilet, brushing our teeth, or not reusing dirty things" (R45).
- "I agree that the current growth in the consumption of resources and raw materials at a global level is unsustainable, although I believe that the solution does not necessarily involve breaking with the capitalist model, but rather designing and implementing control policies to make this system sustainable" (R28).

c) Socioeconomic System, Production, and Consumption:

- "In my opinion, for the preservation of both humanity and the Earth, there must be a change in economic doctrine" (R37).
- "Capitalism is just an economic system; in any case, the entity that provides a moral direction is the state. And this brings us to the second underlying issue: capitalism does not necessarily have to be incompatible with this new 'era of degrowth'. It simply needs to restructure its functioning mechanisms, and for this, the support of all states is essential. In the same way, the 'degrowth' we should embrace does not necessarily imply 'living with less', as suggested at various points in the questionnaire. Even in the first world, there are people who, in a scenario of degrowth and cutbacks, would maintain high standards of living and would not even see their ability to access many of the goods we enjoy today reduced. Rather, it could be marked by the enormous inequality that exists, not only between rich and poor countries but also within first-world countries. Therefore, even in an era of degrowth, even within a capitalist socioeconomic system, if states are willing to redistribute wealth and reduce inequality, it is entirely feasible to live with quite decent standards. In many ways, a large portion of the population could even benefit (R42).
- "This issue should be focused not on the capitalist system itself but on consumerism and the planned obsolescence of today's products, which drive people to continue consuming at large scales" (R40).
- "I am concerned about how it will be possible for the population to give up some of the comforts provided by the capitalist system, thinking about the common good and the long term. I am not sure if, as a society, we are capable of this. Especially considering that the current system encourages you to think of yourself, promoting individualism and immediate gratification, and a desire for more. Critical thinking and divergence are penalized... I believe that the only way to achieve degrowth is through a profound crisis, through an extreme situation" (R2).

d) Educating: Training in Degrowth:

- "I believe teachers should educate in values and not in political or economic ideologies of any kind. Schools should not indoctrinate with any ideology. Degrowth only leads to poverty in countries. Jobs need to be created so families can live, and the country can prosper" (R55).
- "It is essential to work on education from a very early school age" (R34).
- "The initial training of teachers is the first formative instance to deliver new knowledge to those who will be responsible for educating future students (...). Similarly, I believe it is

the best instance to create new pedagogical approaches, but these should also be presented in the ongoing training of practicing teachers" (R43).

- "The sustainability of the planet is everyone's responsibility, and education and social awareness are the only ways to reverse the damage caused by the capitalist system and consumerism" (R44).
- "We should all be aware of this and instill it in future generations, as we need to improve the entire system significantly and collaborate between citizens and businesses to reduce pollution and create a world with equal opportunities for all, efficient, and, above all, healthy and ecological" (R47).
- "In fact, this is something I've been thinking about for a while, and it seems very interesting and necessary. I believe it can and should be implemented even from early childhood education. Something that worries me, and I think it's a general concern among people interested in this topic, is knowing that we are already late, and yet, it seems that no substantial changes will occur in the near future" (R48).
- "Degrowth must be adopted by all countries simultaneously, or none will do it, and that's... (Prisoner's Dilemma on a global scale). The opinion of the masses ultimately matters little compared to that of big corporations and capital. Decisions today are not made from the bottom up. It is doomed to fail from its utopian conception" (R27).

## 4. Discussion and Conclusions

Regarding the first area, *Global Warming*, the results align with previous studies [40–42], where participants perceive the phenomenon of climate change as accurate and current concern.

Regarding the causes of the climate crisis, the results of this study support the findings of the reviewed research [13,27,43–47], which identify its origins in pollution, consumerism, human selfishness, and capitalism, among other factors.

This invites reflection on global warming and public awareness regarding it, as, despite being a term widely known and frequently used by much of the population, it neither significantly affects nor modifies our perception of vulnerability. Instead, it is perceived as an ethereal phenomenon, remote in time and space, vague in its causes, detached in its consequences, and with solutions and alternatives whose alleged benefits would be realized in the future [11].

