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Welcome Address

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IV International Symposium on Education

In its fourth edition, the Einstein International Symposium on Education, held in October 2025, focused on transforming education in Brazil and addressing the challenges of a rapidly changing world.

The event gathered national and international experts to discuss key themes such as faculty development and the impact of technology and Artificial Intelligence on education. Through roundtables, workshops, and scientific presentations, participants explored strategies to promote inclusive and effective educational practices.

We were honored to host distinguished speakers, including Galina Gheihman (Harvard University), Milad Memari (University of Virginia), and Sebastián Merino Marín (Universidad del Desarrollo), who shared global perspectives on resilience, socio-emotional development, and interprofessional education.

This supplement compiles the best abstracts presented during the symposium, showcasing research that supports educational innovation. These contributions reflect the commitment of our academic and professional community to evidence-based practices and continuous improvement.

We thank all authors, reviewers, and participants for making this publication possible. We hope the ideas shared here inspire further research and practical applications to strengthen education in Brazil.

The Organizing and
Scientific Committees

Editorial

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Educating and learning in the Artificial Intelligence era: formative challenges and new roles for the educator

Dannielle Fernandes Godoi[1], Andrea Gomes da Costa Mohallem[1], Blaidi Sant´Anna[1], Elda Maria Stafuzza Gonçalves Pires[1], Fernanda Domingos Giglio Petreche[1], Luciana Machado Paschoal[1], Thomaz Bittencourt Couto[1], Mariana Lucas da Rocha Cunha[1]

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What is lost when generating answers becomes more important than learning?

Artificial intelligence (AI) has ceased to be a prospect and has become a routine tool for study, academic production, and decision-making. Over the past three years, language models based on generative AI have migrated from an interesting technological curiosity to widely available tools, with unprecedented speed and impact at scale across multiple fields, including education. And it is precisely in education that this movement has revealed an inflection point still underway: students have incorporated AI into their academic routines before institutions and educators have been able to agree on principles, limits, and formative objectives for its use.

The challenge, however, is not technological in its essence; it is pedagogical. Teaching and learning are deeply contextual, human, and relational processes, permeated by multiple variables, including the methodologies employed, individual cognitive difficulties, life and sociocultural contexts, and even fragmented attention, which is common among the current generation. These factors are not resolved by faster access to answers. The temptation to use AI as a "shortcut," something we have frequently observed in different educational environments, results in rapid knowledge acquisition at the expense of deep and effective learning. Immediate answers reduce the effort required to build understanding, judgment, and autonomy for decision-making in the real world.

The scale of adoption underscores the urgency of this discussion across different educational settings. International multicenter studies indicate that 86% of higher education students already use artificial intelligence tools in their studies, with more than half doing so at least weekly and nearly a quarter daily.[1] In the same context, more than 60% of educators report having already used AI in teaching activities, although the majority express significant concerns regarding students' excessive dependence and their ability to critically evaluate content generated by algorithms.[2] In Brazil, recent data point not only to the widespread use of AI in higher education,[3] but also to its growing penetration in primary and secondary education,[4] albeit unevenly across educational contexts.

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These figures reveal a critical mismatch: while the use of AI becomes normalized in students' daily lives, institutional and pedagogical responses are still under development. In this context, the absence of qualified mediation by educators does not interrupt students' use of AI, but rather redefines, in a concerning way, how learning occurs, and which skills and competencies fail to be developed in this process. This is not, therefore, a discussion restricted to technology-related courses, but rather an examination of a transversal shift in the educational ecosystem: AI has entered unannounced and is unlikely to leave.

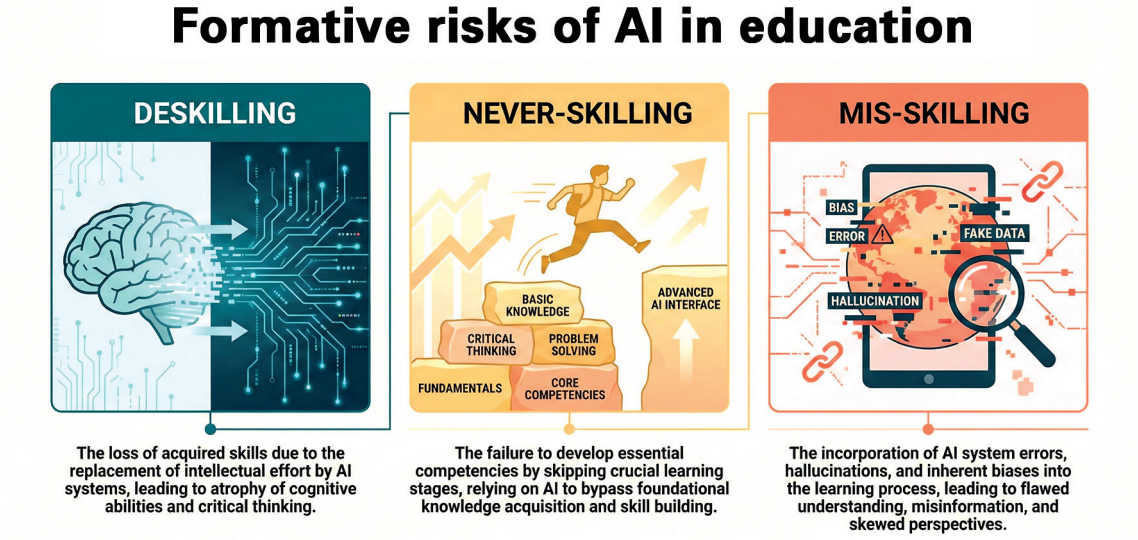
It is important to understand this rapidly disseminated use of AI through a broader perspective on its possible causes. For many students, AI offers more accessible language, immediate feedback, reduced insecurity, and time savings. At the same time, in many educational environments, we still find rigid processes, teaching methodologies already proscribed by the scientific evidence, and the role of the student as the center of the educational process remains far below what it should be. Educational systems are historically slow and do not tend to be responsive to societal needs in real time. And when these same systems are pressured by time constraints, content-based assessment, and performance demands, the tool that "delivers" quickly tends to become the standard.[5]

Emerging scientific evidence points to an ambivalent picture. The use of AI may increase perceived efficiency, but it may also reduce direct cognitive engagement, with potential impacts on skills such as analysis, synthesis, and long-term retention. Recent studies describe effects ranging from overconfidence, characterized by the overestimation of one's own competence when performing AI-mediated tasks to users who stop reflecting on their tasks when assisted by AI.[6-8] This combination (less effort, more confidence) is particularly sensitive in health education, where learning involves judgment under uncertainty, integration of incomplete information, and ethical responsibility in decisions that affect real people.[9,10] At the same time, another body of evidence shows that AI can improve learning when it acts as a "cognitive tutor," that is, when students engage in dialogue, ask for explanations, contrast alternatives, and make their reasoning explicit.[11-13] In other words, the risk is not the tool itself, but rather how it is used that defines the type of learning it encourages.

