

# Sustainable business model in practice: a digital business game training for high school students

**Sabrina FONTANELLA**

Department of Computer, Control, and Management Engineering “Antonio Ruberti”,  
Sapienza University of Rome  
Roma, Lazio, Italy

**Luca FRACCASCIA**

Department of Computer, Control, and Management Engineering “Antonio Ruberti”,  
Sapienza University of Rome  
Roma, Lazio, Italy

Department of High-Tech Business and Entrepreneurship,  
University of Twente,  
Enschede, Overijssel, The Netherlands

**Fabio NONINO**

Department of Computer, Control, and Management Engineering “Antonio Ruberti”,  
Sapienza University of Rome  
Roma, Lazio, Italy

**Alessandra SCARNICCHIA**

Department of Computer, Control, and Management Engineering “Antonio Ruberti”,  
Sapienza University of Rome  
Roma, Lazio, Italy

## ABSTRACT

This paper explores the nexus between sustainable business models, education and technology, addressing pressing challenges in economic, social, and environmental spheres. On one hand, education is identified as a key tool for fostering sustainability principles and essential skills for future managers; on the other, businesses, particularly through sustainable business models (SBMs) and evolving digital platforms, play a pivotal role in advancing sustainability goals.

The research answer to the need for sustainable development examining the potential of educational business games, blending entertainment and education to engage the 'gamer generation' actively. Considering the growing literature upon sustainable entrepreneurship and business models, the objective of the paper is to implement a digital business game for sustainability education designed to teach high school students how to implement an entrepreneurial activity through a sustainable business model. This study contributes to understanding sustainable business practices and innovative educational approaches, aligning with the global imperative for a sustainable future. In the end of the manuscript some preliminar result of the game testing phase are presented.

**Keywords:** Sustainable business model, Business game, Active learning, High schools and Entrepreneurship.

## 1. INTRODUCTION

The pressing issues of economic, social, and environmental sustainability are currently at the forefront of both academic and business concerns [1]. Businesses play a pivotal role in advancing sustainability goals to establish a more comprehensive concept of sustainable development [1][2]. Sustainable business models (SBMs), defined by Dyllick and Hockerts (2010) [3] as economically, environmentally, and socially sustainable, enable

firms to achieve fundamental reductions in consumption for environmental preservation, while also obtaining financial and social benefits through the design and delivery of essential products and services [4]. Moreover, the pervasive influence of digitization across sectors is instrumental in shaping new business models oriented toward sustainability [4][5][6]. In this context, sustainable entrepreneurship emerges with the goal of incorporating sustainability within business strategies and models. Sustainable business models, while maintaining the central concept of value creation, integrate economic, social, and environmental aspects into the organizational purpose, using a triple bottom line approach to monitor performance [3][4].

Recognizing the urgency of raising awareness and fostering skills related to sustainable development, education becomes a key driver. Integrating sustainability teachings at various educational levels is crucial to instill concepts and provide tools for future managers, ensuring they consider sustainability in their decision-making processes [7]. Traditional teaching methods often fail to inspire sustainability principles in the new generation. Educational business games, blending entertainment and education, simulate real business scenarios to stimulate creativity and intrinsic motivation, particularly effective for the 'gamer generation' [8]. These games contribute to sustainability education by developing critical thinking, collaboration, and conceptual skills related to entrepreneurship and the Business Model Canvas [9][10]. Immersing participants in simulated environments, the games foster a nuanced understanding of sustainable business models for real-world application [8]. Considering the presented context, this paper aims to develop a business simulation game tailored for high school students, providing them with the opportunity to learn about sustainable business models and acquire the knowledge and skills necessary for potential future endeavors.

The aforementioned simulator seeks to address two gaps identified in the literature concerning business games related to sustainable business activities. Firstly, through the utilization of

the business model tool, it endeavors to create a simulation environment that does not focus on an existing business becoming sustainable but rather offers a comprehensive and forward-looking perspective on how a business can originate and thrive with the intention of being economically, socially, and environmentally sustainable. Secondly, the focus on high school students entails the intention, yet partially explored, to engage the audience with the topic at the earliest possible stage. This occurs not during university education or within the professional sphere but specifically targets young students at the critical juncture when they are making decisions about the direction of their future. Thus, the aim is to provide them with the opportunity to contemplate sustainable entrepreneurship as a viable prospect.

