


Entrepreneurship for pharmacy students in cosmetics

Emprendimiento en el área de cosméticos para estudiantes de farmacia

Empreendedorismo na área de cosméticos para estudantes de farmácia

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ABSTRACT

The cosmetology market is driven by increasing demand and greater awareness of health and well-being. Pharmacists play a fundamental role in the formulation and analysis of cosmetics, also requiring entrepreneurial skills to innovate and adapt to the sector. This study analyzed the development of entrepreneurial competencies among Pharmacy students with a focus on cosmetology, identifying essential skills and pedagogical strategies to foster entrepreneurship and innovation. The methodology consisted of a systematic literature review with a qualitative descriptive approach, consulting recognized academic databases and selecting studies from the past 15 years. The findings show that pharmaceutical entrepreneurship goes beyond opening pharmacies, encompassing innovation, product development, and impact on public health. Technological and demographic changes are driving the sector, especially with the growth of natural cosmetics. Strategies such as active methodologies, business incubators, and integrated courses are effective in training professionals prepared for this market.

Keywords: entrepreneurial competencies; pharmacy education; innovation in cosmetology; active methodologies; academic curriculum.

RESUMEN

El mercado de la cosmetología está impulsado por el aumento de la demanda y una mayor concienciación sobre la salud y el bienestar. Los farmacéuticos desempeñan un papel fundamental en la formulación y el análisis de cosméticos, requiriendo además competencias emprendedoras para innovar y adaptarse al sector. Este estudio analizó el desarrollo de competencias emprendedoras entre estudiantes de Farmacia con enfoque en cosmetología, identificando habilidades esenciales y estrategias pedagógicas para fomentar el emprendimiento y la innovación. La metodología consistió en una revisión sistemática de la literatura con un enfoque cualitativo y descriptivo, mediante la consulta de bases de datos académicas reconocidas y la selección de estudios publicados en los últimos 15 años. Los resultados muestran que el emprendimiento farmacéutico va más allá de la apertura de farmacias, abarcando la innovación, el desarrollo de productos y el impacto en la salud pública. Los cambios tecnológicos y demográficos están impulsando el sector, especialmente con el crecimiento de los cosméticos naturales. Estrategias como las metodologías activas, las incubadoras de empresas y las asignaturas integradas resultan eficaces para la formación de profesionales preparados para este mercado.

Palabras clave: competencias emprendedoras; educación farmacéutica; innovación en cosmetología; metodologías activas; currículo académico.

RESUMO

O mercado da cosmetologia é impulsionado pelo aumento da demanda e pela maior conscientização sobre saúde e bem-estar. Os farmacêuticos desempenham um papel fundamental na formulação e análise de cosméticos, necessitando também de competências empreendedoras para inovar e adaptar-se ao setor. Este estudo analisou o desenvolvimento de competências empreendedoras entre estudantes de Farmácia com foco em cosmetologia, identificando habilidades essenciais e estratégias pedagógicas para fomentar o empreendedorismo e a inovação. A metodologia consistiu em uma revisão sistemática da literatura, com abordagem qualitativa e descritiva, por meio da consulta a bases de dados acadêmicas reconhecidas e da seleção de estudos publicados nos últimos 15 anos. Os resultados demonstram que o empreendedorismo farmacêutico vai além da abertura de farmácias, abrangendo inovação, desenvolvimento de produtos e impacto na saúde pública. As transformações tecnológicas e demográficas vêm impulsionando o setor, especialmente com o crescimento dos cosméticos naturais. Estratégias como metodologias ativas, incubadoras de empresas e disciplinas integradas mostram-se eficazes na formação de profissionais preparados para esse mercado.

Palavras-chave: competências empreendedoras; ensino farmacêutico; inovação em cosmetologia; metodologias ativas; currículo acadêmico.

1. INTRODUCTION

The cosmetology market is expanding due to increasing demand and greater awareness of health and well-being. Pharmacists play an essential role in the formulation and analysis of cosmetics. However, beyond technical knowledge, it is necessary to develop entrepreneurial skills. This enables innovation and adaptation to changes in the sector. Effective performance requires constant updating and strategic vision. In this way, professionals stand out in a competitive market.