In this scenario, it becomes increasingly clear that when pedagogical mediation does not keep pace with this technological adoption, specific formative risks emerge, and it is important to conceptualize them to organize this debate (Figure 1). The first is deskilling**:** the loss of previously acquired skills due to the recurrent replacement of intellectual effort by AI. The second is never-skilling: the failure to develop essential competencies because fundamental stages of learning are no longer experienced. The third is mis-skilling: the incorporation of system errors and biases into the learning process. These three phenomena describe formative trajectories that may produce a substantial impact on an entire generation of new professionals at a time when educational institutions are not sufficiently prepared for this disruptive transformation of education.[10]

Understanding these three major risks and creating spaces for discussion about them is essential. The incorporation of new technologies into education has never been instantaneous. As occurred with active learning methodologies, simulation, and competency-based assessment, there is an inevitable learning curve for educators. Avoiding exposure to AI in educational processes may preserve familiar practices in the short term, but it increases the risk of disconnection between what happens in the classroom and how students construct knowledge outside of it.

On the other hand, a more restrictive adoption of artificial intelligence by educators may negatively impact the evolution of pedagogical practices and, consequently, contribute to training that is misaligned with the demands of students and the world of work. The reasons for this limitation are multifaceted and include both practical concerns related to the use of innovation, such as usability, pedagogical value, and perceived risks, and barriers of a psychological and cultural nature, involving educators' beliefs, perceptions, and prior experiences.[14,15] Institutional policies should



Source: Elaborated with Gemini based on data from Abdulnour et al.[10]

Figure 1. Learning risks associated with a lack of pedagogical mediation amidst the adoption of technologies

address these concerns through strategies for training, continuous support, and clear guidance for the pedagogical use of AI. In addition, it is essential to foster an ongoing academic debate that allows for balancing the potential gains of the technology with its ethical challenges, ensuring that its incorporation strengthens (rather than weakens) human creativity, critical thinking, and professional teaching identity.

The educational response, therefore, is not about resisting AI as if it were possible to "go back in time," but about repositioning the entire educational process. The debate matures when it moves away from "allowing or not allowing" and enters the realm of evidence and institutional responsibility. Prohibiting the use of AI without institutions and educators preparing themselves to understand it, experiment with it, and critically integrate it into educational processes does not eliminate the problem; it merely shifts it outside the pedagogical space. When use remains invisible, the opportunity to guide, regulate, and transform the tool into an explicit object of learning is lost.

For artificial intelligence to truly become a powerful (and safe) tool in the educational field, deliberate investment will be required in instructional design, assessment aligned with complex cognitive processes, faculty development, and critical AI literacy, both among educators and students. This movement is central to preserving the quality of education in a context of rapid technological transformations and does not end with AI. And that is precisely what is at stake: not only how we use AI, but what we fail to learn when the answer comes before thought.

DATA AVAILABILITY

The content is already available.

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- Dannielle Fernandes Godoi – Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.
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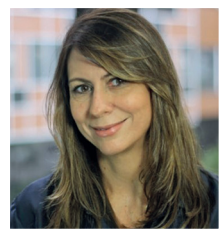

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PhD in Nursing from the *Universidade de São Paulo* (USP), Master's degree in Education from the *Universidade Presbiteriana Mackenzie*, and Bachelor's degree in Nursing from the *Escola De Enfermagem Wenceslau Braz* (EEWB). She is the Education Manager at Einstein, Coordinator of the Undergraduate Nursing Program at the *Faculdade Israelita de Ciências da Saúde Albert Einstein* (FICSAE), and Coordinator of the Professional Master's Programs in Health Education and Nursing. Her research focuses on innovation in education and critical thinking.

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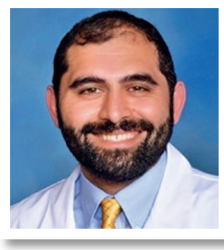

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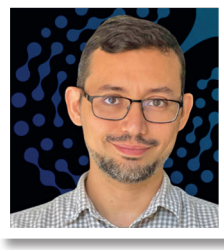
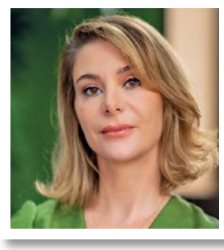


Pedro Mendonça Burgos

Is the founder of Co.Inteligência, an AI consulting firm. A journalist trained at *Universidade de Brasília* (UnB), he holds a master's degree in Social Journalism from the City University of New York. Since 2016, he has combined communication and programming in several projects, such as Impacto.jor, funded by the Google News Initiative, and the coordination of the postgraduate program in Data Journalism at *Instituto de Ensino e Pesquisa* (Insper), where he also served as manager of the Data Intelligence Center. As a journalist, he has covered technology for outlets such as Superinteressante, Exame, and InvestNews, where he hosts a video column titled "AI: How to Use It.



Priscila Fonseca da Cruz

President and co-founder of *Todos Pela Educação* (TPE). She holds a Master's degree in Public Administration from the Harvard Kennedy School of Government, where she received the Outstanding Student Award (2014/2015). She earned a bachelor's degree in Business Administration from *Fundação Getulio Vargas* (FGV) and a Law degree from the *Universidade de São Paulo* (USP). She serves on several boards, including the *Conselho de Desenvolvimento Econômico Social e Sustentável* (CDESS) da Presidência da República, the *Rede Nacional de Ciência para Educação* (Rede CpE), the *Fundação Itaú de Educação e Cultura*, the *Instituto Rodrigo Mendes* (IRM), the *Movimento LED – Luz na Educação* (an initiative by Globo and *Fundação Roberto Marinho*), and the Centro de Inovação para a Educação da Universidade Columbia. She is also President of the Board of the *Instituto Articule*. In 2022, she received the Social Entrepreneur Award from Folha de S. Paulo and the Schwab Foundation for her leadership of *Todos Pela Educação* (TPE) during the pandemic.

Rodrigo Venturoso Mendes da Silveira

Holds a bachelor's degree and teaching license in Biological Sciences and a master's degree in Genetics and Evolutionary Biology from *Instituto de Biociências da Universidade de São Paulo* (IB-USP), as well as an MBA in School Management from *Escola Superior de Agricultura Luiz de Queiroz da Universidade de São Paulo* (ESALQ-USP). He is a professor of Human Genetics and Bioethics and serves as Pedagogical Director of Secondary Education at Escola Móbile.

Santiago Nariño

Is an equity strategist, social innovator, and systems thinker passionate about transforming health and society from the inside out. With experience across Latin America and the United States, he leads large-scale initiatives focused on equity, quality, and safety—always through co-design and leadership development—connecting public institutions, global partners, and local voices to drive lasting change.

Sebastián Merino Marín

Is an educator focused on interdisciplinary education and curricular innovation. He currently serves as Academic Deputy Director at the Institute for Innovation and Interdisciplinarity (iCubo) at Universidad del Desarrollo, where he also leads the Diploma in Interdisciplinary Education. His work includes the design and implementation of interdisciplinary curricula, promoting inductive learning and the educator's role as a coach.

