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Educating for a sustainable future through the Circular Economy: Citizen involvement and social change

Educar para un futuro sostenible a través de la Economía Circular: Implicación ciudadana y cambio social



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Abstract

The climate crisis and the environmental emergency are a sign of uncertainty for the future of the planet. European and national educational directives establish the framework of action and the commitments that must be made by each agent to reach the new sustainable paradigm which is based on circularity. The school, as an institution of social transformation, faces a reproductive framework that feeds the consumer socio-economic structure, covering up the dimension and urgency of the problem. The aim is to identify the forces for change to improve the intervention mechanisms in the educational field in Spain aimed at fostering the involvement and the participation of young people. The qualitative methodology combines discourse analysis using Grounded Theory and prospective analysis using the scenario method. By means of a validated questionnaire, semi-structured interviews and focus groups are conducted with technicians and managers, trainers of trainers, teachers, and researchers (n=53). The discourse of the agents and legislation on education and sustainability are analysed to generate substantive theory. By means of the theorization obtained, drivers and constraints are identified, establishing a probability and impact matrix that allows for the visualization of three possible futures. It concludes with a set of recommendations to strengthen the desired scenario and to reduce the possibilities of the dystopian scenario.

Resumen

La crisis climática y la emergencia medioambiental auguran un futuro de incertidumbre para el planeta. Las directivas europeas y nacionales educativas establecen los marcos de actuación y los compromisos que cada agente debe asumir para alcanzar el nuevo paradigma sostenible basado en la Economía Circular. La escuela, como institución de transformación social, enfrenta un marco reproductivo que alimenta la estructura socioeconómica consumista, encubriendo la dimensión y urgencia de un problema acuciante que ha mostrado el límite de los recursos del planeta. El objetivo de la investigación es identificar las fuerzas de cambio para mejorar los mecanismos de intervención en el ámbito educativo en España orientados a fomentar la implicación y la participación social de los jóvenes. La metodología cualitativa combina el análisis de discurso empleando la Teoría Fundamentalada y el análisis prospectivo mediante el método de escenarios. Por medio de un formulario validado, se realizan entrevistas semiestructuradas y focus group, a técnicos y directivos, formadores de formadores, docentes e investigadores (n=53). Se analiza el discurso de los agentes de la comunidad educativa y la legislación en materia educativa y sostenibilidad para generar una teorización sustantiva. A partir de esta, se identifican las fuerzas y limitadores, estableciendo una matriz de probabilidad e impacto que permite identificar tres futuros posibles. Se concluye con una batería de recomendaciones para fortalecer el escenario deseado y minorar las posibilidades del escenario distópico.

Keywords / Palabras clave

Qualitative research, social sustainability, curriculum design, discourse analysis, social change, schools.
Investigación cualitativa, sostenibilidad social, diseño curricular, análisis del discurso, cambio social, escuelas.

1. Introduction and current situation

1.1. The role of the school in transitioning to a Circular Economy

Worrying about the future lets us shrug off the burden of worrying about the present (Confucio, 2017). The climate emergency and the need to adopt a systemic and global approach have been shaping the international agenda for decades (Linnér & Wibeck, 2017) and have highlighted the important role played by both the education system (Monroe et al. 2019) and ecomedia education (Bolin & Hamilton, 2018; López, 2019) as drivers of a process of global political and socioeconomic transformation. International treaties, such as the Agenda 2030 for Sustainable Development, which is the latest rung on the ladder (United Nations, 2022), have set forth collective commitments for helping build the future. Anchored in these commitments, the design of Europe's future has a vocation of sustainability. The European Green Deal (European Commission, 2019a), the Circular Economy Action Plan (European Commission, 2019b), the Habitat III New Urban Agenda (United Nations, 2020), along with strategies and programmes for action that, at national level in Spain, manifest as plans, such as the National Climate Change Adaptation Plan 2021-2030 (Government of Spain, 2021) and the Spanish Urban Agenda (Government of Spain, 2019). They have drawn the battle lines for building a future that transitions from the current paradigm of linear production and consumption, with its roots in materialism and neocolonialism (Stein et al, 2022), towards an ethically responsible and post-materialist Circular Economy (Lethone et al., 2019).

These directives and how they fit in politically with national legislation (García-Lupiola, 2019), from a polycentric viewpoint (Jordan et al., 2018), are establishing the official methods and resources needed to take decisive actions towards this transformation. Within this process, the School is an essential institution for educating generations of committed citizens, capable of becoming the perfect place for ongoing and holistic adaptation and for the desirable future (Szczepankiewicz et al. 2021), and one where offering sustainability training for teaching staff is crucial (Blanco-Portela et al., 2020; Collazo-Expósito & Geli, 2022).