2. THEORETICAL BACKGROUND

Sustainable business model

Historically, the business model has been perceived as a tool for companies, serving to articulate the logic by which an organization generates, delivers, and captures value [11], for this reason the game is all based on the creation and analysis of a business model associable to the impact of the simulated company.

The exploration of business models for sustainability discourse is based on two pivotal aspects: the intricate flow of value within a business model with a sustainability focus and the intricate network of stakeholders involved [12]. Departing from the traditional unidirectional value flow between a company and its customers, the contemporary paradigm emphasizes collaborative efforts and the formation of formal and informal alliances with stakeholders. These stakeholders, acting both as beneficiaries and active contributors to the value creation process, mark a significant departure from conventional business models [13] [14].

The intricate tapestry of the value flow within business models has been articulated by several scholars, encapsulating critical elements such as value proposition, value creation and delivery, and value capture [15][16]. Considering the work of Attanasio et al. (2023) [12] five dimensions have delineated that underpin the analysis of the value flow:

*Value Intention:* This dimension, as elucidated by Barth et al. (2017) [17], encapsulates the entrepreneur's attitude towards instigating change, fostering innovation for sustainability, and actively contributing to the creation of sustainable value.

*Value Proposition:* Building on the definition by Patala et al. (2016) [18], this dimension represents the commitment to delivering economic, environmental, and social benefits through a firm's offerings, encompassing both short-term profits and long-term sustainability.

*Value Creation:* This dimension initiates the delineation of the organizational and architectural aspects of a firm. It meticulously outlines the sources of competitive advantage, including the intricate interplay of resources and capabilities [19].

*Value Delivery:* Representing the logical progression closely tied to customer relationships, segments, and channels [20], this dimension elucidates how value is effectively disseminated to diverse stakeholders.

*Value Capture:* This multifaceted dimension encompasses the diverse forms of benefits captured by various key stakeholders [16].

Porter and Kramer (2018) [21] advocate for the concept of "shared value," aligning profit-seeking with social value creation through operational policies addressing diverse dimensions. Sparviero et al. (2019) [22] present a Social Enterprise Model Canvas, adapting the Business Model Canvas and tackling

challenges in merging social and economic goals, effective communication, outcome evaluation, and governance. While these models contribute to business model innovation for sustainability, they often lack a balanced integration of the three sustainability dimensions. Various proposals exist to address this integration. Upward and Jones (2006) [23] propose the Strong Sustainable Business Model (SSBM), focusing on the socially responsive conception of value. Stubbs and Cocklin (2008) [24] identify structural and cultural attributes in a sustainability-focused business model. The predominant trend in innovating business models involves adapting Osterwalder and Pigneur's (2013) [25] Business Model Canvas, making elements circular and sustainable, and extending perspectives to include broader social aspects. Several studies employ this approach, including Barquet et al. (2016) [26], Lüdeke-Freund, (2010) [27], Sparviero et al. (2019) [22], Jones and Upward (2014) [28], Fichter and Tiemann (2020) [29], and Joyce and Paquin (2016) [30].

In a complementary vein, Cardeal et al. (2020) [31] propose a nuanced extension of the Business Model Canvas, integrating sustainability aspects without introducing new elements or stratifying into distinct levels. Termed the Business Model Canvas for Sustainability, this model upholds the original nine elements while strategically organizing them into three cohesive parts. This organizational framework is designed to comprehensively embrace all dimensions of sustainability. Not only does this streamlined approach eliminate complexities, but it also facilitates a holistic consideration of all elements in relation to the life cycle of a product or service's value proposition.