Shirley Silva Lacerda

Is a psychologist with a PhD in Sciences from the Psychiatry and Medical Psychology Program *at Universidade Federal de São Paulo* (UNIFESP). He is the Coordinator of the Undergraduate Program in Psychology at *Faculdade Israelita de Ciências da Saúde Albert Einstein* (FICSAE) and a Professor of the Medical Psychology course in the Undergraduate Program in Medicine at FICSAE.

Tancicleide Carina Simões Gomes

Specialist in Educational Design and Product Design, with a master's degree in Computer Science from *Universidade Federal de Pernambuco* (UFPE). Since 2010, she has been dedicated to enhancing youth and adult learning through digital technologies, methods, and design tools.

Thomaz Bittencourt Couto

Pediatric emergency physician. Holds a master's and a PhD in Sciences from the *Faculdade de Medicina, Universidade de São Paulo* (FMUSP). MBA in Healthcare Management from the *Instituto Israelita de Ensino e Pesquisa Albert Einstein* (IIEPAE). Assistant Professor in the Medicine program at the *Faculdade Israelita de Ciências da Saúde Albert Einstein* (FICSAE). Physician at the *Centro de Simulação Realística do Hospital Israelita Albert Einstein* and Assistant Physician at the Emergency Department of the *Instituto da Criança, Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo* (ICr-HC-FMUSP). Certified as an Advanced Healthcare Simulation Educator (CHSE-A) by the Society for Simulation in Healthcare.

Vivian Broge

Vice President of Human Relations and Marketing at TOTVS, with over 20 years of experience in Human Resources, Partnerships and Alliances (M&A), Commercial Innovation, and Relationship Marketing. She currently also serves as President of the Instituto da Oportunidade Social (IOS), as a board member for the social organizations Turma do Jiló and Specialisterne, and as a mentor at the Instituto Vasselo Goldoni (IVG). She holds a degree in Social Communication from *Fundação Armando Alvares Penteado* (FAAP), a postgraduate degree in Marketing Management from the same institution, and an MBA in People Development and Management from *Faculdade Getúlio Vargas* (FGV).

Welbert Pereira de Oliveira

Is Dean of the School of Biomedical Engineering at *Hospital Israelita Albert Einstein*, where he coordinates the Undergraduate Program in Biomedical Engineering as well as the Graduate Programs in Bioengineering and in Biotechnology and Innovation. He holds a degree in Biology from the Universidade Federal de Juiz de Fora (UFJF) and a PhD in Immunology from the *Universidade de São Paulo* (USP). He completed postdoctoral training at the Transplant Immunobiology Laboratory of the Instituto de Ciências Biomédicas, *Universidade de São Paulo* (ICB-USP), and received additional training in Health Management and Technological Innovation. He served as a Visiting Researcher in the Department of Hematological Medicine at King's College London. His professional experience spans scientific research, higher education, academic leadership, innovation, and health entrepreneurship. Since 2010, he has been affiliated with *Hospital Israelita Albert Einstein*, where he supervises undergraduate, master's, doctoral, and postdoctoral students and leads research projects primarily focused on Immuno-Bioengineering and Education.

Scientific Program

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IV International Symposium on Education - Transforming Education in Brazil							
October 10 and 11, 2025							
October 10, 2025 | Friday							
Start time	**Finish time**	**Duration**	**Theme**	**Activity**	**Speakers**	**Position**	**Instituition**
08:00	08:30	00:30	Opening Session	Deliver the Opening Address	Sidney Klajner	President	Hospital Israelita Albert Einstein
				Deliver the Opening Address	Alexandre Holthausen	Executive Director, Education and Consulting	Hospital Israelita Albert Einstein
08:30	10:30	02:00	Roundtable: Faculty Development — Pathways and Strategies	Moderator	Elda Maria Stafuzza Gonçalves Pires	Medical Academic Coordinator	Hospital Israelita Albert Einstein
08:30	08:50	00:20	Pathways to the Public Education System	Speaker	Priscila Fonseca da Cruz	President and Co-Founder	Todos pela Educação
08:50	09:10	00:20	Approaches to Teaching in High School	Speaker	Rodrigo Venturoso Mendes da Silveira	High School Pedagogical Director	Escola Móbile
09:10	09:30	00:20	Approaches to Promotion in Higher Education	Speaker	Guy Cliquet do Amaral Filho	Executive Manager of Teaching and Learning Development	Instituto de Ensino e Pesquisa
09:30	09:50	00:20	How We Do It in Health Higher Education	Speaker	Mariana Lucas da Rocha Cunha	Education Coordinator	Faculdade Israelita de Ciências da Saúde Albert Einstein
09:50	10:30	00:40	Discussion				
10:30	11:30	01:00	Coffee Break (and e-Poster Presentations)				
11:30	13:00	01:30	Roundtable: Cultivating Socioemotional Development in the Academic Environment	Moderator	Shirley Silva Lacerda	Education Manager and Undergraduate Program Coordinator in Psychology	Hospital Israelita Albert Einstein
11:30	11:50	00:20	Incorporating Theory into the Mindset for Student and Faculty Development	International Speaker – REMOTE	Milad Memari, MD	Assistant Professor of Medicine	University of Virginia
11:50	12:10	00:20	Practical Tools for Developing Resilience in Students	International Speaker – REMOTE	Galina Gheihman, MD	Mass General Brigham & Harvard Medical School	Harvard
12:10	12:30	00:20	Joy at Work: Purpose and Meaning in Teaching	Speaker	Santiago Nariño	Sustainability Specialist	Hospital Israelita Albert Einstein
12:30	13:00	00:30	Discussion				
13:00	14:00	01:00	Lunch Break – Free Time				
14:00	18:00	04:00	Workshop - Afternoon				
15:45	16:15	00:30	Coffee-break				
14:00	18:00	04:00	Workshop 1: Microteaching (ROOM 203)	Conduct a Workshop – LOGISTICS	Ana Paula Loreto Pancieri	Nurse Specialist in Management and Education	Faculdade Israelita de Ciências da Saúde Albert Einstein
			Workshop 2: TBL (ROOM 205)	Conduct a Workshop	Elda Maria Stafuzza Gonçalves Pires	Medical Academic Coordinator	Hospital Israelita Albert Einstein
			Workshop 3: Escape (ROOM 209)	Conduct a Workshop	Thomaz Bittencourt Couto	Specialist Physician at the Simulation Center	Hospital Israelita Albert Einstein
			Workshop 4: Gamification (ROOM 211)	Conduct a Workshop	Juliana Magdalon	Professor	Hospital Israelita Albert Einstein