The School is a place where students can develop the metacognitive processes that drive their reflective and critical thinking and dialogue (Magno, 2010) and evaluate their consumer habits (Santisteban-Fernández et al., 2011). A place for environmental militancy (Dunlop et al., 2021) that motivates them to participate and drive forward the global ecological transition starting with their local environment, demanding that target groups with the ability to roll out these changes on a larger scale (politicians, planners, managers and communicators) take immediate action and decisions (Novo, 2018). The School is a driver of change to reduce the gap of social awareness of this problem (Baiardi & Morana, 2021).

1.2. Educating for a sustainable future

"If all education is for the future, then when and where is the future explored within education?". This was a question asked by Hicks and Slaughter back in 1997. Education is the seed of a sustainable future. It's the cause and source of what will be, because it precedes all that is to happen. The power that it wields is passive in nature, because it could be, and has the ability to engender, the necessary change. This potential is anchored in the desideratum that societies have begun to reflect in their education laws, as pragmatic instruments of political action at two levels: governmental and institutional (Capella-Riera, 2004). With these rules, societies aspire, using lessons from the past, to improve the present, and envisage the future. This is done using an axiological approach, determined by the underlying interests, principles and values of a model educational policy (Matarranz, 2019). However, they are desperately hoping that there is also an active side to this power, because only in this way will it have the ability to transform the situation, for the better, "by virtue of its desire" (Aristóteles, 2013). But this requires commitment to promoting the identified pathways for change, establishing a binding obligation for envisaging the desirable common future.

Educational legislative frameworks, by their multidimensional nature, set out models for action. Hence the relevance of the policies that shape them (Brennan et al., 2021). They set out the framework for social action, encourage action by offering a reference framework for all agents, and shape the path of the future. The destination determines the path. Most recently in Spain, the guidelines established by the LOMCE (Education Quality Reform Act, Law 8/2013) and LOMLOE (Education Reform Act, Law 3/2020) have offered differentiating approaches to the issue of the environment and sustainable development. The LOMCE draws on the OECD, promoting skills development and individual action in terms of "knowing" and "knowing how". The LOMLOE seeks to empower, from a European and UNESCO viewpoint, the forward-looking and participatory abilities of the collective, which requires a comprehensive overview of the educational goal of

enabling students on a multi-dimensional level: knowing, knowing how, knowing how to be, and knowing how to coexist (Delors, 1996). The challenge facing educational politics is how to promote, starting with designing a global society that understands and takes action towards the climate emergency (Ripple et al., 2021), the principles of sustainable development in accordance with the Agenda 2030. Our awareness of the Great Derangement (Ghosh, 2016), and recognition of the impact that human activity has had on the Anthropocene (Crutzen & Stoermer, 2021), will help sever the link between human progress and domestication, and the silent destruction of a natural world that, as we have finally come to realise, is finite (Montagnino, 2020).

1.3. Aims

Actioning change implies an understanding of the framework and drivers of change (Wallis & Loy, 2021) and its resisters (Fritz et al., 2021). We investigate this concept with the practical aim of offering recommendations to take advantage of the opportunities represented for Schools by the new legislation designed to drive the Circular Economy, in order to foster a sustainable environmental future. The School needs to exploit the current momentum, where society finds itself at a crossroads, having understood the need to act (Carattini & Löschel, 2021) and overcome the inertia for social change by means of transformative education that learns from past mistakes (Acosta-Castellanos & Queiruga-Dios, 2021).

We therefore established the following aims:

- A1. Use discourse analysis (technicians and managers, trainers of trainers, teachers, and researchers) to identify the drivers and resisters of change in order to improve mechanisms of intervention within the Spanish education system designed at fostering social involvement and participation among young people.
- A2. Define the possible future scenarios (undesirable, transitional, and desirable) based on how these various drivers, levers and resisters of change may evolve within the educational sector.

1.4. Hypotheses

- H1. The catalytic ability of a new participatory culture and social change directed towards sustainable development depend on the design of education policies and their conversion into real educational regulatory frameworks.
- H2. The efficacy of interventional plans and programmes in this field is related directly to coherence between the curricula designed by each of the various authorities, and the support and aid strategies introduced for their implementation and assessment.

