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Promoting Entrepreneurial Attitudes in Higher Education in Portugal and Brazil

seasup24104

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Abstract

Introduction: The present article addresses the promotion of entrepreneurship in technological, business and academic undergraduate higher educational institutions in Brazil and Portugal, focusing on Centro Paula Souza (CPS) and the Higher School of Business Sciences of the Polytechnic Institute of Viana do Castelo (ESCE-IPVC).

Objectives: The study proposes suggestions to strengthen entrepreneurship and collaboration between institutions, aiming to contribute to the economic and social development of both nations.

Methods: Using a qualitative and exploratory approach, the research compares the strategies adopted by these institutions to encourage, during their teaching activities, entrepreneurial attitudes among students.

Findings: Initiatives such as ESCE-IPVC's "The Leaders for the Future" project and the CPS Innovators School, which aim to prepare students for the challenges of the business world. A comparative analysis reveals similarities and differences in both countries' approaches to entrepreneurship and internationalization.

Conclusions: As future perspectives, a series of promising opportunities were identified to boost entrepreneurship and academic development between institutions in Brazil and Portugal, enhancing a robust collaboration network carried out through an international agreement and research into the entrepreneurial graduates' intentions.

Keywords

Entrepreneurship; Entrepreneurial Education; Brazil; Portugal.

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Navigating Entrepreneurial Education: Integrating Design and Creative Thinking in University Curricula

seasup24105

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Abstract

Introduction: As a type of creative thinking, design thinking integrates elements of empathy, creativity, and iteration in a structured framework. Solving problems thus reaches beyond linear analysis and logic, where just one solution might be found, to include creative thinking and design thinking that aim for innovation and human-centeredness (Manna et al., 2022).

Objectives: This study aims to investigate the effectiveness of integrating design thinking and creative thinking approaches into university curricula. To find support for the position that students who learn about these thinking approaches in hands-on communities of practice will be better prepared for the new paradigm of entrepreneurship, we navigate three different case studies — the first in design thinking for an interdisciplinary university; the second in creative thinking for a transdisciplinary university; and the third in entrepreneurship for a sustainable future.

Methods: In determining the potential for implementation and adaptation of these thinking approaches in university settings, we employ a mixed-methods approach. Surveys, interviews, and classroom observations serve as primary data collection tools to uncover patterns, correlations, and areas for improvement across diverse university contexts. Our sample comprises over 250 university educators, providing insight into engaging students in creative thinking, complemented by in-depth interviews for clarification and storytelling, and further classroom observations for evidence of teacher-learner and peer-to-peer interaction.

Findings: The case studies together reinforce the shared commitment of university stakeholders – administrators, researchers, educators, and students — to foster problem solving that is more creative and design-oriented. Against the backdrop of evolving university contexts, the adoption of dynamic thinking approaches aligns with the needs of the corporate community stakeholders, presenting timely opportunities for collaboration and innovation.

Conclusions: The results reveal the social and technological imperative for universities to expose students to diverse thinking frameworks where they prepare for navigating future challenges. By engaging with design and creative thinking strategies, tools and techniques — as will be demonstrated in a proposed university course in Entrepreneurship for a Sustainable Future, a companion guide for educators, and selection of corporate stakeholder collaborations — students

learn to cultivate a greater variety of frameworks for thinking, apply the tools and techniques, and become better prepared for the corporate cultures in *their futures*.

Keywords

Creative Thinking; Design Thinking; University Education; Stakeholder Engagement; Entrepreneurship.

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A Case Study of Introducing GreenComp Ideas in Entrepreneurship Education for Engineers

seasup24106

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Abstract

Introduction: In recent years, entrepreneurship education has been discussed as a compelling educational model in engineering education. In entrepreneurship education learners typically engage with real-world problems and try to find entrepreneurial solutions to them. Although such educational models promote the development of essential 21st century skills such as critical thinking, problem-solving, and teamwork, there has been a growing recognition of the necessity for entrepreneurial ideas to tackle environmental and social challenges. In this work, we examine how the integration of elements of the GreenComp framework in an entrepreneurship course in engineering education can help to nourish skill and competencies related to environmental sustainability in the participants' entrepreneurial solutions.

Objectives: This case study aimed to examine the value of introducing GreenComp ideas in an entrepreneurship education course for engineering student-participants. The course's design leverages the student-centered and problem-driven nature of entrepreneurship education to deeply engage students with real-world problems, emphasizing sustainable solutions in line with the GreenComp competencies.

Methods: This case study adopted a qualitative research design to address the research question, drawing on semi-structured interviews with the course's participants.

Findings: Initial findings suggest the value of introducing GreenComp ideas in the entrepreneurship education course namely: significant improvements in the participants' mindset concerning environmental sustainability in entrepreneurship, development of competences related to identifying sustainable entrepreneurial solutions to the given challenges, and participants' intentions to integrate sustainability in their potential future ventures. Moreover, the study findings seem to suggest that the integration of GreenComp into entrepreneurship education can help to promote the development of essential skills such as systems thinking and critical thinking.

Conclusions: This paper contributes to educational practice by providing insights into the pedagogical alignments between environmental sustainability and entrepreneurship education in the engineering sector, suggesting that such integrations can profoundly impact the perceptions, skills and intentions of the participants and prepare engineering students to solve the challenges of tomorrow with sustainable entrepreneurial ideas.

Keywords

Greencomp, Environmental Sustainability, Sustainable Entrepreneurship, Entrepreneurship Education

Exploring the Nexus Between University Environment and Entrepreneurial Potential Among Portuguese Students: A Comprehensive Analysis

seasup24107

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Abstract

Introduction: Entrepreneurship education is a vital tool for students, as it equips them with diverse skills essential for the labor market. The European Commission underscores the need for increased investment in entrepreneurship education to enhance innovation, economic growth, and sustainability. Universities play a crucial role in this effort, given their influence on both formal and non-formal education of young people.

Objectives: This study investigates whether enhanced entrepreneurial academic preparation influences students' entrepreneurial potential and examines the relationship between personal characteristics, resources, and this potential

Methods: Utilizing the modified Carland index, HEInnovate self-assessment, sociodemographic questions, and motivations for entrepreneurship, data were collected from 470 Portuguese university students and analyzed quantitatively.