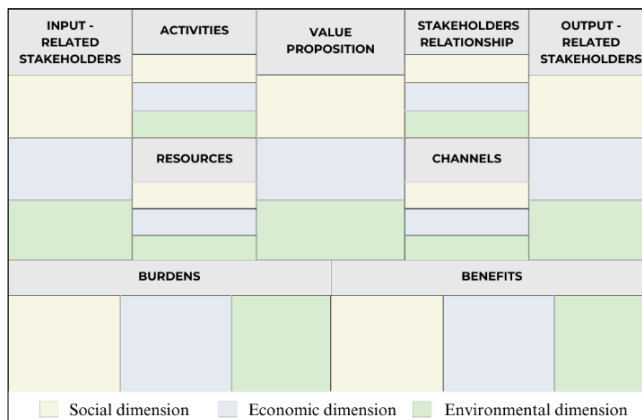


Figure 1 - Business Model Canvas for Sustainability  
Elaborated from the Sustainable Business Model Canvas for Sustainability presented by Cardeal et al. (2020) [31]

Business games for sustainability

The realm of sustainability is gaining attention from industrial organizations and governments. Education emerges as a pivotal catalyst for sustainable development, aiming to instill awareness, prompt reflection, and cultivate skills [32]. Recognizing its imperative nature, there's a growing need to integrate sustainability education across various levels, particularly in higher education [33].

The 2030 Agenda emphasizes the necessity of sustainability education at all levels. UNESCO and the UN advocate for educational games to address social and environmental issues. Student-centered learning spaces are essential, fostering playful pedagogy rooted in self-regulated learning and interdisciplinary approaches [34]. Gamification and educational games, especially in energy conservation, have shown effectiveness [35].

Vergara (2020) [36] notes traditional teaching methods lack potency for motivation and engagement. Educational games overcome these limitations, encouraging participation, improving concentration, and fostering intrinsic motivation. Moreover, De la Torre et al. (2021) [33] highlight business games as effective tools for sustainable energy education. Immediate feedback corrects misconceptions, overcoming limitations of passive learning. In the same way, argue that game elements positively influence students, fostering knowledge, awareness, and pro-environmental attitudes. Educational tools enhance emotional, cognitive, and behavioral potential, aligning with social interaction.

Utilizing simulation elements, business games prove effective in addressing sustainability, surpassing static models' limitations. They model dynamism and potential world changes over the medium to long term, making them instrumental for conveying sustainable skills and concepts [33].

When crafting sustainability learning objectives, the focus should extend beyond technical knowledge, aiming to instill awareness and shared values among students [38]. Human values predict cooperative and environmentally friendly behaviors, making it crucial to evoke these values during decision-making reflections. Business games are apt tools for integrating sustainability principles into students' value systems, emphasizing the need for pre-game sustainability concept introduction. Instructors play a pivotal role in motivating students, providing theoretical information, and facilitating reflections [34][33].

Non-traditional teaching methods, as advocated by Wiek et al. (2014) [39], support transformative learning environments, integrating sustainability into scientific methods. Möller et al.'s (2021) [40] transformative teaching model emphasizes intrinsic motivation, aligning with self-determination theory and meeting effectiveness criteria proposed by Brundiers et al. (2010) [41].

Böckle et al. (2020) [35] emphasize design elements in a water conservation game linking online interaction to real-world problems. The gamified model considers diverse motivational factors, necessitating various gamification elements.

Furthermore, the educational role of business games goes beyond mere knowledge acquisition, intertwining it with simulated business processes and promoting a "systemic perspective," encouraging individuals or teams to navigate choices within the intricate dynamics of a company [42]. The game underscores the importance of departments maintaining internal equilibrium and harmonizing with other functions. In the dynamic business landscape, rapid absorption of knowledge for acquiring new competencies becomes essential, calling for innovative and effective managerial training methodologies like business games [8].

### Business game taxonomy

The pervasive utilization of business games is deeply rooted in their intrinsic adaptability, allowing for a nuanced design that encompasses a variety of features, objectives, and graphic elements. This adaptability, however, renders direct comparisons challenging, prompting a need for systematic classifications. The historical evolution of these classifications began with Eilon in 1963 [43], who differentiated business games based on design characteristics and intended use. Subsequently, Maier and Größler (2000) [44] introduced macro-categories, providing an analytical framework for assessing parameters. Building upon this foundation, the taxonomy proposed by Greco et al. (2013) [9] expanded the classification parameters into five macro-categories, introducing additional elements such as role-playing, user interactions, and community creation.