2. Materials and methods

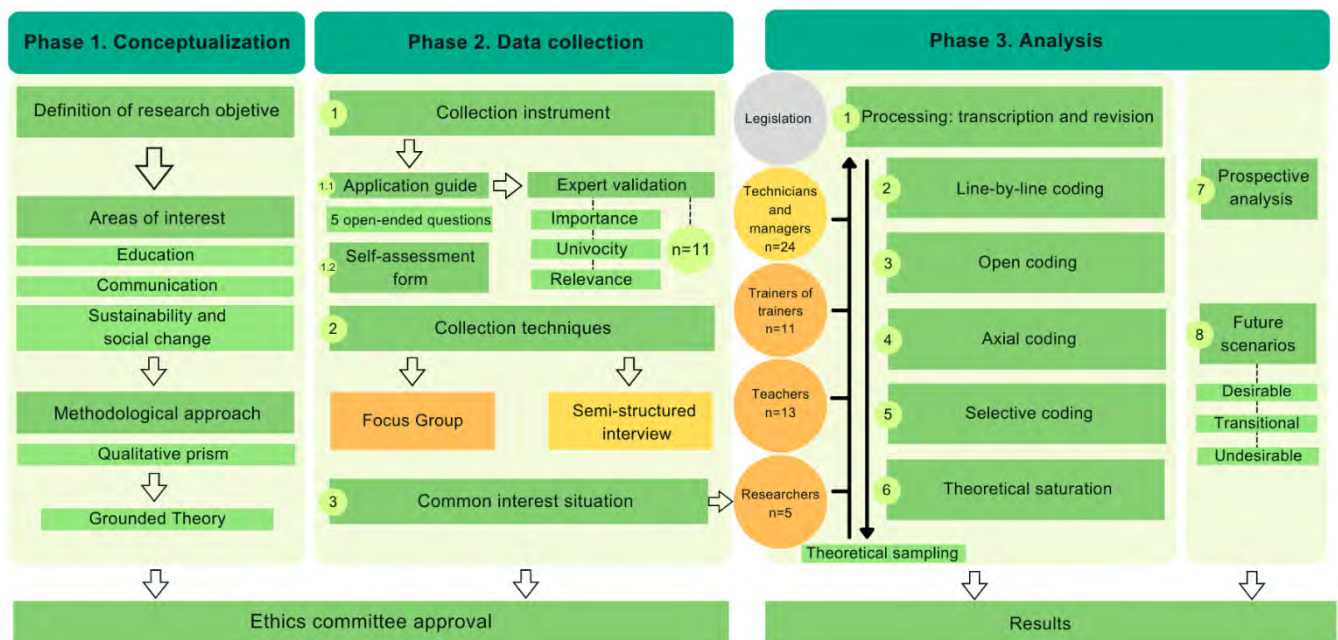
2.1. Methodological planning

In terms of epistemology, this research uses the paradigms of critical theory and interpretative theory (Habermas, 1981; Horkheimer, 2003). The study is inductive and uses Grounded Theory (Corbin & Strauss, 2015) and prospective and relational analysis (Inayatullah, 2019) based on structured techniques (Heuer & Pherson, 2015). It starts from the principle that, as a research subject, an analysis of vectors of change towards a Circular Economy, from an educational viewpoint, bears the characteristics of a complex social system: the sum of the parts reveals properties that do not exist in their individual components (Cardozo-Brum, 2011), which in turn exert a non-linear influence on the social system in general (Gutiérrez-Sánchez, 2000), and create a high level of uncertainty due to their fluid nature (Bauman, 2000). This mixed qualitative approach will allow us to understand and theorise about the aspects, properties, dimensions, and concepts surrounding the research subject, from the viewpoint upheld by Flick (2015) involving an analysis of specific cases, individualised temporally and spatially, and evaluated in their particular context. First, we can use the procedural and relational aspects of Grounded Theory (Glaser, 1992) to design an initial basic theoretical model, one that is both substantive and situational (Elliott, 2000), by means of analysing verbal and textual data (Flick, 2004), and then in turn, to obtain a suitable understanding of the phenomenon in its context and its limits but without claiming to establish any formal theory (Escalante-Gómez, 2011). A scenario analysis (Inayatullah, 2020) is another useful method for estimating a plurality of futures (Schwartz, 1991) and making decisions about actions that are required in the present reality in order to achieve the desirable futures (Gary & von-der-Gracht, 2015).

2.2. Research tools and stages

The methodological design combines mixed data collection, processing and analysis methods (Figure 1).