According to Matos and Pereira (2015), the growth of the cosmetics industry, driven by innovation, highlights sustainable cosmetology in the Brazilian economy. Research into new ingredients and sustainable processes stimulates students' creativity. Educational institutions foster innovation and identify market niches. Science, technology, and sustainability become fundamental in the sector.

Success in entrepreneurship within the pharmaceutical and cosmetic fields is intrinsically linked to professionals' ability to identify opportunities and meet society's health demands in an innovative, creative, and efficient manner. These competencies involve not only recognizing consumer trends and demands but also the ability to develop innovative and sustainable products grounded in scientific rigor and technical regulations (Silva & Borges, 2024).

Research on entrepreneurial competencies among Pharmacy students is essential to understand how academic training fosters skills beyond technical knowledge. Resolution CNE/CES No. 2/2002 states that pharmacists must acquire competencies in management

and administration. The professional should be proactive and possess decision-making abilities. This enables them to face the dynamic challenges of health and cosmetology. Therefore, academic training must integrate innovation and leadership.

The development of entrepreneurial competencies among Pharmacy students in the field of cosmetology will be analyzed. The study aimed to identify the key skills required to work in the sector, describing the pedagogical strategies used in Pharmacy programs to foster entrepreneurship and innovation. It also discusses successful examples of educational programs and entrepreneurial initiatives that can serve as references in the training of pharmacists focused on cosmetology.

2.DEVELOPMENT

2.1 Methodology

A systematic literature review with a descriptive qualitative approach was carried out with the objective of mapping and analyzing the entrepreneurial competencies developed by Pharmacy students in the field of cosmetology, as well as identifying educational practices that foster innovation in this area. Data collection was conducted using recognized academic databases, including the CAPES Portal, Scopus, PubMed, ScienceDirect, Google Scholar, and Academia.edu. To refine the search, Boolean operators (AND, OR, NOT) and advanced filters were applied, combining the following descriptors: ("entrepreneurial competencies" OR "entrepreneurial skills" OR "entrepreneurial mindset") AND ("Pharmacy" OR "Pharmacy course" OR "Pharmacy students" OR "Pharmacy education") AND ("cosmetology" OR "cosmetics" OR "cosmetic development" OR "cosmetic innovation") AND ("entrepreneurial education" OR "active methodologies" OR "academic curriculum" OR "higher education") AND ("innovative practices" OR "startups" OR "scientific entrepreneurship").

The inclusion criteria considered scientific articles, theses, dissertations, and book chapters published within the last 15 years (2010–2025). For the systematic review, 35 studies were initially identified through Boolean search strategies, of which 20 were selected. The included studies addressed entrepreneurial competencies in Pharmacy education with a focus on cosmetology, discussed teaching methodologies applied to innovation in cosmetics, and presented the integration of entrepreneurship into the Pharmacy curriculum or related areas.

Exclusion criteria included studies that addressed the topic in a generic way without depth in educational strategies, publications not peer-reviewed or outside the academic-scientific scope, and works that did not establish a connection between Pharmacy, cosmetology, and entrepreneurship.

Table 1. List of articles used for the review.