*Environment of Application:* This macro-category dives into the spatial and temporal dimensions, considering parameters such as the degree of integration, setting characteristics, representation nature, teleology, and the presence or absence of a facilitator.

*Design Elements of User Interface:* This category intricately details the features of the user interface, examining aspects like the possibility of intervention during simulation, the sequential nature of decisions, user decision characteristics, internal time considerations, transparency of the simulation model, appearance, user interface types, save ability, and virtual space dynamics.

*Target Groups, Goal Objective, and Feedback:* Encompassing a broad spectrum, this category includes a detailed exploration of target users, simulation objectives, and feedback mechanisms. Parameters considered include target breadth, user-related objectives (teaching, evaluation, research), educational objectives (soft skills, conceptual skills, hard skills), competition dynamics, debriefing practices, and the specifics of feedback provided.

*User Relation/Community:* This category delves into the intricate web of interactions between users, exploring player interactions (direct, indirect, or absent), player composition scenarios, player relationship dynamics, the presence or absence of role-playing elements, player/community interaction, developer community involvement, and the nature of alliances formed.

*Model:* The functioning of logical and dynamic models within business games is intricately explored in this section. Parameters considered include the domain of the model (realistic or fantasy), the behavior of the model (deterministic or stochastic), the generality of the model with respect to the domain, the influence of external data, the configurability of the model, and the fidelity level in emulating the real world.

## 3. SUSTAINABLE ENTREPRENEURSHIP BUSINESS GAME

### Game structure and Intended learning outcomes

The Sustainable Entrepreneurship Business Game (SEBG) is a digital single-player game experience designed for high school students that unfolds through two integral parts, each meticulously crafted to immerse participants in the nuances of diverse sustainable decisions, form the idea of a sustainable business to the simulation of a realistic market dynamic.

Within the game, participants assume the role of a manager in a clothing company that, due to sales trends, decides to launch a new business line dedicated to meeting the needs of a customer segment seeking ethically valuable products. To achieve this, a complete reevaluation of the initial business model is necessary, creating one that considers the three fundamental dimensions for a company aiming to define itself as sustainable: economic impact, environmental impact, and social impact. The players' objective in the game is to develop a model that balances these three aspects of sustainability to win.

To accomplish this, students go through several steps:

- Part 1 – From Idea to Market: In this section are first provided some theoretical information, evaluated through a quiz. After that, participants are guided step by step through the Business Model Canvas dedicated to sustainability, as theorized by Cardeal et al. (2020) [31].
- Part 2 – Run the Business: Here, participants can test themselves with realistic strategic and managerial decisions that can advance or setback the business in various sustainability dimensions.

Throughout the entire process, students are guided in understanding the effectiveness of their decisions through three performance indicators:

- **Economic Value (VE):** Represents the company's ability to generate profit, influenced by costs, selling prices, and sales volumes.
- **Environmental Value (VA):** Indicates commitment to sustainability through emissions reduction, use of recycled, organic materials and renewable energy, as well as responsible waste management.
- **Social Value (VS):** Involves employee training, information on sustainability for consumers, satisfaction of employees and customers, initiatives to improve social living conditions, and partnerships with suppliers promoting fair working conditions and reducing pollution.

Finally, considering the context of sustainable entrepreneurship education, the intended learning outcomes derived from the Sustainable Entrepreneurship Business Game (SEBG) can be succinctly encapsulated in three fundamental principles:

1. **Interconnectedness of Three Dimensions:** Within the SEBG framework, the recognition of the interconnection between economic, environmental, and social dimensions is crucial. For students must be clear, after playing, the imperative of maintaining equilibrium across these dimensions, emphasizing that an imbalance in one dimension detrimentally impacts the others.
2. **Simultaneous Impact on Three Dimensions:** The SEBG experience elucidates that decisions undertaken by students exert a simultaneous influence on economic, environmental, and social dimensions. This principle reinforces the dynamic interconnectedness of the three sustainability dimensions, emphasizing the necessity for students to consider the holistic impact of their decisions across the entirety of the business model.
3. **Sustainability Decision-Making:** The SEBG imparts the skill set necessary for making sustainable decisions through a nuanced evaluation of internal impacts. The pedagogical approach involves guiding students to estimate and comprehend the multifaceted implications of their decisions, fostering a capacity for informed and sustainable decision-making.