Figure 1. Methodological design



The research interconnects education, communication, sustainability, and social change. The first step was to identify situations that, from a critical, qualitative and systematic perspective, could be used to determine the categories that would offer relevant and contextualised information.

We produced data collection guidelines in order to organise, validate, and homogenise the process (Carbonell-Alcocer et al., 2022a). They set out the approach and aims of the study, identifying participants, the data collection methods, and the ad hoc form design. Data were to be collected using interviews and focus groups, conducted both in person and remotely, which would be recorded for subsequent analysis. We used an online self-assessment form to gather sociodemographic and profile data from the experts and obtain their informed consent. The form contained five open-ended questions ranging from general to specific topics. It was approved by an expert panel (Escobar-Pérez & Cuervo-Martínez, 2008). Using an online form, ten Spanish education and communication experts verified the robustness and validity of the questionnaire in terms of importance, univocity, and relevance (Carbonell-Alcocer et al., 2022a).

The data collection process began from a place of common interest, in order to determine how many scenarios or situations should be explored to produce a theory, using the principles of Grounded Theory. We therefore attended a specialist Reduce, Reuse, and Recycle event¹, and obtained information from scientific experts specialising both in the efficient and innovative management of biowaste and in educommunicative awareness. Having identified the avenues to be prioritised in terms of obtaining the substantive information needed to generate a theory, we used systematic convenience sampling to select the informants from each of the groups. The sample (Table 1) was divided into four interest groups, for each of which we then selected the most suitable conversational data collection method based on their characteristics. The unit of analysis was the discourse of the various groups, together with the recitals of current Spanish legislation² on education and sustainability.

Table 1. Sample

Group	Subjects	Collection method	Format
Technicians and managers	24	Semistructured interview	Video conference
Trainers of trainers	6	Focus group	Video conference

	5		Video conference
Teachers	5	Focus group	Video conference
	8		Video conference
Researchers	5	Focus group	Face-to-face
Total	53		

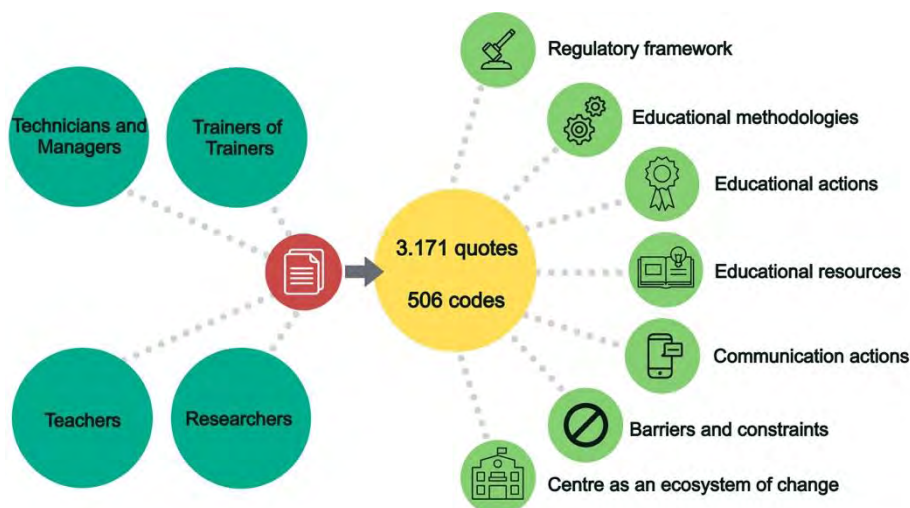
Data collection took place from November 2019 to December 2021, and it overlapped the analysis stage. The discourse of the Technicians & Managers group revealed opinions that diverged from those of the initial group and therefore, in order to achieve theoretical saturation, we expanded the sample to include experts from the Ministry of Education and Professional Training, and from the Education Boards of the 17 Autonomous Communities.

We used the software package sonix.ai to transcribe the recordings. These were reviewed in order to minute them, identify the speakers, and eliminate transcription erratas and errors (Sánchez & Revuelta, 2005). The analysis was conducted using Atlas.ti v.9.0. Using the resulting theorisation, we developed a prospective analysis using the scenario method (Godet & Roubelat, 1996), specifically the alternative futures method (Heuer & Pherson, 2015), applying a probability and impact matrix based on a desirability scale (Gary & von-der-Gracht, 2015). The probability/impact ratio for each cell in the table was determined using the results of the codification and co-occurrence analysis. This analysis resulted in three scenarios (desirable, transitional, and undesirable), and identified some of the underlying drivers and strengths that could determine how the situation would evolve.