Findings: The findings indicate that superior academic preparation in entrepreneurship, coupled with high self-efficacy, motivations, incentives, opportunities, and resources, significantly boosts students' entrepreneurial potential.

Conclusions: The results can inform the development of new, more comprehensive incentive programs in national HEIs to enhance the knowledge and skills required for entrepreneurship.

Keywords

Entrepreneurial Education; Entrepreneurial Potential; Higher Education; Portugal.

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Entrepreneurship and Innovation in Ultraperipheral Regions — A Bibliometric Survey

seasup24108

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Abstract

Introduction: Entrepreneurship and innovation in ultraperipheral and similar regions, typically distant from major urban centers, have been observed as drivers of regional development (Pato, 2020; Pato & Teixeira, 2016). These tools can add value and contribute to the economic and social development of these areas. As far as we know, a bibliometric analysis that intersects the themes of entrepreneurship and innovation with peripheral regions has not yet been conducted.

Objectives: This article aims to analyze the literature on entrepreneurship and innovation in ultraperipheral regions. Specifically, it identifies the most significant authors and their geographic distribution, as well as the main outlets for disseminating such studies, the primary research themes, key research topics, the main empirical methodologies used, and the countries analyzed.

Methods: A bibliometric analysis was conducted to provide additional insights into the main research trends in entrepreneurship and innovation in peripheral regions. This exercise involved first searching for relevant articles and then analyzing and classifying the abstracts and articles published on entrepreneurship and innovation (in peripheral and related regions). The bibliographic database used was Scopus SciVerse, with the search conducted on June 14, 2024. A list of keywords was used for the search: “entrepreneurship” and “innovation” and “ultraperipheral regions*”. Additionally, terms such as “peripheral regions*,” “disadvantaged regions*,” “interior regions*,” and finally “rural regions*” were also included.

Results: The search yielded 47 articles. From 1998 (the date of the first published article) to 2015, the number of articles found was minimal, with research activity significantly increasing from 2016 onward, accounting for more than $\frac{3}{4}$ of the articles published to date. Nine authors each have two published articles, while the rest have only one. The primary affiliations include universities from Laguna, Amsterdam, Oslo, Krakow, Bern, Istanbul, Aveiro, Sveriges, Östersund, and Lisbon. The journals “European Planning Studies” and “Sustainability” have published three articles each on the topic. The fields of Social Sciences, Management, and Economics have been the main areas of research. Portugal and Poland are the countries where most research has been conducted, with eight and seven articles published on these countries, respectively.

Conclusions: Despite the growing importance of entrepreneurship and innovation in rural ultraperipheral regions, research on the topic still appears to be modest (Pato, 2020). However, in the context of developing these regions, research on the subject is increasing, reflecting the concern and awareness of various entities about the topic. Although no single author stands out

in particular, the research suggests that the theme of entrepreneurship and innovation in ultraperipheral regions is a European concern.

Keywords

Entrepreneurship; Innovation; Peripheral Regions; Bibliometric Analysis.

Acknowledgments

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Slowly Running Out of Money: The Impact of the Access to EU Funds on the Entrepreneurial Dynamics in Madeira

seasup24109

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Abstract

This study examines the impact of access to European Union (EU) funds on the entrepreneurial dynamics in Madeira Island. Utilizing a comprehensive dataset published by Madeira Island statistics bureau on company creation, we analyse the correlation between EU funding and the rate of new business establishments over a specified period. Our findings reveal a significant positive relationship between the availability of EU funds and the initial surge in entrepreneurial activities. However, this trend demonstrates a decline as funding diminishes, highlighting the dependency of local entrepreneurship on external financial support. The results underscore the necessity for sustainable funding mechanisms to maintain and foster entrepreneurial growth in Madeira. This research provides valuable insights for policymakers aiming to enhance the economic resilience and innovation capacity of outermost regions within the EU.

Keywords

European Funding; Entrepreneurship; Outermost Region; Entrepreneurial Island Environment.

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Socio-Cultural Factors on University Graduate's Entrepreneurship Intention

seasup24110

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Abstract

Introduction: Entrepreneurship is widely recognized as a crucial driver of economic advancement for nations and regions. By promoting employment, creating new firms, and innovation, entrepreneur's task is vital for society (Hannafey, 2003). Therefore, it is essential to better comprehend the drivers of entrepreneurial intention, perceived as "the cognitive state temporally and causally prior to the decision to start a business" (Krueger, 2009, p. 51). By identifying and analysing these drivers, policymakers, educators, and business leaders can create more effective support systems and environments that encourage entrepreneurial activity.

Objectives: The purpose of this study is to analyse the main socio-cultural factors that influence university graduate's entrepreneurship. To do so, three research hypotheses were tested: H1 — Role models increase the probability of a university graduate becoming an entrepreneur; H2 — Social validation of entrepreneurial activity increases the probability of a university graduate becoming an entrepreneur; and H3 — Perceived entrepreneurial capabilities increase the probability of a university graduate becoming an entrepreneur.

Methods: A survey was conducted to assess the university graduate's perception of entrepreneurship, the survey was based on the Liñán, Rodríguez-Cohard and Rueda-Cantuche (2011) questionnaire. A total of 339 completed questionnaires were collected from an online survey to former students from the University of Madeira, in Portugal. Data was collected from June to October of 2022. To test the hypothesis, we conducted a binary logistic regression, given the fact that the dependent variable is dichotomous, to examine whether several variables were associated with the likelihood of becoming an entrepreneur.

Findings: Results show that several factors have a positive and significant influence on the likelihood of a university graduate becoming an entrepreneur: 1) being male; 2) attending an entrepreneurial course; 3) personally knowing an entrepreneur; 4) having friends that positively assess the entrepreneurial activity; 5) having the skills to identify an entrepreneurial opportunity; and 6) and being a creative person. However, they also show that having a higher household monthly income will have a negative and significant impact on the likelihood of becoming an entrepreneur.