### Game actions

*Part 1 – From idea to market:* The first segment serves as an informative foundation, commencing with an exploration of key notions in entrepreneurship, sustainability, and sustainable entrepreneurship. This initial part features a knowledge reinforcement mechanism in the form of a quiz, engaging students with five questions to assess their understanding of the subject matter.

To solidify their comprehension, participants then delve into the Sustainable Business Model Canvas (BMCS), accompanied by a practical example centered around a company producing sustainable smartphones. The BMCS is introduced as a pivotal tool, essential for structuring a business model, and lays the groundwork for the subsequent strategic decision-making.

This introductory phase concludes with Round 0, a critical juncture where students are tasked with making strategic choices to introduce a new product—a sustainable clothing line. The decisions made during this round revisit the nine blocks of the Canvas, demanding a careful trade-off between the impacts on economic, environmental, and social sustainability perspectives. Each choice is then associated with scores, reflecting its implications on one or more sustainability dimensions and determining the final feedback for Round 0.

*Part 2 – Run the business:* The second phase of the business game immerses participants into a dynamic context shaped by the unfolding narrative of sustainable entrepreneurship. The narrative assumes a one-year progression since the introduction of the new product line, marking a pivotal juncture in the company's sustainability journey. A detailed overview of the aftermath of Round 0 sets the stage, providing insight into the initial steps and current standing of the company. This complexity of the game dynamics is intended as a simulation of the realistic market dynamic where strategic business choices are influenced by previous decisions.

After Round 0, the second gam segment is intricately structured into eight rounds, mirroring business semesters, each presenting evolving challenges and opportunities. In each round, participants navigate strategic and managerial situations which the possibility to choose different solution having nuanced influence on sustainability perspectives and various economic indicators.

- *Round 1 decisions:* participants are first asked to choose an employ dedicated to monitoring sustainable dimensions in order to get a certification. Then they have to choose the promotion channel.
- *Round 2 decisions:* this round is dedicated to the choice of different transport services and shipments solutions.
- *Round 3 decisions:* here participants are first asked to choose packaging solution; than they have to deal with alternatives dedicated to implement employ satisfaction; finally, they are asked to choose investments related to possible climate related disasters.
- *Round 4 decisions:* this round focus on waste management and different options to deal with air pollutions impacts.
- *Round 5 decisions:* here the focus are first social media marketing, then possible contribution on sustainable mobility initiative, and finally energy costs dimension is considered.
- *Round 6 decisions:* participant have to take decisions upon production materials and related supply chain.
- *Round 7 decisions:* her participant choose fundamental characteristics of new product line to deliver and the promotional way to incentive selling. Moreover, is presented the possibility to support one more initiative of sustainable mobility.
- *Round 8 decisions:* last round is dedicated to the management of production and clothes waste related to the new business line.

The possible combinations of solutions are contingent on nuanced choices made in specific situations, creating a matrix of twenty-four distinctive scenarios. This meticulous design ensures coherence between presented situations, providing players with the latitude to make coherent choices and achieve optimal scores, enhancing the game's replay ability.

The decision-making process is enriched with both numerical and descriptive elements, fostering a reflective and critical-thinking environment for players. The feedback system is structured into different integral components. First, specific yet simplified indicators for each sustainability perspective (Economic Value, Environmental Value and Social Value) offer foundational knowledge about a hypothetical simplified sustainability balance. The second facet of feedback comprises a visual representation of economic, environmental, and social performances, manifested in the form of "stars" based on choices made in a specific round. This visual representation reinforces the direct correlation between choices and subsequent performance metrics.