Author/Year	Objective	Materials and Methods	Results
Alvarenga <i>et al.</i> , 2021.	To present a new perspective on entrepreneurship in the pharmaceutical and cosmetic sectors, highlighting how, despite numerous challenges, it is possible to generate opportunities in daily life.	The adopted methodology was bibliographic research with a qualitative approach, using the integrative synthesis method. Data collection was carried out through consultations with secondary sources, such as scientific articles obtained from recognized databases, including the CAPES Periodical Portal, SciELO, and Google Scholar. Searches were directed by keywords related to the topic, such as entrepreneurship, pharmaceutical, challenges, and potentialities. The selection criteria included only materials that converged with the study's objectives and were available in peer-reviewed scientific repositories.	The research evidenced that the main challenges faced by entrepreneurs are strict regulations, high product development costs, strong competition from large companies, and the lack of preparation of recent Pharmacy graduates to deal with market demands. The study points out that entrepreneurship in the pharmaceutical and cosmetic areas represents an important career alternative, capable of generating innovation, promoting social advances, and improving the population's quality of life.
CNE, 2002.	To establish the National Curriculum Guidelines for the Pharmacy Undergraduate Course, to be followed by all higher education institutions in Brazil. These guidelines define the principles, foundations, conditions, and procedures necessary for the training of pharmacists, aiming to ensure a generalist, humanist, critical, and reflective education, with the capacity to act at all levels of health care.		The resolution determines that the graduating pharmacist must be capable of acting critically and ethically in various areas, such as pharmaceutical care, clinical and toxicological analyses, production and control of medicines and food, sanitary surveillance, among others.
Dornelas, 2018.	To present the fundamental concepts of entrepreneurship and provide a practical step-by-step guide to transforming ideas into successful ventures.	The didactic approach, based on a literature review on entrepreneurship, management, marketing, and strategic planning. The author uses practical examples, case studies, business models, and exercises at the end of each chapter as a methodological basis, which help the reader apply the content in practice.	The work contributes to the development of entrepreneurial skills, such as leadership, innovation, resource management, and business viability analysis. There is an emphasis on the importance of adapting to uncertain scenarios and the capacity for execution as determining factors for business success.
Fernandes, 2017.	To analyze the entrepreneurial profile of graduating Pharmacy students at the Federal University of Campina Grande (UFCG), Cuité-PB campus.	A qualitative approach, of an exploratory-descriptive nature, was used. The research was carried out with thirteen students regularly enrolled in the 8th, 9th, and 10th periods of the Pharmacy course. Data was collected through individual interviews, recorded with a semi-structured script.	The inclusion of entrepreneurship-related content in the curriculum can contribute to the training of professionals who are more prepared to act innovatively in the pharmaceutical job market.

Ferreira <i>et al.</i> , 2011."	To investigate the competitiveness factors that influenced strategic innovation in pharmaceutical sector enterprises in the municipality of Cacoal, Rondônia.	Qualitative research, with a phenomenological approach and descriptive character. The method used was the case study, with typical procedures of this approach, such as conducting structured interviews and applying questionnaires. The research universe included four pharmaceutical establishments in Cacoal that had been in the market for over twenty years and were still managed by their founders. The research focus group was composed of managers and owner-partners of the companies, totaling eight participants. Data collection was carried out through a questionnaire containing fourteen multiple-choice questions, answered by the interviewees in September 2010. Furthermore, the research was complemented with bibliographic and documentary review, considering administrative theories, such as Contingency Theory and strategic management concepts.	The results indicated that local managers have a predominantly empirical profile, with little academic training in administration, but with great practical experience acquired over the years. The study revealed that most managers demonstrate entrepreneurial characteristics such as creativity and the ability to solve emergency problems, but lack formal strategic knowledge about innovation and management. The research also pointed to a centralization of decisions in older managers, which limits organizational flexibility.
Filion, 2011.	To understand and differentiate the profiles, behavioral characteristics, and managerial practices of two distinct groups of economic agents: entrepreneurs and owner-managers of small businesses.	Bibliographic and empirical research on entrepreneurship. The author bases his analysis on different theories of administration, psychology, and organizational sociology. He uses a qualitative approach, based on case studies, in-depth interviews, and comparative analysis between entrepreneurs and owner-managers. The work also includes conceptual schemes, theoretical models, and real business examples, especially focusing on small businesses from different economic sectors.	There is evidence that entrepreneurs have a broader strategic vision, are more innovative, proactive, and opportunity-oriented, while owner-managers tend to be more operational, focused on day-to-day administration and immediate problem-solving. Business success depends heavily on a combination of future vision, ability to mobilize resources, establishing networks, and management skills.
Gallas <i>et al.</i> , 2015.	To identify the entrepreneurial profile of a cosmetics industry, relating it to innovation and dynamic capabilities, focusing on resource mobilization and the development of competencies that contribute to innovative activity.	The methodology employed was qualitative in nature, characterized as a single case study, with an exploratory and descriptive approach. Data collection was carried out through semi-structured interviews with the company director, in addition to direct observations in the organizational environment. The interview script addressed variables such as the innovation process, strategic resources, mechanisms for valuing people, market interactions, and communication strategies. Data analysis was performed based on content analysis, seeking to relate the empirical findings with the theoretical foundation on entrepreneurship, innovation, and dynamic capabilities.	The results revealed that the company has a strong orientation towards innovation, using advanced technological resources, effective communication strategies, and a structured team. The entrepreneur's leadership, with an innovative profile focused on seeking new opportunities, was a decisive factor in the organization's development.