Conclusions: This study contributes to the literature by identifying the main socio-cultural factors which influence entrepreneurship with a group of people with advance education. It has also policy

implication by providing support for the development of more adequate programmes in the entrepreneurial promotion, as well as educational programmes.

Keywords

University Graduates' Entrepreneurship; Entrepreneurial Intention; Socio-Cultural Factors; Madeira.

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Entrepreneurship as a Factor of Economic Convergence: A Panel Data Analysis for OECD Countries

seasup24111

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Abstract

Entrepreneurship has been pointed out as one of the life forces of modern economic growth, fostering innovation, exploiting new business opportunities, creating new jobs, attracting investment, driving structural transformation, and enhancing competition and institutional development.

This paper aims to explore the role of entrepreneurship as a critical factor in driving economic convergence among OECD countries by employing the conditional convergence hypothesis of Barro and Sala-i-Martin, associated with the endogenous growth theory. Convergence is conditioned upon some structural factors with increasing return-to-scale properties, such as human and physical capital accumulation, technological progress, and innovation, among others. The empirical analysis uses dynamic panel data techniques to estimate growth equations, combining time series and cross-sectional data. The empirical results provide evidence that entrepreneurship (expressed by the total entrepreneurial activity, TEA) contributes to economic convergence among OECD countries. The results suggest that less developed countries with higher levels of entrepreneurial activity experience faster economic growth, thereby narrowing the income gap with more developed countries. This convergence effect implies that entrepreneurship not only improves countries' economic performance but also promotes more balanced economic development across countries.

The paper further explores the mechanisms through which entrepreneurship drives economic convergence. Firstly, entrepreneurship stimulates innovation by introducing new technologies, products, and services, enhancing productivity and economic competitiveness. Secondly, entrepreneurial ventures generate new jobs and employment opportunities, reducing unemployment and underemployment in less developed economies. This job creation is crucial for economic growth. Thirdly, entrepreneurship attracts both domestic and foreign investment, providing essential capital for economic development. The reinvestment of profits from successful ventures further stimulates local economies, creating a virtuous cycle of growth and development.

Policy implications point towards the need for supportive government measures, increased investment in R&D+I, and improved access to entrepreneurial education to boost entrepreneurial activity and promote economic convergence among countries.

Keywords

Entrepreneurship; Economic Convergence; Panel Analysis; OECD Countries.

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SUSTAINABLE Pen Project: Pragmatic Circular Economy Study on the Practice of Disposing of Inputs Used in the Treatment and Management of Diabetes Mellitus at Home

seasup24112

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Abstract

Introduction: The disposal of inputs in the treatment of Diabetes Mellitus (DM) at home represents an environmental and health problem, especially regarding sharps waste, which presents a high risk of accidents and contamination, and high production of plastics discarded in the environment.

Objectives: To describe the SUSTentable Pen doctoral protocol, which evaluates the transformation process of the plastic materials that make up the insulin pen used at home.

Methods: Pragmatic observational study, carried out in three health units, with data collection took place from February to April 2024, syringes and needles from insulin pens discarded in health units were collected, using a container installed in the units, where the user disposed of them separately in a container that suited the needs.

Findings: The volume of plastic from insulin pens used at home and returned to the SUSTentable Pen experiment during the study period was separated and sent to the manufacturing company DI-ON Gestão Ambiental, which produced the polymers. An economic analysis of the circular economy process is being conducted.

Conclusions: Initiatives are encouraged that provide scientific evidence on improvements in the process of managing healthcare waste in order to contribute to the development of the circular economy cycle.

Keywords

Diabetes; Waste; Pen.

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Analysing Accelerators using the CIMO Framework: Evidence from the Madeira Startup Retreat Acceleration Program — 6th Edition

seasup24113

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Abstract

Introduction: The rapidly evolving entrepreneurial landscape necessitates effective support systems for startups, especially in the tourism, travel, and leisure sectors. Business accelerators have emerged as crucial facilitators of startup growth, providing targeted interventions to foster innovation and market success. The 6th edition of the Madeira Startup Retreat (MSR) accelerator program offers a unique opportunity to examine the efficacy of accelerator programs in fostering entrepreneurial success. Supported by Turismo de Portugal and developed by Startup Madeira in collaboration with NOVA SBE, the program provides a six-week intensive experience for ten startups in the Tourism, Travel, and Leisure sectors. This study utilizes the Context–Intervention–Mechanisms–Outcome (CIMO) framework to analyse the effectiveness of the Madeira Startup Retreat, focusing on the mechanisms through which interventions translate into outcomes.

Objectives: The primary objective of this study is to investigate how the Madeira Startup Retreat accelerator program aids startups through targeted interventions within a supportive context to activate mechanisms that foster significant outcomes. The study aims to bridge the existing research gap by providing a comprehensive analysis of the accelerator’s processes, contextual factors, and the resultant impacts on participating startups.

Methods: Given the “contemporary” and “contextual” nature of the Madeira Startup Retreat accelerator program, “a case study research methodology” was deemed to be the most appropriate strategy because it enables the accelerator process to be investigated by exploiting both “primary” and “secondary” sources of information. Primary data is collected through semi-structured open-ended interviews with the participants of the 6th edition. Secondary data includes a detailed analysis of the previous five editions of the MSR program. To analyse the data the analytical framework based on the Context–Intervention–Mechanisms–Outcome (CIMO) logic developed by Denyer et al. (2008), was considered a comprehensive methodology to use. The CIMO framework guides the analysis, focusing on the context in which accelerators operate and the targeted interventions they deliver in the form of the portfolio of services offered to their startup users, to activate mechanisms that foster significant outcomes.

Findings: The findings reveal that the MSR program operates within a supportive regional ecosystem, leveraging the unique characteristics of Madeira as a “living laboratory” for tourism

startups to test and scale their products. Key interventions included mentorship, networking opportunities, and workshops designed to build knowledge and capabilities. The mechanisms identified are knowledge exchange, validation, and innovation stimulation. These mechanisms collectively enhanced the startups' abilities to refine their business models, secure funding, and expand market reach. However, as outlined by Bunge (2004), because most mechanisms are concealed, they have to be conjectured as their identification is not straightforward. Outcomes fostered include skills development, validation, funding acquisition and market access. The program's cohort-based structure facilitates peer learning and mutual support, enhancing the Startup's capabilities and accelerating their development.