To introduce an element of unpredictability mirroring real-world challenges, unexpected events are strategically introduced in certain rounds. These events, conveyed as information beyond player control, impact the trajectory of performance based on prior decisions or those yet to be made. This injects an element of uncertainty, demanding adaptability and strategic foresight from the participants.

Importantly, no single strategy emerges as significantly superior, promoting diverse pathways to success based on varying combinations of visible answers in different rounds. The game's flexibility allows for multiple strategies to yield excellent results, underscoring the intricacies of sustainable entrepreneurship decision-making. Strategies are tailored to the outcomes obtained in Round 0, emphasizing the nuanced interplay between initial conditions and subsequent performance across economic, environmental, and social perspectives.

### **Taxonomy applied to the sustainable entrepreneurship business game**

Navigating the intricate landscape of business game analysis requires a comprehensive understanding of a myriad of elements, spanning both methodological and structural facets. In order to deeply understand the subject and provide the wider possible perspective, the work from Eilon [43] to Maier and Größler [44] to in Greco et al. [9] on business game taxonomy is the perfect showcase the evolving complexity of classifications of business games, reflecting the diverse characteristics and applications of these tools in educational contexts. Them, representing a pivotal milestone on the intricate evolution of business game classifications, were the bases of our game design process.

To describe our game design the methodology embraces taxonomy analysis, strategically aligning with established frameworks and bespoke developments to systematically categorize and organize data. By adopting this approach, we aim to sculpt a business game that not only mirrors the diverse characteristics observed in the taxonomy but also ensures its unequivocal placement within the esteemed category of "business game." This method promises to unravel insightful dimensions, foster comprehension, and pave the way for further exploration in the educational application of business games.

The investigation centers on the creation of a business game aimed at fostering education on sustainable entrepreneurship within high school settings. Drawing from Greco et al.'s taxonomy (2013) [9], as expounded in the previous paragraph, the following outlines the design specifics of the business game:

#### *Environment of application:*

- 1) Degree of Integration: Embedded within the learning environment, facilitating interactions with educators overseeing student engagement in the game.
- 2) Environment: Operates through a Computer Network, necessitating an internet connection for participation.
- 3) Representation: Arbitrarily structured, where the game time doesn't align with real-world actions.
- 4) Teleology: Finite, with explicitly defined termination conditions based on the passage of game time rather than achieving specific outcomes.
- 5) Use of a Facilitator: Yes, involving teachers/facilitators for initial and/or final debriefing support.

#### *Design elements of user interface:*

- 1) Possibility of Intervention During the Simulation: Occurs during discrete periods, allowing players to interact with the game intermittently.
- 2) Sequential Nature of Decisions: Strictly sequential decision presentation, with players possibly encountering similar situations at different times based on distinct prior choices.

- 3) User Decision Characteristics: Primarily qualitative.
- 4) Internal Time: Lacks haste; Presents synchronicity; User-driven progression of time, enabling users to decide when to confirm choices and proceed to the next turn/decision/period.
- 5) Transparency of Simulation Model: Black Box, withholding information that would elucidate the game algorithm determining scores and results.
- 6) Appearance: Text-based.
- 7) User Interface: Browser-Based.
- 8) Saveability: Nonexistent, with no option to interrupt a session and resume later.
- 9) Virtual Space: Absolute positioning; Lacks environmental dynamics.

#### *Target groups, goal objective and feedback:*

- 1) Target Breadth: Specific to high school students, integrating theoretical content to convey fundamental sustainability and entrepreneurship concepts without intricate mathematical calculations.
- 2) User-Related Objectives: Centered on teaching.
- 3) Educational Objectives: Encompassing Soft Skills (critical thinking, creativity, decision-making, cooperation, and collaboration for group play) and Conceptual Skills (knowledge of entrepreneurship, sustainability, sustainable entrepreneurship, Business Model Canvas, and the significance of resilience in adopting sustainability principles for economic growth).
- 4) Competition: Involves an identical challenge; Absolute goals; Exact and unchanging, with observable challenges based on specific choices that lead to similar paths for all players.
- 5) Debriefing: Collective, facilitated by teachers, recommended for initial and/or final debriefing.
- 6) Feedback: Final, articulated with indicators for each sustainability perspective, a comprehensive synthetic score for economic, environmental, and social value generated, and a synthetic score for player ranking. The feedback is incomplete, including elements related to decisions and variables not visible to players, lacking specific descriptions or suggestions related to achieved results.