Regarding the second area, *Economic Growth*, the data obtained in our study demonstrate, as in other studies, that unlimited growth based on ever-expanding consumption contributes to the depletion of natural resources [48]. The economic policy of increasing the population's purchasing power to maintain each country's productive activity and avoid economic recession has a negative medium- and long-term effect, resulting in environmental degradation. Until a few years ago, the potential "costs" of this expansive growth model were considered at a global level, stemming from the resources required to reconstruct vast territorial areas destroyed by pollution, the abandonment of non-degradable waste, the uncontrolled expansion of urban society, among other factors, as well as the consequences on the quality of life and well-being of citizens residing in those areas [49].

The pace of growth, way of life, and the current model are neither sustainable on a finite planet nor desirable in a just society. A cultural shift that integrates these two variables into the economy, culture, politics, and everyday life is urgently needed. This cultural change is also the responsibility of education and educational systems.

Hence, this research has focused on exploring the knowledge of students with Education-related degrees (Bachelor's and Master's) and practicing educators regarding the climate crisis, degrowth, and their perceptions about educating on these topics within the educational system, as their influence on the training of future generations will be decisive in advancing this cultural change.

Based on the findings of this research, it is deemed necessary to emphasize the conceptualization and development of the degrowth alternative as a global and planned solution that provides hope in the face of the current situation. The severity of the problem, however, must be substantiated with verified and scientific information to enable a genuine and accurate understanding of its gravity and the potential irreversibility of ecosystem collapse if urgent measures are not implemented [48,50].

The values on which growth, development, and especially progress rest do not currently align with profound universal and humanistic aspirations. These values (concepts of time, relationships with nature and other beings, etc.) are tied to the history of the West, marked by violence,

extractivism, plundering of the planet, power, and a capitalist model based on limitless consumption and waste [51].

In light of the results found in the third area, *Socioeconomic System, Production, and Consumption*, it is noted that, as indicated in the study [52], the participants in this study are capable of identifying causes, consequences, and strategies to address the climate crisis, but through direct and straightforward associations that do not involve complex, interdisciplinary, or multicausal relationships. They identify the burning of fossil fuels as a cause, but not their consumption habits. They recognize direct strategies to combat climate change, such as using urban transportation, but do not perceive the relationship between local consumption strategies and the reduction of goods transportation. This is not the case with the identification of socioeconomic consequences and their correlation [53], or with the correlation between the political, economic, cultural, and philosophical dimensions involved in climate change [54,55].

The majority of respondents consider capitalism, its characteristics, and its consequences as one of the main issues contributing to climate change. However, this contrasts with the fact that educational approaches often focus on personal awareness without sufficiently problematizing or exploring its structural causes, the global impacts it entails, and the potential response strategies that challenge, go beyond, or transcend the capitalist growth system [46,47,56,57]. The lack of problematization and contextualization in environmental education explains this contradiction. This occurs because, in many cases, a traditional teaching model is maintained in the classroom that fragments knowledge and fails to effectively articulate procedural, theoretical, and attitudinal content related to real-world problems. When teaching is based solely on the transmission of concepts without connecting them to social, economic, and political reality, the possibility of generating meaningful and critical learning is lost. Environmental education, in this sense, is often limited to individual behavioral changes, such as recycling or energy conservation, without questioning the structural dynamics of the economic system that perpetuates the ecological crisis.

While consumption appears to be an essential concept in understanding how climate change affects daily life, there seems to be little reflection on the human-nature relationship, particularly in societies that overexploit and engage in limitless consumption [58].

Regarding the fourth area, *Educating: Training in Degrowth*, the results described in this research confirm that it is essential to move beyond the education model focused on sustainable development and delve into degrowth [59,60]. That is, we should transition from an approach centered on "controlled" unlimited growth to one that emphasizes the planet's limits, reduced consumption, focusing only on satisfying real needs, and population resilience.

Thus, an education is essential that raises awareness of the reality we live in and provides strategies to live with fewer resources, allowing everyone to live with dignity, without this leading to a situation of chaos and disorder [46].

All the areas studied in this research reveal that climate change and the destruction of the planet are perceived as accurate and concerning phenomena. Their causes are associated with a model of limitless production and consumption (capitalism) and the culture and collective imagination that have been socially and educationally constructed.

Regarding the perception of consequences, the identified impacts encompass not only environmental and physical health issues but also effects on the psychosocial health of the population, influencing behavioral changes and mood states.