Conclusions: The MSR accelerator program significantly impacts participating startups by providing a conducive environment for growth and innovation. The CIMO framework proves effective in dissecting the program's components and understanding the causal relationships between context, interventions, mechanisms, and outcomes. The study highlights the accelerator's role in fostering innovation and entrepreneurship, with the identified mechanisms serving as critical pathways through which interventions translate into positive outcomes. These insights contribute to the broader understanding of accelerator programs and offer practical implications for designing and implementing effective startup support initiatives.

Keywords

Startup Accelerators; CIMO Framework; Entrepreneurship; Innovation Ecosystems; Tourism and Travel Startups.

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Social Representations of Entrepreneurship Among Nursing Students in Brazil

seasup24114

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Abstract

Introduction: Promoting and valuing entrepreneurship within a society is imperative for a nation's social, economic, and technological development. Implementing educational initiatives focused on entrepreneurship is crucial for changing concepts, attitudes, and behaviors. In this context, fostering an "entrepreneurial culture" in higher education, including nursing programs, is essential.

Objective: This study aims to analyze the content and structure of the social representation of entrepreneurship among Brazilian nursing students.

Method: The study is based on the structural approach of social representations theory and includes 138 undergraduate nursing students from the 1st to the 10th semesters, enrolled in four public universities in Rio de Janeiro, Brazil. Data were collected using the free word association technique with the inducing term "entrepreneurship." The data were analyzed using prototypical analysis, which generated a four-quadrant chart, and similarity analysis.

Results: Seventeen salient and promptly evoked words were identified, distributed across four quadrants, and categorized into thematic dimensions: novelty, personal attributes, business attributes, economic-financial, and management. For the students, the social representation of entrepreneurship is structured around autonomy (personal attributes dimension) and money (economic-financial dimension), complemented by innovation (novelty dimension) and business (business attributes). Innovation emerges as a central instrument for entrepreneurship. The peripheral elements of this representation are defined by the dimensions of personal attributes and novelty, highlighting the importance of personal characteristics in the symbolic construction of entrepreneurship. However, a dimension associated with only a subgroup of participants reveals a different understanding from the general group, with a predominance of management (management, marketing, and planning) and business attributes (company and self-employed).

This finding indicates that students incorporate characteristics of entrepreneurship related to business management and tools (planning and marketing) necessary for business development. The similarity analysis results show that the symbolic construction of entrepreneurship is structured around three core meanings: autonomy, money, and innovation, each with distinct semantic contexts. Autonomy is partially associated with personal attributes (determination, flexibility, and responsibility) and entrepreneurial vision. The word "money" is linked to business or company management attributes, understood as profit or the driving force behind the venture. Innovation relates to three distinct attributes, characterized as essential tools for creating or improving a product.

Conclusions: Understanding how nursing students perceive entrepreneurship can enable more targeted interventions that align with the group's pre-existing cognitive constructs, both reinforcing and transforming them.

Keywords

Entrepreneurship; Students; Nursing; Social Representations.

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Innovation and Entrepreneurship Profiles Among Nursing Students: An Empirical Study on Competencies and Social Representations

seasup24115

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Abstract

Introduction: The intention to promote entrepreneurship among students, enabling them to become distinctive professionals or creative individuals with the capacity to set and achieve goals, necessitates a commitment from academia and universities in facilitating an entrepreneurial ecosystem. However, to foster an entrepreneurial and innovative culture among nursing students, it is essential first to understand how they symbolically construct these processes.

Objective: This study aims to comparatively analyze how Brazilian nursing students represent entrepreneurship and innovation.

Method: The study is based on the structural approach of social representations theory and includes 138 undergraduate nursing students from the 1st to the 10th semesters at four public universities in the state of Rio de Janeiro, Brazil. Data were collected using the free word association technique with the inducing terms "entrepreneurship" and "innovation." The data were analyzed using prototypical analysis, which involved constructing a four-quadrant chart, and similarity analysis by co-occurrence, which allows for creating a tree of connections between cognemes.

Results: The evoked content was categorized into thematic dimensions to better visualize the structured content of the social representation. The understanding of entrepreneurship is primarily organized around the dimensions of personal attributes (autonomy) and economic-financial aspects (money and investment), complemented by the dimensions of novelty (innovation) and business attributes (business). The representation of innovation is primarily structured around the novelty dimension (technology, novelty, and change), complemented by personal attributes (creativity). A comparison of the core elements reveals distinct

representations, where the psychosocial construction of entrepreneurship is anchored in the personal attributes of the entrepreneur and the financial outcomes of the entrepreneurial process. Innovation, on the other hand, is anchored in the perception of creating novelty and change, with research as a key tool. An important distinction between the two representations concerns the management dimension, which is inherent in the representation of innovation and is expressed through attributes such as improvement, entrepreneurship, and training, among others. In contrast, management is quite peripheral in the representation of entrepreneurship, characteristic of a subgroup rather than an inherent attribute. Innovation appears as a structuring element of entrepreneurship, while entrepreneurship is only peripheral in the construction of innovation. The similarity analysis results indicate that in the symbolic construction of entrepreneurship, innovation emerges as a concept that radiates other meanings, potentially serving as an important tool, which is not observed in the construction of innovation.

Conclusions: The study identified the symbolic constructions nursing students have regarding entrepreneurship and innovation processes, highlighting the existence of two distinct objects, structured at a psychosocial level with their own characteristics. Entrepreneurship is incorporated from perceptions related to the entrepreneur, while innovation relates to the goals of the creative process itself.

Keywords

Entrepreneurship; Innovation; Nursing Students; Social Representations.