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IV International Symposium on Education - Transforming Education in Brazil							
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October 10, 2025 | Friday							
Start time	**Finish time**	**Duration**	**Theme**	**Activity**	**Speakers**	**Position**	**Instituition**
			Workshop 5: Artificial Intelligence in Education (ROOM 403)	Conduct a Workshop	Dannielle Fernandes Godoi	Professor	Hospital Israelita Albert Einstein
					Fernanda Domingos Giglio Petreche	Coordinator of the Graduate Program in Teaching and Physician in the Teaching–Learning Process	Faculdade Israelita de Ciências da Saúde Albert Einstein
			Workshop 6: Teaching and Assessment in a Multiprofessional Clinical Environment (ROOM 410)	Conduct a Workshop	Mariana Lucas da Rocha Cunha	Education Coordinator	Faculdade Israelita de Ciências da Saúde Albert Einstein
					Márcia Wanderley de Moraes	Professor	Hospital Israelita Albert Einstein
18:00	19:10	01:10	Scientific Paper Presentations				
18:00	18:08	00:08	An Interactive Online Platform for Molecular Diagnosis Education in Medical Genetics: An Experience Report	Presenter	Karina Griesi Oliveira		
18:10	18:18	00:08	Development of the personality of the tutor Albert.AI	Presenter	Stephanie Diaz-Urdaneta		
18:20	18:28	00:08	Breaking Barriers to Feedback in Nursing Education: Application of the Kolb Model and the ADAPT Framework in a Virtual Workshop	Presenter	Marina Driemeier Cardoso		
18:30	18:38	00:08	From Education to Collaborative Practice: A National Study on Perceptions of Interprofessional Education in the PET-Health Program	Presenter	João Paulo Alves Cunha		
18:40	18:48	00:08	Interdisciplinary experience in teacher training for higher education: an experience report from the Teaching Improvement Program (TIP-USP)	Presenter	Mônica Cristina Dutra Rodrigues		
18:50	18:58	00:08	Active learning methodologies in patient education: role play, teach-back and 5Ts in a nursing workshop	Presenter	Mayara Cristina Debone		
19:00	19:08	00:08	Pedagogical strategies for consolidating advanced practice nursing in Brazil: report of a pioneering course	Presenter	Priscilla Caroliny Oliveira		
19:10	19:55	00:45	Keynote Speaker: AI in Education — From the Risk of Deskilling to the Opportunity for Upskilling	Speaker	Dannielle Fernandes Godoi	Professor	Hospital Israelita Albert Einstein
19:55	20:00	00:05	Closing Session				

IV International Symposium on Education - Transforming Education in Brazil							
October 10 and 11, 2025							
October 11, 2025 | Saturday							
Start time	**Finish time**	**Duration**	**Theme**	**Activity**	**Speakers**	**Position**	**Instituition**
09:00	10:30	01:30	Roundtable: Interprofessional Education – Shaping a New Generation of Professionals	Moderator	Welbert Pereira de Oliveira	Higher Education Manager – Biomedical Engineering	Hospital Israelita Albert Einstein
09:00	09:20	00:20	What Kind of Professional Should We Be Preparing?	Speaker	Vivian Broge	Social Communication	Fundação Instituto de Administração
09:20	09:40	00:20	Promoting Curricular Integration Across Professions	International Speaker - REMOTE	Sebastián Merino Marín	Deputy Academic Director – Institute of Innovation and Interdisciplinarity (iCubo)	Univerdad del Desarrollo - Chile
09:40	10:00	00:20	Extension and Extracurricular Activities as a Field for Interprofessional Practice in Higher Education	Speaker	Andréa Gomes da Costa Mohallem	Undergraduate Nursing Program Coordinator	Hospital Israelita Albert Einstein
10:00	10:30	00:30	Discussion				
10:30	11:00	00:30	Coffee-break				
11:00	13:00	02:00	Roundtable: Artificial Intelligence and Its Implications	Moderator	Dannielle Fernandes Godoi	Professor	Hospital Israelita Albert Einstein
11:00	11:20	00:20	Evolving Roles of the Educator	Speaker	Maurício Garcia	Digital Scientist	Solvertank
11:20	11:40	00:20	Personalized Learning	Speaker - LOGISTICS	Tancicleide Carina Simões Gomes	Professor and Researcher	AI for Education - NGO
11:40	12:00	00:20	How AI Can Revolutionize Educational Management	Speaker	Pedro Mendonça Burgos	Professor	Instituto de Ensino e Pesquisa
12:00	12:20	00:20	What Are the Challenges to Be Overcome?	Speaker	Mário Thadeu Lemes de Barros Filho	Professor	Faculdade Israelita de Ciências da Saúde Albert Einstein
12:20	13:00	00:40	Discussion				
13:00	13:30	00:30	Awards – 3 Fast Tracks Einstein Journal		Mariana Lucas da Rocha Cunha		
13:30	13:45	00:15	Closing Session		Júlio César Martins Monte		

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Presentation Abstracts

001

Mapping teaching and learning challenges in laboratory environments: a scoping review

Julio Cesar David Pereira[1], Juliana Arantes[1], Yasmin Naomi Hassunuma[2], Ana Silvia Sartori Barraviera Seabra Ferreira[3]

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Category: Experience Report

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ABSTRACT

Introduction: Science laboratories are essential for experiential learning, integrating theory and practice while fostering technical skills and critical thinking.[1] However, their effectiveness depends on adequate infrastructure, resources, and methodologies factors often neglected in various educational contexts.[2]

Objective: To map the challenges faced by teachers and students in science laboratories during the teaching-learning process.

Methods: This is a Scoping Review conducted in accordance with the Joanna Briggs Institute (JBI) protocol[3] and the PRISMA-ScR checklist.[4] The search was carried out across the following databases and portals: Virtual Health Library (VHL), SciELO, PubMed/MEDLINE, Embase Elsevier, Education Resources Information Center (ERIC), Web of Science (Clarivate Analytics), Scopus, and grey literature (Google Scholar, *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior*) between April and May 2025. Inclusion criteria focused on studies published between 2020 and 2025 addressing challenges in natural and health sciences laboratories.

Results: Of the 2,705 articles identified, 20 were selected for analysis after screening. The findings revealed global structural challenges, such as the lack of laboratories, equipment, and reagents, as well as pedagogical issues, including insufficient teacher training and limited use of innovative methodologies. In adverse contexts, creative strategies emerged, such as the use of everyday materials for experiments, highlighting educational resilience.

Discussion: The discussion emphasized the need for context-sensitive educational policies,[5] tailored teacher training,[6] and the integration of digital technologies to overcome existing limitations.[7] Despite proposed solutions, gaps remain, such as the scarcity of longitudinal studies and the geographic concentration of research.

Conclusion: The mapped challenges call for multifaceted approaches that combine investments in infrastructure, teacher training, and the valorization of local practices. Limitations include the predominance of Brazilian studies and the lack of intervention assessments. Future recommendations include comparative transnational research, the development of accessible educational technologies, and public policies that prioritize laboratory sustainability and the inclusion of student voices in pedagogical planning.

Keywords: Teaching; Laboratories; Scoping review as topic

SGPP number: Not applicate.

CAAE number: Not applicate.

Research funding: This study was supported by *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (CAPES).

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002

Four years of the medical academic olympiad (OMED): an experience report

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Category: Experience Report

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ABSTRACT

Objective: Since the first scientific olympiad held in Brazil in 1979, such competitions have become highly regarded educational practices, particularly within basic education.(1) However, in medical education, despite the growing number of students, these types of national challenges and educational projects have remained scarce, with the scarce existing initiatives up to 2020 focused mainly on specific medical specialties.(2) In light of the educational potential of this model for reinforcing cooperative learning and promoting continuous study, the Medical Academic Olympiad (OMED) was created - an initiative organized by medical students for their peers. The present study aims to describe the experience of developing and implementing a scientific olympiad of general medical knowledge conceived and organized by undergraduates.