3. Analysis and results

We identified 3,171 quotes and 506 structured codes in seven families (Figure 2). Given the scale and nature of the research, the analysis focused on the regulatory framework, educational actions, barriers and constraints, and the centre as an ecosystem of change. See the appendices for details of the sample, codes, and interactive diagrams (Carbonell-Alcocer et al., 2022b).

Figure 2. Families identified by the codification process



Each family was organised into core categories reflecting the needs and demands of each group. The Regulatory Framework family comprises four categories relating to the extent of content on sustainable development and climate change in laws and royal decrees, value of legislation, and curriculum configuration factors. The Educational Actions family covers five categories relating to effective education actions, limited education actions, ineffective education actions, forward-looking education actions, effects of actions, and agents of change. When presenting the results, we have included some quotes stated by the informants, each quote having been selected for being particularly representative of the group's overall opinion.

3.1. Technicians and managers: Legislation as the cornerstone

Legislation does not contain enough content on sustainable development and climate change, and what content there is, is limited by the rigidity of the regulatory framework. Something akin to the “law of the jungle”. Previous legislative frameworks have been characterised by insufficient and unsuitable consideration of the curriculum, limited to specific provisions for topics in specific subjects. At a time of regulatory reform, this group sees a lack of sufficient improvement in the legislative framework, insofar as the necessary content is not generalised in the recitals of the LOMLOE. Technicians and Managers are positive and hopeful when it comes to the new regulatory framework, although they highlight the need for it to be developed into Royal Decrees for the autonomous communities so that the changes will filter down to the classroom. This content must be addressed using a skills-based approach, in an integrated manner, horizontally across the entire curriculum. Real change takes time and requires self-awareness linked to an understanding of the problem and the adoption of responsible habits within society. We identified four levels with different scopes and propositions. The aim must be to ensure students are eco- and socially literate (“knowing”), encourage sustainable consumer habits (“doing” “being” and “coexisting”), and instil metacognitive processes (“coexisting”).

The development of educational actions is limited by the desire of teachers and centres to put them into practice, thereby placing the burden of action on the shoulders of any teaching staff who are sensitive to the situation. Effective actions will occur in both the classroom and the centre. The challenges are to make the problem more visible, raise awareness of recycling, develop environmental education products, train teaching staff, make educational tools available to teachers, and foster changes in consumption models. The following actions were highlighted: visits to waste processing plants, creation of school gardens, and introduction of recycling bins. Specific interventional programmes formed the backbone of integrated centre-based actions that would pave the way for ongoing and systematic work to change perceptions within the consumption model. Actions at centre- and classroom-level were considered limited in their effectiveness. These include actions for making children more mindful and aware of recycling through informal discussions and workshops run by teachers and companies, and introducing bins at centres. They were seen as limited due to their disparate and mechanistic nature and a lack of context. “Recycling is not the solution given the amount of waste we generate”.

Forward-looking actions include the creation of royal, federal and autonomous legislative measures, establishing visible and permanent mechanisms for intervention and driving the creation of an ecosystem capable of generating coordinated actions. Teaching staff must be taught at all levels, both during their basic training and their continuous professional development, in how to educate in sustainable development. This will then filter down to the students, who are the decision-makers of the future, guaranteeing they receive appropriate education. Finally, the inclusion of training mechanisms would pave the way for interventions that promote the development of actions for encouraging metacognitive processes and, as a result, behavioural change. In order for centres to become drivers of change, they need to develop their own projects that get included in the centre’s PEC (Centre Education Plan), and involve both management teams and the students beneath them.

3.2. Trainers of trainers: Training as a lever of change

Legislation is, in general, lacking, and fails to specify the necessary regulatory frameworks. Curricular coverage is inappropriate, vague and limited, leading to negative opinions of the current curriculum. However, the new regulatory framework is viewed positively, although there are reservations as to how it will now specifically filter down to the curriculum. The climate emergency and environment crisis mean that the curriculum should be tackled as a matter of urgency. The idea was raised as to the possibility of an ecosocial authority that could offer an integrated, practical, experience-based, and horizontal approach to every subject.