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An Analysis of the Efficiency of a Project Applied to 13 Higher Education Institutions

seasup24116

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Abstract

This article aims to analyze the efficiency of a project applied to 13 higher education institutions in Portugal. The article aims to make a comparison between the two areas of activity foreseen in the project: the co-creation of innovation and entrepreneurship. Starting from the project's final data, a model, little explored, is applied to measure the efficiency of each of the axes. It is not common to carry out an efficiency analysis of the results achieved by a project that aims to promote innovation and entrepreneurship in higher education institutions. There is no literature on an analysis of this nature and therefore, this is new. Efficiency is naturally forgotten in these matters. The analysis carried out in this article is based on the selection of two inputs and two outputs for both the co-creation axis and the entrepreneurship axis, based on the result indicators created for the two axes. The selection of inputs and outputs has a great similarity, essential to draw conclusions. A Malmquist productivity index model is applied. The conclusions show that in the co-creation axis there is space for improvements and in the entrepreneurship axis the expected productivity is in line with the established objectives. However, the article analyzes other indicators that do not corroborate the results of the analysis, especially when compared with the final objectives for the entrepreneurship axis.

Keywords

Co-Creation of Innovation; Entrepreneurship; Malmquist Productivity Index.

The Relationship Between Investment in Higher Education and the Birth and Survival Rate of Companies: A Comparison of Efficiency Between European Countries

seasup24117

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Abstract

This article aims to conduct a study on whether investment in higher education has a positive impact on entrepreneurship and whether it has an impact on students, skills and knowledge needed to create and maintain companies. Entrepreneurs with higher levels of education tend to be more innovative, have an easier time adapting to changes in the environment, and have better problem-solving skills. Furthermore, regions with a strong educational ecosystem and policies to encourage entrepreneurship tend to exhibit higher survival rates. The article analyzes several entrepreneurship indicators and reveals that countries that invest more in education tend to perform better. The article also analyzes the performance of each country over the last twenty years. The analysis is carried out from the perspective of efficiency, applying the Data Envelopment analysis method.

Keywords

Higher Education; Entrepreneurship; Efficiency; Data Envelopment Analysis.

A Novel Subcutaneous Hydration Kit: Development and Efficacy Evaluation of an Innovative Device for Fluid Administration

seasup24119

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Abstract

Background: While enteral routes are preferred for treating dehydration, parenteral methods such as intravenous and subcutaneous administration can be more appropriate in certain situations. Intravenous hydration is widely used due to its capacity for rapid fluid delivery. However, when intravenous access is challenging, subcutaneous hydration (hypodermoclysis) may serve as an effective alternative. To advance care practices in this field, an innovative kit with registered intellectual property has been developed.

Objective: To assess the efficacy of subcutaneous hydration using an innovative device developed by a multidisciplinary healthcare team. **Methods:** An integrative literature review was conducted to evaluate the efficacy of hypodermoclysis compared to intravenous hydration. Subsequently, a subcutaneous hydration kit was developed to enhance the safety and efficacy of fluid administration. The final phase aims to develop a comprehensive clinical protocol to test the efficacy of this innovative device, scientifically validating the kit and its practical viability.

Results: The integrative literature review revealed that subcutaneous hydration offers advantages such as reduced puncture frequency, less pain during catheter insertion, and shorter insertion time, enhancing patient comfort. However, the incidence of local adverse effects, while not compromising overall safety and efficacy, remains a consideration.

Conclusion: The literature review provided robust evidence and strong consensus, demonstrating that hypodermoclysis is a viable, safe, and less invasive alternative to intravenous hydration. The developed kit is expected to demonstrate safety, satisfaction, utility, and ease of use in the forthcoming clinical study.

Keywords

Subcutaneous Hydration; Hypodermoclysis; Intravenous Hydration; Dehydration; Innovation.

Developing Entrepreneurial Competencies in Higher Education Students: An Empirical Study

seasup24120

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Abstract

Introduction: The promotion of entrepreneurial skills is essential to address the challenges of modern society. The European Commission proposed the “Entrecomp” framework, composed of fifteen entrepreneurship-related skills dimensions categorized into three competency areas: “In Action,” “Resources,” and “Ideas and Opportunities.” These competencies are recommended for development in all students at Higher Education Institutions.

Objectives: This study aims to contribute to the validation of the “Entrecomp” framework and measure the level of competencies in students after completing all phases of the Poliempreende program.

Methods: A convenience sample was made up of 91 students from 17 Higher Education Institutions who participated in the Portuguese national Poliempreende competition. The participants, with the following social-demographic characteristics: 45% male, 46% female; with the average age of 31.16 years (Standard Deviation — 10.69); 53% with a Bachelor degree, 26% Master degree, 7% PhD degree and 5% Post-Graduation Course; 21% with background on Engineering Sciences & Technology, 11% on Medical Sciences & Health, 3% on Agricultural Sciences, 23% on Social, 11% on Classical Studies and 23% Other; completed the Entrepreneurship Competence Framework questionnaire (EntreComp Questionnaire). Additionally, interviews were conducted with the direct employment supervisors of recent graduates. Reliability analysis with

Cronbach's alpha and Confirmatory Factor Analysis (CFA) of the questionnaires were conducted using AMOS, along with a categorical analysis of the interviews aligned with the 15 entrepreneurial competencies.

Findings: The descriptive analysis of the questionnaire showed average values that varied between 3.13 "Financial Literacy" and 3.80 "Having initiative," reflecting levels of competences perceived above the midpoint of the scale. The reliability analysis of the questionnaire was conducted using Cronbach's Alpha, and reveals values for almost all dimensions surpass 0.7, indicating a good reliability. Only the dimensions "Vision," "Value Ideas" and "Ethics Sustainability Ideas" have values between 0.51 and 0.63, showing a poor reliability. The comparative analysis between the survey results and interviews shows an alignment between the results obtained with the questionnaire applied to the survey participants and the results from the interviews to the employers' supervisors of recent graduates, in all dimensions. A deep analysis of the interviews' contents also shows that "Motivation," "Having Initiative" and "Learning from Experience" are the skills most recognized and best perceived by employers.

The dimensional solution obtained with AMOS showed a model that reproduces the original structure proposed by the European Commission. Confirmatory factor analysis indicated good model fit (NFI = .89, CFI = .95, TLI = .94) and acceptable fit according to RMSEA = .088 (90% CI, .062 to .112), $p < .001$, supporting the 3 areas and 15 entrepreneurship-related skills dimensions. The scores obtained across all 15 dimensions surpassed the midpoint, indicating a positive self-assessment of the skills developed by the students. Additionally, interviews with employers of recent graduates corroborate this self-assessment, emphasizing and illustrating the development of competencies in the 15 dimensions outlined in the Innovation and Entrepreneurship framework (EntreComp).