Methods: Created in 2020 and first implemented in 2021, the Medical Academic Olympiad (OMED) was conceived as an annual two-phase examination. The first phase, consisting of multiple-choice questions, is conducted in pairs or trios, encouraging peer learning. In the second phase, qualified participants from the top-performing groups compete individually in an exam composed of open-ended, essay-style questions. Both groups and individual participants with the highest performance are awarded. All questions are structured as clinical cases, going beyond theoretical knowledge to stimulate clinical reasoning among students from the 1st to the 12th semester. Thus, OMED provides an opportunity for collective learning, soft-skill development, and enhancement of clinical reasoning. Importantly, the educational impact of OMED also extends to its organizing team. Trained by professors, the student organizers are responsible for fundraising and resource management, publicity, test logistics, and developing exam questions. Each question undergoes a rigorous three-step review process: peer review, evaluation by specialized faculty, and final approval by the event's directors.

Results: Between 2021 and 2024, OMED grew from a 250-participant project based in a single city to a program hosting 2,700 participants across 19 cities in Brazil. This rapid expansion indicates a positive perception of OMED's educational value among medical students nationwide, reflected by a Net Promoter Score (NPS) of 72.5 in its fourth edition. Furthermore, over the four years, the project engaged more than 200 students across Brazil in its organization, providing an opportunity to develop skills often underemphasized in medical education, including project management, question design, teamwork, and leadership.

Conclusion: Between 2021 and 2024, OMED established itself as a significant educational initiative within the context of medical graduation in Brazil, highlighting a potential space for the implementation of similar educational projects.

Keywords: Education, medical; Students, medical; Models, educational

SGPP number: 6170.

CAAE number: 82186124.7.0000.0071.

Research funding: Not applicate.

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003

Academic olympiad as an educational instrument for medical students

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Category: Experience Report

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ABSTRACT

Objective: Scientific Olympiads represent a well-established and widely recognized educational model within Brazilian basic education.(1) However, initiatives aimed at adapting this format to medical education remain limited, both nationally and internationally. In this context, the Academic Medical Olympiad (OMED) was implemented in 2021 — an annual Brazilian competition designed for undergraduate medical students. Organized into two phases, with a test format, the first being conducted in groups and the second individually. Challenging students in general and interdisciplinary medical knowledge, OMED aims to foster active peer learning, clinical reasoning, and motivation for studying. The current research seeks to assess the educational impact of OMED on learning and study motivation according to the participants' perceptions.

Methods: A cross-sectional observational study was conducted following the first phase of OMED's fourth edition in 2024. Participants were recruited to complete a questionnaire after providing informed consent. An adapted version of the *Post-Experimental Intrinsic Motivation Inventory* was used, based on Self-Determination Theory, comprising 11 items across six motivational domains.(2) Responses were measured using a five-point Likert scale (no agreement, slight agreement, moderate agreement, strong agreement, or total agreement), followed by two additional questions assessing participants' motivation to study before and after the test.

Results: Of the 2,723 participants in OMED in 2024, 678 took part in the present study. Among these, 91.1% strongly or totally agreed with finding the experience interesting. Although 78.4% indicated they had made an effort during the test (score 4 or 5), only 10.3% similarly agreed with feeling nervous. At least 93.5% strongly or totally agreed that they felt comfortable taking the group-based test and that this format contributed to their learning process. Furthermore, participants agreed "strongly" or "totally" that the experience supported the acquisition of new knowledge (62.9%), consolidation of prior knowledge (78.1%), identification of individual strengths and weaknesses in multiple disciplines (87.3%), stimulation of clinical reasoning (88.0%), and development of clinical reasoning (82.3%). These findings suggest a student's perception of an important educational value in participating in the Academic Olympiad. Beyond that, the results point to an internalization of academic motivation, which has been strongly linked with improved academic performance.(3) Supporting this hypothesis, while only 39.5% of participants reported feeling "very" or "extremely" motivated to study before OMED, 71.3% stated they felt so after the experience.

Conclusion: The OMED was largely perceived as a positive educational experience that fostered learning, enhanced clinical reasoning, and encouraged ongoing study.

Keywords: Education, medical; Students, medical; Motivation; Learning; Clinical reasoning

SGPP number: 6170.

CAAE number: 82186124.7.0000.0071.

Research funding: Not applicate.

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004

Realistic simulation as a pedagogical strategy for developing soft skills in undergraduate nursing students

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Category: Primary Studies

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ABSTRACT

Objective: To describe the process of developing and validating the content of a realistic simulation scenario designed to develop soft skills, such as communication, decision-making, leadership, and management, in undergraduate nursing students.

Methods: This methodological study was carried out in three stages. The first stage involved a literature review to support the theoretical framework. In the second stage, the scenario was constructed by experts in simulation and nursing education, focusing on realistic clinical situations that required communication, teamwork, and leadership. The third stage involved content validation by expert judges using a four-point Likert scale to assess the relevance, clarity, and adequacy of the scenario. The Content Validity Index (CVI) was calculated, with values ≥0.90 considered acceptable. The study was approved by the Research Ethics Committee.

Results: The developed scenario integrated essential soft skills, including communication, leadership, decision-making, and management, into a clinical context relevant to nursing education. Eighteen expert judges participated in the validation process, with an average CVI of 0.993, indicating excellent agreement among evaluators. The content was considered relevant, clear, and appropriate for the intended educational objectives. A pilot application of the scenario with undergraduate students confirmed its pedagogical feasibility, with a mean score of 4.58 on a 1–5 scale and a Cronbach's alpha of 0.835, indicating high internal consistency and reliability of the evaluation instrument.

Conclusion: Realistic simulation proved to be an effective and feasible pedagogical strategy for constructing and validating a scenario aimed at developing soft skills in nursing undergraduates. This approach fosters active, reflective, and experience-based learning, promoting the formation of professionals who are better prepared to manage complex interpersonal and clinical situations in healthcare practice. The findings reinforce the importance of integrating realistic simulation into nursing curricula to strengthen non-technical competencies essential for patient safety and quality of care.

Keywords: Simulation training; Professional competence; Decision making; Emotional intelligence; Education, nursing

SGPP number: 6056.

CAAE number: 80099824000000071

Research funding: Not applicate.

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Presentation Abstracts

CONTENTS

005

Mental health education: psychoeducational guide for patients undergoing cancer treatment

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Category: Experience Report

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ABSTRACT

Objective: To develop and evaluate a psychoeducational guide for oncology patients, focusing on the promotion of psychological well-being, the reduction of anxiety, and the strengthening of understanding regarding the disease and its treatment.