Intervention programmes at centres are viewed as effective, especially if they include training for teaching staff. These actions must be permanent and aimed at raising theoretical and practical awareness of recycling. However, they depend on the degree of interest in environmental issues, and rely on the willingness of the teaching centre and the particular context if they are to be implemented. “These topics have to be included and not left up to just anyone”. Teaching staff must be able to understand and assimilate concepts relating to environmental education and sustainability, in order to replicate practical actions in their own centres and classrooms.

One-off actions are seen as limited and ineffectual, such as introducing recycling bins. Training for the teaching staff, at all levels, is viewed as a driver of change. Training for teachers in Environmental Education will allow

for these topics to be covered in the classroom on a longitudinal, ongoing and permanent basis. Teacher training centres need to create programmes with specialised content and methodologies so that teaching staff can grasp the magnitude of the environmental challenge and translate it to their education centres.

3.3. Teachers: Centre-based actions as drivers of awareness

The school curriculum does not contain enough content on sustainable development and climate change. Coverage is lacking and limited to occasional lessons, depending on how the topic has been incorporated into the curriculum of each autonomous region. As regards to professional training, these topics are included for a few professions that have a direct link to the subject. This limited curricular focus and scope is associated with a negative view among teachers of the global handling of this content. However, this group was appreciative of the fact that the curriculum is set up to allow a cross-functional approach to these skills of “knowing”, “doing”, “being”, and “coexisting”.

They mentioned the introduction of recycling bins at centres, school gardens, knowing the classroom’s environmental footprint and, to a greater extent, specific interventional programmes and visits to waste processing plants as effective educational actions. These could be introduced at centres on an ongoing basis, or they could take place externally in a single day. The aim would be to focus on changing the consumer model, waste collection, teacher training, and recycling awareness. Developing specific interventional programmes would increase recycling awareness and generate practical and permanent control mechanisms at the centre. Visits to waste processing plants would raise the visibility of the environmental problem, help raise awareness, and trigger behavioural change thanks to the emotional impact generated. “To the point of being aware and mindful of incorporating them into our daily lives and being able to collaborate with the environment”. Implementation of these actions depends on the willingness of the centre and teachers, given the individual workload involved in organising them and the complexity of the issue. Informal discussions and one-off workshops at centres, aimed at raising awareness among children about recycling, are thought to have a limited effect because they usually lack context.

There is a desire for training mechanisms that include teacher training in environmental issues so that they can take effective actions in the classroom. In order to transform centres into ecosystems of change, there is a need for global educational projects that encourage collaboration with the social and economic environment, involving teachers, students, and their families as a whole.

3.4. Researchers: Using the local context for contemplation

Skills-based considerations require an interdisciplinary and cross-functional approach in order to strengthen curricular coverage of the skills of “being” and “coexisting”. “This has to be dealt with from the outset, constantly, because only if they are reminded will they shape future behaviour”. Due to the complexity of the issue, these topics have to be tackled from a local perspective, local to the centre, so that students can relate them to their daily lives and only then understand their global dimension. This will allow students to understand the problems, make commitments, and consider the implications.

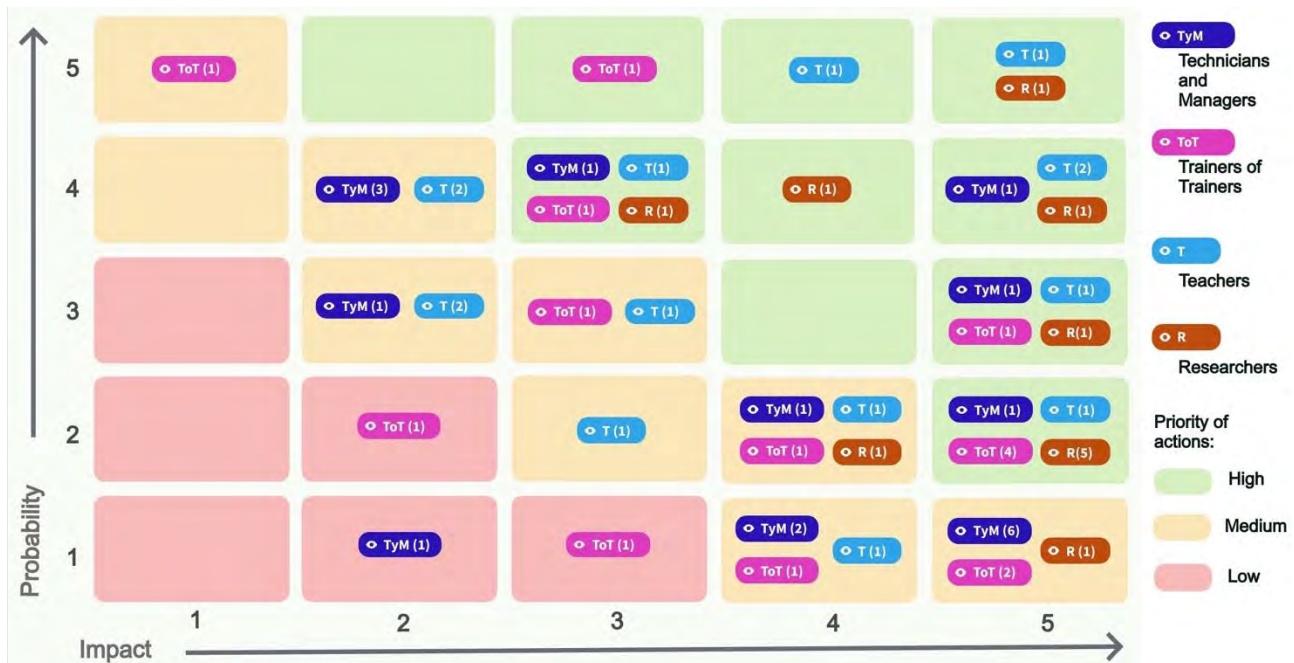
The centre and its surrounding area form part of the ecosystem for a change of model. For this reason, future actions must be coordinated and included into the Centre’s PEC so that they can contribute to raising awareness and to the adoption of sustainable habits. Student training depends to a great extent on the Sustainable Development content of teacher training programmes, which should be linked to regional and national frameworks.