#### *User relation/community:*

- 1) Player Composition: Single Player.
- 2) Interaction Between Players: Absent, as it is a single-player game, but players can view a ranking based on scores obtained in the same game session.
- 3) Player Relationship: Static bond; Individual evaluation.
- 4) Role-Playing: Yes, with players embodying the roles of managers/consultants guiding strategic and managerial decisions for the business.
- 5) Player Community: Absent.
- 6) Developer Community: Absent.
- 7) Alliances: Not present.

#### *Model:*

- 1) Domain: Realistic, simplifying mechanisms but drawing inspiration from real-world situations and impacts.
- 2) Behavior: Deterministic.
- 3) Generality of the Model with Respect to the Domain: Encompasses the complete domain.
- 4) Influence of External Data: None.
- 5) Configurability of the Model: Absent.
- 6) Fidelity: Medium.

#### 4. TEST RESULTS

To assess the cognitive impact of the business game, a series of gameplay tests were conducted involving participants in diverse initial scenarios. These tests served as a crucial avenue for identifying gaps, necessary enhancements, and the alignment of scoring criteria with players' reasoning.

- 1) The initial test involved a Master's student in Management Engineering with pre-existing sustainability knowledge.
- 2) Similarly, a second test was conducted on a female Master's student in Management Engineering with prior sustainability knowledge.
- 3) For the third and fourth tests, participants of a comparable age to high school seniors, within the target demographic for the business game, were engaged.
- 4) The fifth test involved an experienced sustainability player. Owing to significant differences in initial information compared to other players, a knowledge quiz was omitted in this instance.

Upon reflection on the conducted tests, noteworthy considerations emerged: in Part 1, particularly regarding Round 0 questions like question 7, it became evident that additional information integration was necessary. While a precise criterion determined the player's score class, it was essential to acknowledge that identical score levels could be achieved with diverse choices. Despite achieving scores near the optimal result and maintaining a perfect balance in performance, a player might fall into a lower score class, particularly in the environmental perspective.

The second part of the business game posed challenges in expressing scores as percentages or in relation to the maximum achievable score. This complexity stemmed from the tight dependence on a myriad of choices made since Round 0.

In assessing various perspectives, an observation surfaced that the scoring system inadequately acknowledged the development of the local community, particularly within the social perspective.

Determining the replay ability of the business game proved challenging. While diverse choices in specific questions could lead to distinct situations, the game's deterministic nature might potentially diminish its overall replay value.

Despite its design as a single-player experience, parallel testing of Group 3 and Group 4 suggested that introducing the option to play in groups could foster reflection, creativity, critical thinking, and the cultivation of soft skills such as cooperation and joint decision-making. This insight hints at the potential benefits of collaborative gameplay dynamics.

#### 5. CONCLUSIONS

In embarking on the mission to create an impactful business game for high school students, our focus was on crafting an immersive and engaging learning experience. Rooted in the principles of sustainable business models and entrepreneurship, the game aims to empower students with both knowledge and soft skills. As we navigate through the iterative process, much like the interactive learning program addressing sustainability, our endeavor is not merely about conveying concepts. It is a strategic effort to enhance critical thinking, decision-making, and autonomy in students, preparing them for the challenges of sustainable entrepreneurship.

The design of the game, similar to the program fostering ecological and social relevant behaviors and leadership qualities, seeks to influence players beyond just acquiring knowledge. We aspire to instill a heightened sense of awareness, encouraging

students to reflect on the implications of their decisions on economic, environmental, and social perspectives. In doing so, we align our goals with the broader vision of the Sustainable Development Agenda 2030, echoing a commitment to reducing inequalities and championing a transformative approach to education.

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