Methods: The research was approved by the Institutional Review Board (IRB) / Ethics Committee (EC) of the *Hospital Israelita Albert Einstein* Institution under approval number 7,756,876. This is a randomized controlled trial (RCT) with a pre- and post-test design. Participants will be adult women diagnosed with breast cancer who are undergoing treatment at a public hospital in Sorocaba. The intervention group (IG) will receive the psychoeducational guide and four group counseling/guidance sessions, while the control group (CG) will follow the standard treatment. The outcomes will be assessed using the EORTC QLQ-C30 (version 3.0) and FACT-B (version 4) questionnaires. Variables will be analyzed using SPSS 24.0, employing descriptive statistics, paired t and intergroup comparisons ($p<0.05$). Considering a two-tailed α error of 5% and accounting for an expected sample loss rate of 20%, a total of 40 patients, divided into 2 groups, will be required to achieve a statistical power of 80%.

Results: Data collection is currently underway, with a total of 13 participants in the IG and 15 in the CG recruited to date. It is hypothesized that the IG, due to access to the educational material and counseling, will demonstrate significant improvement in mental health indicators, reduction in anxiety and depression symptoms, and higher quality of life compared to the CG.

Conclusion: The psychoeducational guide has the potential to become a practical, educational, and low-cost tool in supporting the oncology patient. Beyond contributing to comprehensive care, it can enhance access to information, strengthen resilience, and increase treatment engagement, thus highlighting health education as an essential pillar in coping with cancer.

Keywords: breast neoplasms; patient education; mental health; health education

SGPP number: 6370.

CAAE number: 85607124.4.0000.0071

Research funding: Not applicate.

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Presentation Abstracts

006

Lifestyle, anxiety and depression in multiprofessional residency

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Category: Experience Report

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ABSTRACT

Objective: Evaluate the lifestyle of residents from multiprofessional residency programs and analyze the association between lifestyle and symptoms of anxiety and depression in this group. Compare the results between first- and second-year residents.

Methods: Cross-sectional, descriptive, and quantitative study. Sixty-six residents from two hospitals (one public and one private) participated. The Beck Anxiety and Depression Inventories and the FANTASTIC Lifestyle questionnaire were applied.[1-3] The study was approved by the Ethics Committees of the participating institutions and the Research Management System (protocol no. 4175-20).

Results: Most participants were female (87.9%), single (66.7%), and without children (83.3%). Nursing was the most represented professional category (36.4%). The majority (84.8%) had a lifestyle classified as good. However, 16.6% presented moderate to severe depressive symptoms, and 45.4% reported moderate or severe anxiety. A statistically significant association was found between lifestyle and symptoms of depression, anxiety, and year of residency, with greater vulnerability to depressive symptoms among nursing professionals.

Conclusion: The observed rates of anxiety and depression reinforce the importance of implementing mental health interventions for residents, especially in the nursing field. A healthy lifestyle appears to contribute to mental health protection, although further studies are needed to explore this hypothesis in depth.

Keywords: Anxiety; Depression; Life style; Mental health; Allied health personnel

SGPP number: 4175.

CAAE number: 39690920.1.0000.0071.

Research funding: Not applicate.

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Presentation Abstracts

CONTENTS

007

Pedagogical strategies for consolidating advanced practice nursing in Brazil: report of a pioneering course

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Category: Experience Report

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ABSTRACT

Objective: To report the experience of developing and implementing a pioneering continuing education course in Advanced Practice Nursing (APN) in Brazil, with emphasis on the pedagogical plan, application of active learning methodologies, and use of simulation-based education.

Methods: This descriptive experience report refers to the course "Advanced Practice Nursing: Concepts, Challenges, and Simulated Practical Experience," delivered in 2024 by the Professional Master's Program in Nursing at the *Faculdade Israelita de Ciências da Saúde Albert Einstein*. The initiative received funding from the Coordination for the Improvement of Higher Education Personnel in partnership with the Federal Nursing Council, aimed at strengthening the nursing workforce in Brazil. The 40-hour program comprised synchronous online sessions (22 hours) and in-person activities (18 hours), incorporating case-based learning, role-play, and high-fidelity simulation.

Results: A total of 620 applications were submitted from across Brazil, and 60 nurses were selected based on at least five years of clinical experience and advanced academic qualifications, representing eleven states. The high demand underscores the growing national interest in APN and the need for structured educational initiatives aligned with international standards for advanced practice roles. The pedagogical plan covered key domains for APN training, including: (i) global APN models; (ii) academic and professional pathways in different countries; (iii) advanced clinical reasoning and therapeutic communication; (iv) comprehensive care across levels of complexity; and (v) evidence-based practice and rational medication use.

The simulation curriculum comprised four integrated scenarios following the continuum of care for a patient with chronic coronary artery disease, progressively advancing in clinical complexity across emergency care, intensive cardiovascular care, inpatient transition planning, and primary care follow-up. The simulations emphasized APN-specific competencies such as risk stratification, clinical decision-making under hemodynamic instability, patient education through teach-back, and care coordination in community settings. Structured debriefing (PEARLS) promoted reflection, diagnostic reasoning, and professional role development. The high level of engagement and the performance observed during immersive activities demonstrate the feasibility and educational value of integrating theory, practice, and simulation to support APN workforce development in Brazil. These findings reinforce global evidence that advanced clinical training

contributes to workforce readiness, expanded scope of practice, and strengthened healthcare access and quality.

Conclusion: The course represented an innovative and unprecedented national initiative, demonstrating the potential of experiential, simulation-based learning to foster advanced clinical competencies in nurses. The experience highlights the strategic role of educational programs in preparing nurses for expanded practice and supports ongoing efforts to consolidate APN as a transformative strategy for the Brazilian health system.

Keywords: Advanced practice nursing; Clinical competence; Simulation training; Education, nursing

SGPP number: Not applicate.

CAAE number: Not applicate.

Research funding: Not applicate.

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Presentation Abstracts

CONTENTS

008

Student engagement and satisfaction with the undergraduate nursing program: preliminary results of a cross-sectional study

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Category: Experience Report

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ABSTRACT

Introduction: Student engagement and satisfaction are fundamental components in promoting meaningful learning and ensuring retention in undergraduate health programs. In the context of nursing education, understanding the factors associated with engagement is particularly relevant.

Objective: Assess the engagement of undergraduate nursing students and examine its correlation with the stage of the course, participation in extracurricular and professional activities, and overall satisfaction with the program.

Methods: A cross-sectional, descriptive, and exploratory quantitative study was conducted at a private higher education institution in the state of São Paulo, Brazil. The population consisted of students enrolled across all eight semesters of the nursing program. Data were collected using a structured questionnaire that included sociodemographic, academic, and professional information, as well as the validated version of the Utrecht Work Engagement Scale (UWES-S). All procedures complied with Resolution 466/2012.