Inertia in the production and consumer society is generating huge resistance and hampering changes in individual and collective habits. Effective educational actions rely on the willingness of centres and the existence of teachers aware of the environmental problem.

3.5. Prospective analysis and future scenarios

A content and co-occurrence analysis between codes was used to determine the indicators, limiters and effects (Carbonell-Alcocer et al., 2022b) and generate the probability and impact matrix (Figure 3).

Figure 3. Probability and impact matrix



The probability and impact matrix offers three possible future scenarios:

- 1) Undesirable future. Scenario whereby the actions included in legislation and national and international frameworks are never realised. A negative situation in which the errors of the past are repeated, and all the willingness shown for a change of model is reduced to an ephemeral declaration of intent. The consumerist economic model continues to promote linear production. Educational practices do not lead to changes in consumer habits among educational agents, and specialist training in environmental education and the circular transition is highly unlikely. The centre is seen as an independent agent, isolated from its surroundings, where any actions depend on the goodwill of the centre and its teachers.
- 2) Transitional future. Scenario whereby legislation materialises in policies, measures and concrete actions. It represents the first steps towards responsible and sustainable consumerism. Frameworks for action incorporate the needs of the recipient groups, providing a staggered roll-out of resources to centres, at all levels of education. Institutional support makes it possible to set up organisational structures at centres that encourage collective knowledge of environmental issues.
- 3) Desirable future. Scenario whereby, thanks to the improvements seen in the transitional future, we achieve a potential model for educating in circularity and sustainability, making it easier to change the consumer habits of the entire education community. The education authorities, centres and teachers make a real commitment given the urgency of the environmental situation. The targets set by LOMLOE are met, and the curricula for every educational level are expanded to include content about education on sustainable development, Agenda 2030, and the Sustainable Development Goals.

There is a skills-based, cross-functional, and interdisciplinary approach to content, strengthening the concept of “being” in order to encourage contemplation and generate responsible habits. The centre becomes a cornerstone of the ecosystem to achieve a sustainable consumer model based on the Circular Economy. Stimulating teacher training programmes are developed along with action plans incorporated into the PEC, designed to protect the quality of education and teacher well-being. Centres have the human and material resources to carry out local educational actions related to their particular surroundings, using active and experience-based methods.

4. Discussion and conclusions

We need conscientious, committed and active citizens. The emergency of the situation (Willis, 2020) requires an overhaul of consumer habits. In line with the Climate Change and Energy Transition Act, experts highlight the need for a more certain future, and a legal obligation that forces political action (Government of Spain,

2021). Students are the seeds of this deep-rooted change. They will become the decision-makers of tomorrow, but they already have the ability to affect consumer models by shrugging off their *affluenza* (De-Graaf, 2002) and demanding that target groups take action for immediate political change (Novo, 2018).