Gomes <i>et al.</i> , 2015.	To conduct a comparative analysis, seeking to understand how entrepreneurial characteristics are described as skills in the knowledge management literature and how these skills relate to the competence required of the pharmaceutical manager.	The method used was exploratory bibliographic research. The authors conducted a systematic survey of materials in books, scientific articles, periodicals, and virtual sources, using as main search tools the PHL system of the institution's library where they were affiliated, as well as websites such as Domínio Público, Convibra, SIMPEP, SEMEAD, and ENANGRAD. The data were organized through cataloging, and the analysis was conducted seeking to establish semantic connections between the concepts of skills, competencies, and entrepreneurial characteristics.	The study observes that, in the context of pharmaceutical entrepreneurship, the entrepreneurial characteristics described in the literature can be understood as skills, but only the practical application of these skills, resulting in concrete actions, constitutes competence. As a recommendation, the authors suggest conducting future field research to empirically validate the relationships pointed out in the theoretical review.
Hisrich <i>et al.</i> , 2014.	To offer a comprehensive and updated understanding of the concepts, practices, and processes related to entrepreneurship, covering everything from identifying opportunities to creating, developing, and managing new businesses.	Didactic and theoretical approach based on extensive review of national and international literature on entrepreneurship, combined with practical examples, real case studies, and applied exercises. Market data, academic research, and experiences of entrepreneurs from different sectors, including pharmaceutical and cosmetic, were also used as examples of applying the concepts discussed.	"Identification of the essential characteristics of a successful entrepreneur, such as proactivity, risk tolerance, innovation, and leadership capacity.
Kaniak <i>et al.</i> , 2022.	To identify the main emerging themes in this research field, analyzing how universities have positioned themselves in the development of entrepreneurial initiatives that connect teaching, research, innovation, and technology transfer to society.	Exploratory research approach, adopting the systematic literature review method. Keywords related to university entrepreneurship were used, and articles were filtered by thematic area, considering only journals in the management area. The process involved the stages: initial survey of previous reviews, definition of keywords, application of inclusion and exclusion criteria, full reading of selected articles, and thematic categorization. In total, 141 articles were analyzed, published between 2013 and the first half of 2018.	Research on university entrepreneurship focused on five major themes: generation and maintenance of university spin-offs and startups; engagement of professors and scientists in entrepreneurial activities; student entrepreneurship; university-company interaction; and technology transfer. The study also revealed a low Brazilian scientific production on the topic, pointing to the need for greater investment in research in the area. The authors highlighted that understanding these emerging themes is fundamental to guide educational and innovation policies, as well as to stimulate an entrepreneurial culture in universities.
Kornis <i>et al.</i> , 2014.	To analyze the transformations and trends of the global and Brazilian pharmaceutical industry in the 21st century, focusing on the processes of mergers, acquisitions, technological innovations, and sanitary regulation.	The research adopted a qualitative approach, using the documentary analysis technique to examine sources such as laws, regulations, institutional reports, academic publications, and data from international organizations. The analyzed period covered the decades from 1990 to 2012, with an emphasis on merger and acquisition operations and Brazilian public policies.	The study highlighted Anglo-Saxon hegemony in the global pharmaceutical sector, while Brazil advanced in generics and biotechnology, but with limitations in innovation and regulation. The analysis emphasizes the need for integrated policies to balance competitiveness, access, and economic sustainability.