Results: A total of 348 students participated, predominantly women (n=309; 88.8%), with a median age of 21 years (range 17–55), reflecting a young profile. All semesters were represented: 69 (19.8%) students in the 1st semester, 38 (10.9%) in the 2nd, 48 (13.8%) in the 3rd, 35 (10.1%) in the 4th, 42 (12.1%) in the 5th, 42 (12.1%) in the 6th, 44 (12.6%) in the 7th, and 30 (8.6%) in the 8th semester. Regarding extracurricular activities, 103 students (29.6%) reported participation in peer tutoring, 46 (13.2%) in extracurricular internships, and 34 (9.8%) in scientific initiation. Employment was reported by 115 students (33.3%); of these, 89 (25.6%) worked in healthcare settings (as assistants or technicians), and 26 (7.5%) worked in other fields. The median satisfaction score with the course was 9; 96 students rated it 8, 96 rated it 9, and 89 rated it 10, corresponding to 80.2% of the sample with satisfaction ≥8. Association between satisfaction and student engagement. A positive and significant relationship is observed between the variables (B=0.31; β=0.44; $p<0.001$; $R^2=0.19$), indicating that higher levels of satisfaction are associated with greater engagement scores (Figure 1). Preliminary analysis indicated that course progression had the greatest impact on student engagement, with a consistent decline in engagement levels throughout the program.

Conclusion: Preliminary findings suggest that progression through the nursing program is associated with a decrease in student engagement, indicating that the cumulative challenges faced during training may negatively affect students' active involvement and commitment.

Keywords: Student engagement; Extracurricular activities; Student satisfaction; Higher education; Teaching-learning

SGPP number: 6079.

CAAE number: 80837324.6.0000.0071.

Research funding: Not applicate.

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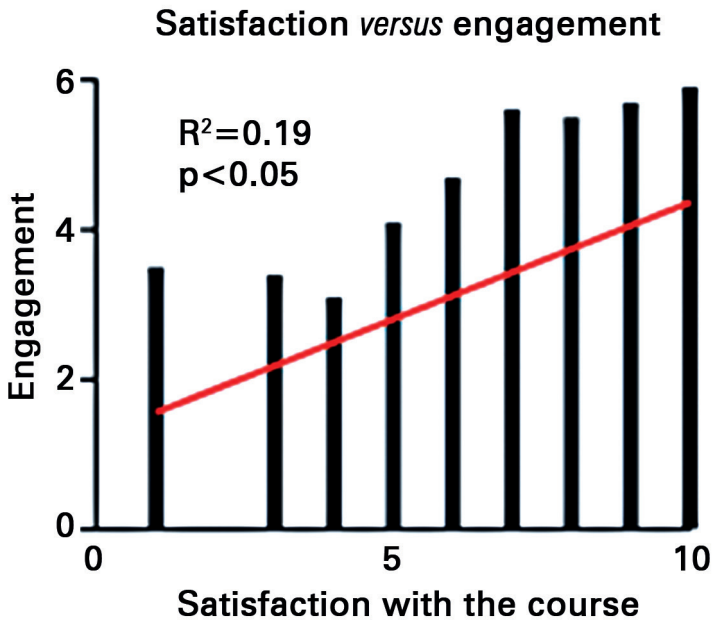

Figure 1. Association between satisfaction and student engagement. A positive and significant relationship is observed between the variables (B=0.31; β=0.44; p<0.001; R^2=0.19), indicating that higher levels of satisfaction are associated with greater engagement scores

Presentation Abstracts

CONTENTS

009

Clinical simulation with the 360º patient platform in nursing education: an experience report

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Category: Experience Report

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ABSTRACT

Objective: to report the experience of using the Patient 360º platform with nursing students from the *Universidade Estadual de Santa Catarina* (UDESC), in the context of teaching the discipline of surgical nursing. This platform provides interactive clinical cases in various specialties, and can be used in face-to-face, remote, offline and autonomous formats. In addition to the virtual simulation, the system offers professors a control panel with data on the number of cases available, specialties covered, views, individual student performance and global user classification.[1]

Methods: This is an experience report carried out in the UDESC computer lab, in May 2025, with nursing students. At the time, a clinical case of surgical nature was selected, accessed by the students through institutional computers. The activity is linked to a macro research project approved by the institution's Research Ethics Committee, which investigates the development of clinical skills in simulated scenarios in the areas of adult and pediatric nursing.

Results: The clinical case involved a patient complaining of severe abdominal pain, nausea, and vomiting, admitted to the emergency room and, after medical evaluation, referred to laparoscopic surgery with a diagnosis of cholelithiasis (Figure 1). The data provided included information on clinical history, personal and family history, lifestyle habits, anesthetic evaluation, and virtual physical examination. Clinical findings included: systemic arterial hypertension controlled with losartan, allergy to metoclopramide hydrochloride, chronic smoking, sedentary lifestyle, occasional alcohol consumption, irregular eating habits, and pain rated at 7/10. Based on this scenario, discussions were held on risk factors for cholelithiasis, preoperative care, and pharmacological and anatomical aspects of the hepatobiliary system. Nursing care, when guided by the stages of the nursing process, promotes safer and more informed clinical decision-making, allowing for evidence-based interventions and systematic reasoning. This process qualifies professional practice, making it more ethical, humanized, and effective.[2] To guide this practice, nurses can use the taxonomy of the North American Nursing Diagnosis Association (NANDA-I), which provides a structured framework for identifying nursing diagnoses, such as acute pain, imbalanced nutrition: less than body requirements, risk of impaired gastrointestinal motility, and risk of impaired surgical recovery.[3] Relevant interventions were also addressed, such as guidance on smoking cessation, preoperative bathing with chlorhexidine, 8-hour fasting, requesting laboratory tests, and signing the informed consent form. At the end, an objective test with five questions was administered; however, only 3 of the 11 students (27.3%) answered correctly the question discussing the concept of contaminated surgery, highlighting the need for theoretical reinforcement.

Conclusion: The 360º patient platform proved to be an effective teaching tool, promoting meaningful learning through realistic simulations. Its interface encourages clinical reasoning and interdisciplinarity. However, a limitation was observed in the alignment between the clinical content presented and the assessment questions proposed by the platform, which may compromise the integration between theory and simulated practice.

Keywords: Cholelithiasis; Simulation training; Nursing assessment; Medical-surgical nursing

SGPP number: Not applicate.

CAAE number: 87702025.1.0000.0118.

Research funding: Not applicate.

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Figure 1. Case of a video laparoscopy with a diagnosis of cholelithiasis containing questions about clinical history and nursing diagnoses

Presentation Abstracts

CONTENTS

010

Active learning methodologies in patient education: role play, teach-back and 5Ts in a nursing workshop

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Category: Experience Report

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ABSTRACT

Objective: To describe an active learning strategy that integrates role play, the Teach-Back method, and the 5Ts communication framework to strengthen nurses' competencies in patient education during a professional workshop.

Methods: An experience report of a practical educational station offered to clinical nurses working in inpatient, ambulatory and oncology settings. The initiative was part of a broader institutional blended learning pathway focused on competency development and alignment with safety culture principles. The asynchronous phase introduced the theoretical basis of structured communication and its impact on risk reduction and continuity of care. The face-to-face session applied active methodologies in three sequential steps: (1) an initial role play of clinical scenarios portraying common communication barriers during patient admission and throughout hospitalization; (2) a structured group discussion using the strategy "What's good, what's bad, what if?" to stimulate critical reflection and identify opportunities to improve communication practices; and (3) collaborative construction of the 5Ts (Triage, Tools, Take Responsibility, Tell Me, Try Again) integrated with Teach-Back, followed by a second dramatization incorporating these tools to demonstrate enhanced communication performance. The educational methodology flow is shown in figure 1. Engagement was monitored through participation rates across the cycle.