Our findings highlight the fact that educating students during a time of exogenous change, such as climate change, involves building a whole new culture (Heras-Hernández, 2016), one that reconnects our *Dasein*, our Heideggerian “existence” in a world based on the things surrounding us, with one that, like nature, marks our conditionality and the earthly order of our being. Change is needed so that we can plaster over the cracks in the world of today (Han, 2021). Educational policies and rules must make a concerted effort to incorporate content on environmental issues and sustainable development, allowing for flexibility in the curriculum and expanding upon an ecosocial, integral and cross-disciplinary approach, thus validating H1.

If we are to be able to implement this change from Schools, new habits must be built. It involves a long and ongoing process covering all the pillars of education: knowing, doing, being, and co-existing (Delors, 1996), in order to help foster the critical thinking that mobilises public involvement. This will mean reversing the core principles of a consumerist society, because it requires an individual sacrifice of the overriding desire to own goods and services (Baudrillard, 2009) which, in turn, needs coordinated action with systemic and organic support, not dependent on the willingness and strength of specific teachers or centres, and that incorporates students into this ecosystem of change (Wamsler, 2020).

Our results show that a successful outcome to this process will require (i) giving autonomy to centres and supporting them with human and material resources so that they can become drivers of change; (ii) encouraging them to connect with their local, social, and economic surroundings (Barrón-Ruiz & Muñoz-Rodríguez, 2019); (iii) offering global experiences that reveal the magnitude of the problem through experience-based learning (Magno, 2010) and encourage awareness with a commitment to reduce, reuse, and recycle (López, 2019); (iv) developing environmental education projects (Lethone et al., 2019); (v) providing teacher training (Collazo-Expósito & Geli, 2022; Blanco-Portela et al., 2020); or (vi) educating in responsible consumer habits (Trudel, 2019), all of which validate h2.

Change will rely on the ability to cast off old habits and adopt new ones. These new endogenous sustainable habits will have to be adopted through the constant repetition of actions, by which students will not only learn how to change their behaviour, but also their frames of reference (Amran et al., 2019) and cultural values (Tibbs, 2011). However, our results indicate that many educational actions are currently only isolated gestures (Abbati, 2019) which, although well-intentioned (EarthDay.org, 2022) are one-off and only have short-term effects. Experts agree that the School must encourage atomic habits: small and repeated day-to-day improvements which, although they may go unnoticed (Clear, 2019) are in fact transcendental to generate this ethical and global commitment towards a different way of acting and helping build the sustainable future we need.

The overwhelming consensus is that we need a systematic design that allows us to build these habits, some sort of a framework for practical and often unconscious familiarisation, whereby we learn through the processes of socialisation, that helps us reproduce the desired patterns of behaviour in a given context and situation (Bourdieu, 1997). We need to foster a “hexis”, an active conditioning or disposition towards change in Aristotelian terms, and for this process, the social space represented by the School, as a place for learning social practices, has a crucial role for building historical/temporal awareness, placing individual and social actions into context and empowering young people to fulfil their potential, but also their unavoidable duty to act in the future (Santisteban-Fernández, 2010); a future that needs to be built on the climax of uncertainty left to us by the COVID-19 pandemic (Tesar, 2021). The recommendations generated by this research (Carbonell-Alcocer et al., 2022c) offer a practical guide to help managers, technicians, trainers of trainers, teachers, and researchers tackle this challenge and continue the transition (Slaughter, 2003) towards a global consciousness that reconnects us with our environmental reality (Amran et al., 2019).

Notes

¹“IV Digital Communication Seminar: raising awareness of Reduce, Reuse and Recycle”, part of the BIOTRES-CM research project (BIOTRES-CM (S2018/EMT-4344).

²Law 7/2021 of 20 May 2021 on climate change and the energy transition. Law 2/2011 of 4 March 2011 on the sustainable economy. Law 8/2013 of 9 December 2013 for educational quality form. Law 3/2020 of 29 December 2020, amending Law 2/2006 of 3 May 2006 on Education. Press release on food waste (20/10/2021).

Authors' Contribution

Idea, A.C.A., M.G.B., J.R.L.; literature review (state of the art), A.C.A., M.G.B., J.R.L.; methodology, A.C.A., M.G.B., J.R.L.; data analysis, A.C.A., M.G.B.; results, A.C.A., M.G.B.; discussion and conclusions, A.C.A., M.G.B.; redaction (first draft), A.C.A., M.G.B. E.B.R.; final review. A.C.A., M.G.B. E.B.R., J.R.L.; project design and sponsorship: M.G.B., A.C.A.

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