Matos <i>et al.</i> , 2015.	To correlate fixed oils with sustainable cosmetic potential from Brazilian and African flora, based on the chemical similarity of the fatty profiles of these oils.	The study was developed through a literature review with a qualitative approach. Information sources included scientific articles, book chapters, monographs, dissertations, theses, pharmacopoeias, and national and international legislation. The databases used were Web of Science, Medline, Bireme, Science Direct, SciELO, and SciFinder. The selection of materials occurred between 2000 and 2015. A preliminary patent prospecting was also carried out in the INPI, EPO, and WIPO databases, using terms such as 'fixed oils', 'cosmetics', 'sustainability', in addition to the names of the plant species studied.	The results indicated that both Brazilian and African flora present fixed oils with a fatty composition rich in unsaturated fatty acids, with emphasis on Argan (Africa) and Buriti (Brazil) oils, which were the most prominent in terms of the number of patents filed. The analysis of the chemical composition of the oils demonstrated that all of them have a high content of oleic acid, important for skin emollience, spreadability, and hydration, which makes them promising raw materials for natural and sustainable cosmetic products. Brazilian and African biodiversity offers great potential for the global cosmetics industry, reinforcing the importance of sustainability and the conservation of natural resources.
Meneghetti <i>et al.</i> , 2018	To describe the actions implemented to foster entrepreneurial competencies among Pharmacy students at the State University of Western Paraná (UNIOESTE), Brazil.	The research adopted a qualitative and descriptive approach, documenting the experiences carried out in the UNIOESTE Pharmacy course from 2013 onwards. The activities were divided into three axes.	The results showed that 47% of the students evaluated in 2015 had a consolidated entrepreneurial profile, while 49% showed promising characteristics, but with room for improvement. Only 4% were classified as "not very entrepreneurial". In 2016, among those enrolled in the specific discipline, 22% were already considered entrepreneurs, and 70% showed potential after development."
			"Furthermore, the actions strengthened the connection between the university and entrepreneurial alumni, generating didactic materials based on their experiences. Publications in academic events and participation in international networks, such as the ALFA III project, increased the visibility of the initiative. It was observed that the integration of teaching, research, and extension was effective in awakening the entrepreneurial spirit, suggesting the expansion of the model to other courses and levels of education.
Nascimento, 2021.	To analyze entrepreneurial education methodologies applied to Pharmacy students in different global contexts, highlighting their importance for professional training and adaptability in the job market.	The study used a systematic literature review, with active search for scientific articles in the SciELO, PubMed, and Google Scholar databases. Full articles in Portuguese or English, peer-reviewed, were included, and those without abstracts or in other languages were excluded. In the methodological approach, a qualitative analysis of pedagogical models, systematization of international experiences, and impact assessment through quantitative data were performed.	Entrepreneurial Education is essential to train adaptable and innovative pharmacists, capable of responding to challenges. Despite global advances, in Brazil there are still gaps in the integration of Entrepreneurial Education in curricula, requiring partnerships with entities for certifications and resources, teacher training, and the adoption of active methodologies and expansion of disciplines.