Conclusions: The results support "Entrecomp" framework and the validity of the model in its three areas and fifteen dimensions, reflecting the original structure proposed by the European Commission. The scores obtained reflect a positive self-assessment of the students' competency levels, which aligns with the favorable perceptions of employers, as reported by the CEO. This alignment indicates that the Poliemprende program effectively cultivates these competencies in students. Furthermore, the findings demonstrate that the program enhances entrepreneurial competencies in higher education students, thereby aligning with the recommendations of the European Commission.

Keywords

Higher Education; Poliemprende; Entrepreneurial skills; EntreComp Framework; Perceptions.

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Predicting the Value of Innovation and Entrepreneurial Skills: The Role of Motivation to undertake

seasup24121

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Abstract

Introduction: Entrepreneurship is a critical driver of innovation and global economic development. Entrepreneurial skills encompass the ability to act on opportunities and ideas, including creativity and innovation, and convert them into value for oneself and/or others – whether individuals or communities. Understanding the underlying personal motivations and facilitating factors that drive the valorization of innovation and entrepreneurial skills is essential for both theoretical advancement and the formulation of policies and strategies to foster entrepreneurial ecosystems.

Objectives: This study aims to assess the impact of personal motivations and facilitating factors in innovation and entrepreneurship on the valuation of 15 innovation and entrepreneurship competencies.

Method: The study used a non-probabilistic sample of 263 nursing students from three universities in Brazil who answered to the EntreComp questionnaire — Entrepreneurship Competence Framework (Bacigalupo et al., 2016) and the Students' Entrepreneurial Motivations Questionnaire (Parreira et al., 2018). A structural equation model was employed to evaluate the impact of Personal Motivations to innovate and undertake (Family and societal motivations; Resources and income; Prestige; Learning and development) on the valuation of innovation and entrepreneurial skills (composed of three dimensions: ideas, resources, and actions).

Findings: Globally, the structural model shows that motivations to innovate and undertake were significant predictors of the valuation of entrepreneurial skills. The valuation of innovative and entrepreneurial ideas was mainly predicted by learning and development motivations. The valuation of resources was predicted by prestige and family and societal motivations. Action was only predicted by family and societal motivations. Motivations to undertake focused on resources and income were the least significant predictors of the valuation of innovation and entrepreneurial skills.

Conclusions: The findings indicate that students' motivations significantly predict how they value innovation and entrepreneurial skills. This underscores the importance of these factors in

developing entrepreneurial skills among nursing students. The implications for nursing research and practice were also discussed.

Keywords

Innovation; Entrepreneurial Skills; Motivations to Undertake; Entrepreneurship Competencies.

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The Impact of an Entrepreneurial Innovation Course on Higher Education Health Students's Innovation/Entrepreneurial Competencies: A Pre- and Post-Interventional Study

seasup24122

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Abstract

Background: The integration of innovation and entrepreneurship education in higher education institutions (HEIs) has become increasingly significant in the contemporary academic landscape. This paradigm shift is driven by the need to equip students with the skills and mindset necessary to navigate the complexities of a rapidly evolving global economy. The second academic revolution has positioned HEIs as direct contributors to economic development through knowledge transfer and research commercialization. Innovation and entrepreneurship education, now a legitimate academic discipline, aims to foster skills in opportunity identification, problem-solving, and value creation across various contexts. While previous international studies suggest that entrepreneurship education leads to stronger entrepreneurial intentions by students, evidence is still scarce when focusing on healthcare education.

Objective: To evaluate the effectiveness of a 30-hour Innovation and Entrepreneurship structured training course on healthcare students' competencies in this field.

Theoretical Framework: The study is grounded in the EntreComp framework, developed by the European Commission (Bacigalupo et al., 2016). This comprehensive framework comprises 63 items distributed across 15 dimensions, providing a robust structure for assessing entrepreneurial competencies.

Methodology: We conducted a quasi-experimental study with a pre-test (week 0) and post-test (week 8) design. Healthcare students (n =35) were recruited from a HEI in central Portugal and offered the opportunity to enroll in a 30-hours structured training program. Pre- and post-test assessments were conducted using a self-assessment questionnaire based on the Portuguese version of EntreComp framework (Dias-Trindade et al., 2020). The construct validity and reliability of the questionnaire's 15 dimensions were rigorously evaluated to ensure psychometric integrity.

Students were instructed to self-assess their competency levels according to the EntreComp framework using a digital platform developed by the research team.

Results: Psychometric evaluation of the 15 dimensions demonstrated adequate validity and reliability, supporting the robustness of the EntreComp self-assessment questionnaire. Statistical analysis revealed a significant increase in scores across all 15 dimensions of the EntreComp framework following the completion of the training program ($p < .001$).

Discussion: The findings of this study underscore the transformative potential of structured innovation and entrepreneurship programs in higher education. The observed improvements across all competency dimensions suggest that such initiatives can effectively bridge the gap between theoretical knowledge and practical application, a crucial aspect highlighted by Rasmussen and Sørheim (2006) in their advocacy for action-based entrepreneurship education. Our findings converge with previous findings by Souitaris et al. (2007), demonstrating the positive impact of entrepreneurship programs on students' entrepreneurial intentions and attitudes.

Implications: The significant improvements in innovation and entrepreneurship competencies observed in this study have important implications for curriculum development in Health higher education. Our findings advocate for the integration of comprehensive training programs that cultivate these critical skills, thereby better equipping healthcare students to meet the evolving demands of the modern job market. Such actions may foster greater collaboration between HEIs and the industry partners, as suggested by Perkmann et al. (2013), potentially leading to mutual benefits in knowledge generation and translation, as well as resource access.

Conclusion: This study provides empirical evidence supporting the efficacy of structured innovation and entrepreneurship training programs in health higher education. The significant improvements observed post-intervention across all dimensions of the EntreComp framework underscore the importance of integrating such initiatives into academic curricula.