Regarding possible response actions, the importance of raising awareness, educating, and sensitizing is emphasized, as well as creating spaces for reflection and disseminating information about sustainability and the care of the planet [27]. Additionally, effective measures and practical policies are necessary to refocus the social, cultural, economic, and global model toward planned and solidarity-based degrowth, starting urgently with wealthy countries, as the planet's limits are on the verge of collapse [48].

In summary, the general conclusions are as follows:

a) The questionnaire captures the opinions of students and educators regarding degrowth, confirming the high and appropriate reliability indices validated by experts based on the construct's reproducibility and internal consistency. This enables us to examine participants' concerns about the ecological crisis, current climate change, and the necessity of degrowth education in both initial and ongoing training.
b) The responses confirm the need to incorporate a training model into the education system that teaches consumption based on real basic needs rather than external social needs

established by advertising and marketing, which link happiness to growth and endless consumption.

Regarding the limitations of the study, the following are listed:

a) Concerning the qualitative part of the questionnaire, it is acknowledged that it is underdeveloped, and there is a proposal to expand it in a complementary study by incorporating open-ended questions focused on the same categories as the quantitative part, based on the most prominent subcategories of the quantitative study.
b) Regarding the quantitative part, the restructuring of some items that showed insignificant results is proposed, acknowledging that they need to be reformulated or even eliminated.
c) The inclusion of an exploratory factor analysis and, subsequently, a confirmatory study is proposed to ensure the total validity and reliability of the construct in future research.
d) The results suggest a discrepancy between the quantitative and qualitative aspects of the study. A key limitation of the questionnaire is that it includes only one open-ended question, which does not allow for an in-depth exploration of participants' perspectives that is addressed in other research we have conducted. Most of the responses fail to adequately identify the relationship between the causes and consequences of the environmental crisis, nor do they clearly outline the necessary measures, both at the political, economic, and educational levels.

### 4.1. Future Research Lines

The training of university professors must foster a collective shift in favor of degrowth that aligns with the needs and limits of the biosphere. It should focus on the advantages of bidirectional and continuous teacher-student communication, as well as the reflective stance alluded to in this: (a) the epistemological perspective of the concept of degrowth and the necessary teacher training in ecology, which can respond to the scientific, technological, social, and economic (STS-e) challenges. This training should focus on essential aspects of basic epistemological elements such as the development of key questions, the grouping of concepts capable of facing the real difficulties and contradictions in environmental education, sustainability, and degrowth; (b) the didactic perspective on the treatment of contents related to degrowth, and the holistic vision to encompass different variables on what to teach and what types of contents are structured to address the complexity of eco-social and environmental problems. Therefore, a critical and instructive education is necessary; and (c) the sequencing of activities oriented to the evolutionary, investigative, and formative evaluation of the concept of degrowth. Any activity should be based on a specific program or project in which the student analyzes and attempts to solve socio-environmental problems through activities of exchange, contrast, participation, and reflection. In a teaching-learning process based on degrowth, the essential criterion must be to favor adaptation to the new situation of the world; this implies a radical change of contents in a double sense: reviewing and reformulating the meaning of traditional curricular contents in the key of degrowth (so that their treatment is useful to understand the clash with our biophysical limits and to train people to face it), and prioritizing the development of certain contents. As for the priority contents, it seems clear that all those that help the population to adapt to degrowth would be so.

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## Data Availability

The questionnaires have been completed through the following link: https://docs.google.com/forms/d/1PiUmwLu7RYEGs8YlHuIsChs9Qs9_WUqMCOOI6vcsE8Q/edit?ts=631de3af, from where we have obtained and analyzed the data.

## Author Contributions

Conceptualization: E.J.D.G., & J.J.T.V.; Data curation: L.M.G.S., K.R.A., J.J.T.V., & A.P.R.; Formal analysis: all authors; Funding acquisition: all authors; Investigation: all authors; Methodology: all authors; Project administration: all authors; Resources: all authors; Software: all authors; Supervision: all authors; Validation: all authors; Visualization: E.J.D.G., A.P.R.,

J.J.T.V., & S.A.M.; Writing – original draft: J.J.T.V., E.J.D.G., L.M.G.S., & K.R.A.; Writing – review & editing: all authors.

## Conflicts of Interest

The authors have no conflict of interest to declare.

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