Oliveira <i>et al.</i> , 2020	To describe the applications of active methodologies in the teaching of the Pharmacy course, highlighting their relevance for the training of critical, reflective, and adaptable professionals to the demands of the market and the Unified Health System (SUS).	A descriptive narrative bibliographic review was carried out, with a search in the SciELO, LILACS, PubMed databases, as well as dissertations and Brazilian legislation, between March and June 2020. The descriptors used were: Pharmacy Education, Pharmacy, and Pharmacy Professors. Articles in Portuguese, English, or Spanish, published between 1998 and 2020, that addressed active methodologies in health and in the Pharmacy course were included. Articles outside the thematic scope were excluded. The analysis focused on studies that applied methodologies such as Magueretz Arch, PBL, educational games, and task-based learning (TBL), with an emphasis on Brazilian cases.	Active methodologies represent a significant advance in pharmaceutical education, aligning academic training with the demands of SUS and the market. By promoting autonomy, teamwork, and real problem-solving, these strategies prepare more critical and innovative professionals. However, their consolidation requires investment in teacher training, technological resources, and curriculum review, in addition to collaboration between educational institutions and health services. The Brazilian experience, still expanding, points to a promising future in the integration of these practices, provided that structural and cultural challenges are adequately addressed.
Pinto <i>et al.</i> , 2013	To analyze the obstacles and opportunities for the development of the pharmaceutical sector in Brazil, focusing on the capacity for innovation and production of new medicines.	The article combines documentary analysis, bibliographic review, and case studies to draw a critical overview of the Brazilian pharmaceutical industry, identifying bottlenecks and opportunities based on quantitative and qualitative evidence.	The article highlights the existence of qualified research groups, financial support from BNDES, and the potential for growth of the domestic market as positive factors that can, if properly exploited, transform Brazil into a relevant player in the global pharmaceutical scenario.
Roriz, 2023.	To investigate the interaction between entrepreneurship and innovation in the university context, considering the influence of support networks and identifying the main trends and challenges.	The study adopted a basic, exploratory, and descriptive research approach, with the objective of deepening the theoretical understanding of the relationship between entrepreneurship and innovation in the university context. The bibliographic research was conducted using the Google Scholar platform, with the following descriptors: "university entrepreneurship", "university innovation", "triple helix", and "support networks". Works published in the last ten years, in Portuguese, freely available in full, that presented similar methodology (bibliographic or systematic review) and a direct approach to the topic were included. Quantitative studies, in English, or with a tangential focus were excluded.	The research showed that support networks, especially partnerships between universities, companies, and government, play a central role in fostering entrepreneurship and innovation in the academic environment. The main trends identified highlight universities as "startup factories", where the culture of innovation is encouraged through competitions, interdisciplinary laboratories, and partnerships with the productive sector. In addition, there was a growing integration of entrepreneurial skills in curricula and a focus on sustainability and international collaboration.
Silva <i>et al.</i> , 2024.	To present a comprehensive view of entrepreneurship in the pharmaceutical and cosmetic sectors, highlighting its challenges and opportunities.	The research adopted the methodological perspective of bibliographic modality, with a qualitative approach of integrative synthesis. Secondary sources of scientific articles were used, with critical reading and data analysis techniques according to ABNT standards. The consulted databases included the Capes Periodical Portal, SciELO, and Google Scholar, using keywords such as "Entrepreneurship", "Pharmaceutical", "Challenges", and "Potentialities". The selected articles date from 1982 to 2024 and followed inclusion criteria based on relevance to the objectives of the work.	The results showed that entrepreneurship in the pharmaceutical and cosmetic sectors is marked by challenges such as regulatory complexity, high research and development costs, fierce competition, and the need for constant innovation. On the other hand, opportunities generated by social demand for health and well-being, the growth potential in emerging markets, and the integration of advanced technologies, such as artificial intelligence and personalized medicine, were highlighted. The study also emphasized the importance of entrepreneurial education in the training of pharmacists, in order to prepare them for market challenges.

Teixeira, 2019.	To analyze the assertiveness and growth of the Personal Hygiene, Perfumery, and Cosmetics (HPPC) sector in the Brazilian economic and social context, highlighting its resilience during economic crises and its role as a generator of jobs and development.	The research adopted a qualitative and bibliographic approach, using secondary data from sources such as reports from the Brazilian Association of the Personal Hygiene, Perfumery, and Cosmetics Industry (ABIHPEC), studies from the National Bank for Economic and Social Development (BNDES), academic articles, and expert analyses. Economic indicators, such as sector revenue, employment rates, and consumption behavior, were analyzed, in addition to sociocultural factors, such as the valorization of beauty and media influence.	The results showed that the Personal Hygiene, Perfumery, and Cosmetics (HPPC) sector is one of the most dynamic in the Brazilian economy, standing out for its growth capacity even in adverse periods. Sociocultural factors also played a fundamental role in the sector's growth. The valorization of appearance, combined with the increase in per capita income and the greater participation of women in the labor market, significantly increased the demand for beauty products.
Vila Franca, 2018.	To analyze the perception of green cosmetics producing companies and consumers regarding natural, organic, and vegan certification from the perspective of New Institutional Economics.	Methodological triangulation was employed, based on different research approaches, including conducting semi-structured interviews with representatives of certified green cosmetics producing companies and applying self-developed questionnaires to a non-probabilistic sample of 416 cosmetics consumers via Facebook. Interview data were submitted to content analysis and questionnaires were analyzed using descriptive statistics, both interpreted in light of New Institutional Economics.	It was found that green cosmetics producing companies attribute an important role to certification in communicating ecological appeals to consumers, in aligning principles with suppliers, acting as contractual enforcement mechanisms, and in obtaining market advantages. The main disadvantages reported by producing companies were the transaction costs resulting from obtaining and maintaining certification and possible communication difficulties with consumers. In relation to consumers, users of green cosmetics predominated in the sample. However, in general, consumers have a low level of knowledge and low degree of confidence in the main natural, organic, and vegan cosmetics certifications operating in Brazil, in addition to perceiving such certifications as not very rigorous.