Keywords

Innovation; Entrepreneurship; Higher Education; Competency Development; EntreComp Framework; Health Education.

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Do Incentives for Innovation and Entrepreneurship Predict the Valuation of Innovation and Entrepreneurship Competencies?

seasup24123

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Abstract

Introduction: Universities play an increasingly significant role in influencing knowledge dissemination and the entrepreneurial economy. Their primary functions include knowledge transfer through teaching and knowledge creation via research. Entrepreneurship education within Higher Education Institutions (HEIs) aims to cultivate students' entrepreneurial competencies, motivations, and intentions. Empirical studies have shown that students exposed to entrepreneurship education exhibit higher entrepreneurial intentions compared to those who do not receive such education. Consequently, innovation and entrepreneurship are pivotal for a nation's economic development. HEIs are crucial in promoting entrepreneurship education, thus fostering a more entrepreneurial society.

Objectives: This study seeks to assess the influence of Incentives for innovation and entrepreneurship on the valuation of innovation and entrepreneurship competencies.

Method: Above 300 nursing students from three universities in Brazil answered the EntreComp questionnaire — Entrepreneurship Competence Framework (Bacigalupo et al., 2016), and the Incentive Scale for Innovation and Entrepreneurship (Parreira et al., 2018) based on the Society for Associated Researchers on International Entrepreneurship (SARIE). A multiple multivariate regression analysis was employed to evaluate the impact of incentives for innovation and entrepreneurship in the valuation of innovation and entrepreneurial competencies.

Findings: The results indicate that the two dimensions of the Incentives for innovation and entrepreneurship (Financial and governmental; Educational and consulting) significantly predict the 15 dimensions of the valuation of entrepreneurial competencies: Spotting opportunities, Creativity, Vision, Valuing ideas, Ethical and sustainable thinking, Self-awareness & self-efficacy, Motivation & perseverance, Mobilising resources, Financial & economic literacy, Mobilising others, Taking the initiative, Planning & management, Coping with uncertainty, ambiguity & risk, Working with others, and Learning through experience.

Conclusions: The findings underscore that Incentive of innovation and entrepreneurship are significant predictors of the valuation of innovation and entrepreneurship competencies.

Keywords

Incentives for Innovation and Entrepreneurship; Innovation; Entrepreneurship Competencies.

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Evaluation of the Usability of a Prototype Pajama for Pressure Injury Prevention by Caregivers

seasup24124

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Abstract

Introduction: Pressure injuries are serious complications in patients with reduced mobility and/or bedridden, caused by continuous pressure on the skin. The prevention of these injuries is essential for the quality of life of patients. Evaluating the usability of an innovative pajama designed to prevent these injuries, incorporating sensors that monitor temperature, humidity and pressure, with data transmitted via Bluetooth to a digital application may hold promise for adapting the product to the market and offering more efficient care and improving the experience for patients and caregivers (Caudill et al., 2023; Rêgo et al., 2023; Salgueiro-Oliveira et al., 2023).

Objectives: To evaluate the usability of an experimental pajama compared to traditional pajamas by caregivers of people with reduced mobility and/or bedridden.

Methods: a concomitant triangulation study was conducted with quantitative and qualitative data collection. A total of 15 caregivers participated in the study, who evaluated the experimental pajamas for ease of use, comfort, and time required to put on and take off experimental pajamas versus traditional pajamas. Data were statistically and qualitatively analyzed using the IRAMUTEQ® software (Oliveira et al., 2021; Rêgo et al., 2023; Salgueiro-Oliveira et al., 2023; Souza et al., 2018).

Findings: The analysis revealed positive perceptions of caregivers about experimental pajamas. They highlighted the ease of use and comfort of the fabric, mentioning that the design reduced the need to move patients. The wind chill was well evaluated. Suggestions for improvement included adjustments to the closure system and sleeve design. Caregivers recommended the experimental pajamas, prominence their benefits in terms of comfort and ease of use.

Conclusions: Experimental pajamas showed potential to improve care for people with reduced mobility and/or bedridden, facilitating the work of caregivers and preventing pressure ulcers. Continuous improvements in design are recommended to elevate the effectiveness and usability of the product.

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Reinforcing Education for Entrepreneurship in Higher Education Institutions: Poliempreende — Polientrepreneurship Innovation Network

seasup24125

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Abstract

Introduction: Nowadays, it is crucial to reinforce entrepreneurship education, evaluate it from a perspective of continuous learning, and reflect on future strategies. In the current Portuguese context, many entrepreneurship education projects are already being developed by Higher Education Institutions.

Objectives: To understand the implementation of the Poliempreende Program, the goal of this study is to verify the conditions for strengthening entrepreneurship education and to identify opportunities for future improvement.

Methods: We conducted a content analysis of 13 interviews with top and middle management from five Portuguese higher education polytechnic institutions and two non-integrated higher education schools. This investigation was carried out from the holistic and inter-relational perspective of the Triple Helix model (cf. Leydesdorff & Etzkowitz, 1996; Ranga & Etzkowitz, 2013). To account for the specificities of the Portuguese context in which these higher education institutions operate, it was necessary to adapt the conceptual framework known as the Framework Conditions Index (European Commission, 2012; Roy & Nepelski, 2016), creating a version more suited to the Portuguese context. This adapted framework is capable of extensively evaluating the implementation of the Poliempreende Project.

Findings: This study achieves its purpose by confirming the existence of conditions for entrepreneurship education and identifying opportunities for improvement in teaching methodologies, promotion and disclosure, and financial resources.

Conclusions: In the future, Polytechnic Institutes and higher education schools aim to enhance the Poliempreende program, making this study an essential tool for the continuous improvement of its implementation.

Keywords

Entrepreneurship; Higher Education; Entrepreneurship Education; Poliempreende.

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The Social Fabric of Innovation: Entrepreneurship and the Changing Nature of Work

seasup24126

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Abstract

Background: The intersection of innovation, entrepreneurship, and the sociology of work has gained increasing attention in recent years (Kalleberg & Vallas, 2018; Welter et al., 2019). However, a comprehensive understanding of their interrelationships remains underdeveloped.