Source: Author, 2025.

2.2 Results and Discussion

Entrepreneurship is a widely discussed topic nowadays; however, its meaning can be quite varied, as it depends on the scenario and the perspective of those who approach it. This term is highly subjective, being familiar to many, but whose true understanding often escapes people (Fernandes, 2017).

According to Dornelas (2018), the entrepreneur is an active agent who identifies opportunities and mobilizes resources to create viable businesses. This process requires a strategic vision to detect market demands. Furthermore, it involves courage and skill to take risks in a balanced way. Thus, it requires planning, innovation, and strategic decision-making.

Entrepreneurship in the pharmaceutical sector is often associated with the opening of pharmacies and drugstores. However, the pharmaceutical area goes beyond these establishments, encompassing the improvement of quality of life and comprehensive health care. This involves not only medicines but also social, community, and hospital aspects, creating diverse opportunities in the sector. The pharmacist's role extends beyond product sales, encompassing an important role in public and community health (Nascimento, 2021).

For Gomes, Alves, and Pereira (2015), pharmaceutical entrepreneurship is fundamental for the health and well-being of customers, requiring the entrepreneur to effectively apply their capabilities, with emphasis on pharmaceutical knowledge. Mastery of this practice is important in academic training, as those who develop these skills are more prepared to achieve significant results.

The pharmaceutical sector stands out as one of the most innovative, constantly dealing with urgent demands and growth opportunities. This branch drives the development of new technologies and adapts knowledge to solve existing challenges. Furthermore, it demands high theoretical and practical qualification from professionals to ensure its effectiveness (Pinto and Barreiro, 2013).

According to Teixeira (2019), the cosmetic and pharmaceutical industry has become a means for many people to reach a new phase of personal satisfaction, driven by improved income and access to information. Additionally, socio-historical factors influence this quest, with the population seeking greater financial stability and longevity. This phenomenon is accompanied by a change in mindset, in which people adopt a healthier lifestyle, seeking cosmetics and medicines that promote well-being and health.

According to Alvarenga and Melo (2021), the national pharmaceutical market showed a significant growth of 53% between 2015 and 2019, demonstrating its relevance. This advance occurred due to the expansion of new effective treatments and the aging population, which has generated new demands in the healthcare area. Thus, the development of the pharmaceutical sector follows demographic and technological transformations.

Emerging countries demand innovations in the sector to meet the needs of the population. Furthermore, entrepreneurs need to deal with social and economic barriers. The pharmaceutical market faces challenges due to constant national and global transformations. Conciliation between governmental, private, and academic sectors is essential. Thus, adaptation and efficient management are indispensable for success (Kornis; Braga; Paula, 2014).

In her research, Villa Franca (2018) observes that representatives of the consulted companies expressed growth prospects in the natural, organic, and vegan cosmetics market, due to increased awareness and appreciation of these products, the professionalization of the sector, and the expansion of target audience segments.

The ability to identify new scenarios and opportunities is an important characteristic for those seeking to undertake. In the cosmetic sector, this skill is essential given the expressive growth of the Brazilian market. In recent decades, the country has consolidated its position as one of the largest consumers of cosmetics. Currently, it occupies a prominent position, second only to Japan and the United States. This increase reflects the constant demand for aesthetic products and services (Gallas; Vargas; Lenzi, 2015).