Aims: This study aims to examine the significance and contribution of innovation and entrepreneurship through a multidimensional sociological lens, with a particular focus on the sociology of work.

Methods: We employed a descriptive and theoretical-exploratory methodology, conducting a systematic literature review of publications from 1970 to 2024 in Web of Science and Scopus databases. A comprehensive thematic analysis was performed to identify, analyze, and interpret patterns of meaning (themes) within the collected data (Braun & Clarke, 2006). This approach allowed for a more nuanced understanding of the complex interrelationships between innovation, entrepreneurship, and the sociology of work.

Discussion/Conclusion: Our analysis reveals an emerging trend towards a holistic understanding of entrepreneurship, encompassing economic, sociological, cultural, and behavioral dimensions (Campanha et al., 2022). The study highlights the symbiotic relationship between innovation and entrepreneurship, demonstrating their combined impact on economic development and social transformation (Schumpeter, 1985; Drucker, 1986). We argue that entrepreneurship, viewed through the sociology of work perspective, represents a dynamic interplay between individual agency and structural forces, reshaping traditional notions of work and employment (Granovetter, 1985; Aldrich & Ruef, 2018). Our findings emphasize the need for an interdisciplinary approach and underscore the importance of sociocultural and institutional factors in shaping entrepreneurial ecosystems. This research contributes to the literature by offering an integrated perspective on innovation and entrepreneurship, grounded in sociological theory, and proposes directions for future empirical research on the interaction of various entrepreneurial dimensions within specific work contexts.

Keywords

Innovation; Entrepreneurship; Economic Sociology; Sociology of Work; Social Development; Multidimensionality.

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Navigating the Blue: Storytelling, Poetics, and Rhetoric in Oceanic Advertising

seasup24127

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Abstract

Introduction: This paper explores the application of poetic rhetoric in sustainable tourism advertising and its profound impact on shaping perceptions and behaviors towards sustainability. By integrating classical rhetorical techniques with modern storytelling methods, advertisements can effectively promote ethical and sustainable practices. The advertisement "It's Not Tourism. It's Futurism." employs poetic and rhetorical elements to create a narrative that is visually striking and emotionally resonant. Ethos is established through connections with cultural traditions and images, pathos appeals to feelings of hope and responsibility, and logos presents rational arguments for adopting futurism as a new sustainable approach.

Objectives: The discussion includes references to Jacques Cousteau's visual narratives and Henry David Thoreau's philosophical perspectives, enriching the approach to environmental communication. Cousteau's films, such as "The Silent World" (1956) and "The Undersea World of Jacques Cousteau" (1968-1976), use storytelling to evoke a sense of wonder and responsibility towards marine life. Thoreau's "Walden" (1854) emphasizes introspection and a deep connection with nature, advocating for a more conscious and sustainable way of life.

Methods: Type or paste the methods here.

Findings: Furthermore, the analysis of digital narrative in advertisements, particularly in the context of the Atlantic Ocean, underscores the importance of protecting marine resources for local and global economies. The narrative approach in advertising not only attracts tourists but also educates them about the significance of ocean conservation, ensuring a sustainable future for all.

Conclusions: The interdisciplinary approach combining literary theory, rhetoric, and advertising provides a comprehensive perspective on crafting effective narratives for environmental communication. As digital platforms continue to evolve, the integration of storytelling techniques in advertising will play a crucial role in advancing environmental communication and promoting a sustainable future.

Keywords

Storytelling; Poetic and Rhetoric; Environmental Communication; Ethical Alterity; Ocean Conservation.

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MusclePen: A Customized and Independent Medication Management

seasup24128

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Abstract

Introduction: Vitamin B12 deficiency is a widespread health issue, with global prevalence rates. If left untreated, this deficiency can lead to severe neurological and hematological complications. Standard treatment typically involves regular intramuscular injections of vitamin B12, administered in clinical settings. However, this approach presents significant challenges for patients who require frequent doses, including inconvenience and increased healthcare costs. To address these challenges, we have developed an innovative auto-injector pen that enables patients to self-administer vitamin B12 at home, thereby improving convenience and treatment adherence.

Theoretical Background: Intramuscular administration of vitamin B12 is an established method for managing deficiency-related conditions. Despite its efficacy, the need for healthcare professionals to administer these injections creates barriers to treatment adherence, particularly for patients requiring frequent doses. The drive towards patient-centered solutions has led to the development of devices that empower individuals to manage their own health. Our project integrates Design Thinking, the Technology Acceptance Model (TAM), Human-Centered Design (HCD), and the ADDIE model to ensure the device meets both technical specifications and user needs.

Methodology: The development of the vitamin B12 auto-injector pen followed a structured, multi-faceted approach: Design Thinking was employed to identify and understand user needs, leading to the definition of essential features. The TAM was used to assess potential barriers to user acceptance. HCD principles guided the design process to ensure the device was intuitive and safe for patients with varying levels of experience. The ADDIE model was systematically applied throughout the development process to refine the prototype. Additionally, intellectual property protection was secured to safeguard the innovation.

Results: The device has been designed to deliver 3 cc of vitamin B12 intramuscular with consistent accuracy. The user-centered design approach has resulted in a prototype that is expected to be easy to use, portable, and effective in delivering the necessary dose. Preliminary trials to assess the device's performance, usability, and patient satisfaction are planned for the future to validate this prototype.

Discussion: The innovative auto-injector pen for vitamin B12 represents a significant step forward in the management of this deficiency. By enabling at-home administration, the device reduces the

need for frequent healthcare visits, potentially improving treatment adherence and patient outcomes. The integration of Design Thinking, HCD, and TAM throughout the development process has ensured that the final product aligns with both technical and user-centric goals. Intellectual property protection further supports the device's potential for successful market entry and broader adoption.

Conclusion: The development of this vitamin B12 auto-injector pen offers a practical solution for improving the management of vitamin B12 deficiency. The device's design prioritizes ease of use and patient autonomy, with promising implications for enhancing treatment adherence. Future research will focus on conducting preliminary trials and pre-clinical studies to rigorously assess the device's safety and efficacy. With intellectual property protection in place, there is significant potential for expanding the use of this technology to other therapeutic areas requiring intramuscular injections.



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