Business investment in the pharmaceutical and cosmetic sectors covers multiple aspects, such as logistics, mediation with governmental and academic bodies, as well as the creation,

development, and commercialization of products and services aimed at health and pharmacology (Silva and Borges, 2024).

Thus, the advance in the creation of new formulations in the pharmaceutical and cosmetic sectors has grown remarkably. Among these innovations are dermatological bases and various active ingredients of plant origin, which, when added to pharmaceutical preparations, can result in revolutionary cosmetics (Matos; Pereira, 2015).

According to Hisrich, Peters, and Shepherd (2014), innovation and adaptation are fundamental for the development of competitive products. The highly dynamic cosmetics market demands constant updating and creative solutions. Thus, professionals must balance technical expertise with leadership skills. This way, they become able to create and manage successful businesses in the sector.

For the entrepreneur in the cosmetics sector, it is essential to involve the members of the organization in a strategy map, where financial and operational perspectives converge towards profit. Globalization and constant technological changes require managers to adapt and use modern tools to maintain competitiveness. Furthermore, it is necessary to identify the potentialities and limitations of their team and region, coordinating efforts to minimize losses and take advantage of market opportunities (Ferreira; Filho, 2011).

The interest in business investment has grown significantly in Brazil, with several educational institutions, especially private ones, promoting discussions on the topic. This movement is on the rise and will hardly be interrupted (Meneghatti; De Fariña; Bertolini, 2018). Universities play a fundamental role in promoting knowledge and innovation, being essential for the advancement of entrepreneurship (Roriz, 2023).

According to Silva and Borges (2024), the educational model of universities still follows a traditional system, separate from the practical needs of students. This disconnect hinders the application of knowledge to professional reality. Business investors seek innovations that benefit the community. Thus, learning becomes misaligned with society's demands.

Some educational programs and entrepreneurship initiatives aimed at training pharmacists have shown great success in integrating technical and entrepreneurial skills, especially in the field of cosmetology. As Dornelas (2018) points out, the inclusion of disciplines that combine technical knowledge with market strategies provides students with a broad view of innovation opportunities in the cosmetics sector.

In several colleges and universities with Pharmacy courses, pedagogical strategies are implemented to foster entrepreneurial competencies, especially in cosmetology. Based on Oliveira and Andrade (2020), practical activities, such as product creation workshops and business management simulations, are common to develop managerial skills. In addition, active teaching methodologies, such as case studies and interdisciplinary projects, bring students closer to market reality. These approaches aim to encourage innovative and sustainable solutions in the cosmetics sector.

According to Filion (2011), the use of business incubators within universities has allowed students to develop their own cosmetic brands, directly applying the concepts learned in the classroom. This type of initiative has shown promising results, contributing to the emergence of new businesses in the beauty sector, while promoting the development of managerial competencies among future professionals.

Transformations in universities demand theoretical and practical models that meet current and future demands. University entrepreneurship is one of the main challenges of global higher education. Collaborative partnerships among the agents of this ecosystem are fundamental. These alliances help establish new knowledge bases. Furthermore, they promote sustainable and innovative development. Thus, higher education strengthens its connection with the market and society (Kaniak and Teixeira, 2022).

CONCLUSION

Entrepreneurial competencies are fundamental for the success of pharmacists in the cosmetology sector, going beyond technical knowledge and including skills such as innovation, strategic vision, management, and decision-making. The research demonstrated that academic training should integrate these aspects to prepare professionals capable of identifying opportunities and developing innovative solutions for the cosmetic market.

The pedagogical strategies adopted in Pharmacy courses, such as active methodologies, business incubators, and disciplines focused on entrepreneurship, have proven effective in building these competencies. These approaches encourage creativity, practical experimentation, and adaptation to the demands of the sector. Furthermore, successful examples in educational programs and entrepreneurial initiatives reinforce the importance of the connection between education and the market. The implementation of real projects, mentoring, and partnerships with the industry strengthens the preparation of future pharmacists, ensuring they are able to act in an innovative and sustainable way in cosmetology.

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