Results: Of 993 eligible nurses, 843 (85%) participated while the training cycle was still ongoing, indicating strong engagement (Table 1). Nurses reported that incorporating Teach-Back and the 5Ts made the education process more structured, intentional, and easier to apply, enhancing confidence when verifying patient and family understanding of the information shared. The activity also strengthened teamwork, group collaboration and the practical application of institutional safety strategies. The station achieved a Net Promoter Score of 92, reflecting high satisfaction, relevance to daily practice and immediate applicability of the competencies developed.

Conclusion: The integration of role play, structured group reflection and communication frameworks demonstrated effectiveness in strengthening core nursing competencies for patient education. By providing a safe learning environment that supports experimentation, collaboration and professional autonomy, the methodology promoted knowledge retention and rapid transfer to clinical settings. This initiative reinforces institutional goals for high-reliability performance, supporting safe, high-quality and person-centered care through the enhancement of nurses' communication skills as a key element of patient engagement.

Keywords: Patient education as topic; Education, nursing, continuing; Role playing; Communication; health education

SGPP number: Not applicate.

CAAE number: Not applicate.

Research funding: Not applicate.

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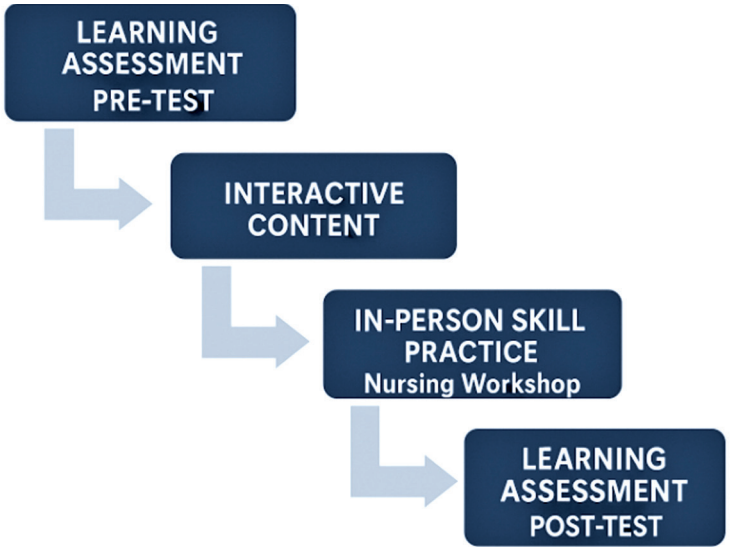

Figure 1. Educational methodology flow

Table 1. Workshop participation and evaluation

Metric	Value	Status
Nurses eligible	993	—
Participants trained	843 (85%)	Ongoing cycle
Net Promoter Score	92	Final

Presentation Abstracts

CONTENTS

011

Development of the personality of the tutor Albert.AI

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Category: New Product Development

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ABSTRACT

Introduction: One of the recurring challenges in distance education (DE) is the limited interaction between teachers and students, which is often compromised by the nature of this modality[1]. In an effort to improve this scenario, a Virtual Tutor was developed, which initially worked only as a response-based chatbot. However, the need to expand its role was soon identified, transforming it into a mediator capable of encouraging students to reflect, question, and actively construct their knowledge — thereby promoting autonomy and study organization,[1] both essential aspects in DE.

Methods: To structure the new personality of the Albert. AI Virtual Tutor, three complementary pedagogical methodologies were adopted: Socratic Method – guiding learning through questions that foster critical reflection, reformulation of ideas, and autonomous knowledge construction;[2] Active Learning – promoting collaborative interactions that stimulate engagement, metacognition, and the reorganization of ideas;[3] and Self-Regulated Learning – encouraging students to make decisions on their learning paths, thus strengthening autonomy, time management, and consistency in their studies.[1,4]

Results: The integration of these methodologies led to the definition of distinctive characteristics for Tutor Albert. AI, who began to act as a reflective and questioning guide. This pedagogical design was subjected to internal testing, resulting in a distinctive dialogue between the Virtual Tutor and participants, potentially enhancing interaction, engagement, and students' active participation.

Conclusion: The enhancement of Albert.AI's personality positions it as a strategic ally in overcoming specific challenges of DE, contributing to learners' autonomy and improving the quality of learning.

Keywords: Virtual tutor; Socratic method; Active learning; Self-regulated learning

SGPP number: Not applicate.

CAAE number: Not applicate.

Research funding: Not applicate.

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012

Gamification in pain management: experience with escape room in nursing workshop

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Category: Experience Report

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ABSTRACT

Objective: To report the experience of applying the active methodology "escape room" as a teaching strategy for pain management during the Nursing Workshop.

Methods: This experience report describes gamified training for nursing assistants and technicians from inpatient, outpatient, and oncology units. The escape room activity was divided into three stages: (1) identification of pain assessment scales through hidden clues and locked boxes; (2) application of the correct scale in a simulated scenario, including communication and electronic health record documentation; and (3) pain reassessment and implementation of non-pharmacological strategies based on individualized acceptable pain levels.

Results: The target audience comprised 2,375 nursing assistants and technicians, of whom 1,044 (44%) had been trained by August, with completion expected by December. Reaction evaluation showed a Net Promoter Score of 90, indicating high satisfaction. Participants reported improved understanding of pain reassessment and documentation, as well as increased confidence in clinical practice. The gamified format promoted engagement, teamwork, and applicability in real care settings.

Conclusion: The escape room methodology proved to be an innovative and effective strategy for teaching pain management, fostering clinical reasoning, structured communication, and accurate documentation. This approach reinforced individualized pain assessment and aligned with institutional principles of quality and safety in nursing care.

Keywords: Active learning; Pain management; Education, nursing; Nursing care; Health education

SGPP number: Not applicate.

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Presentation Abstracts

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013

Advancing health education in the western Amazon: implementation of a competency-based curriculum matrix in Multiprofessional Residency Programs

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Category: Experience Report

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ABSTRACT

Objective: To describe the experience of implementing a competency-based curriculum framework in multiprofessional residency programs within a state located in the Western Amazon region of Brazil.

Methods: This is a descriptive report of the institutional experience in developing and implementing a competency-based matrix for multiprofessional health residency programs in a Brazilian state of the Western Amazon.

Results: Multiprofessional residencies under the State Health Department of Rondônia were launched in 2019, following a collective planning process that culminated in the establishment of the Multiprofessional Residency Commission (COREMU). The first cohort faced the unprecedented challenges of the COVID-19 pandemic, which disrupted initial implementation and required residents to assume a leading role in developing training activities and clinical protocols. Major weaknesses included the lack of experienced preceptors and difficulties in assembling a qualified faculty body, which demanded simultaneous capacity building for both residents and preceptors. In 2023, a curricular revision process was initiated through a series of workshops that defined the graduate profile, as well as the competencies and skills aligned with the health system needs of the Unified Health System (SUS) in Rondônia and with local and regional priorities. The main challenges identified were the heterogeneity of training settings, professional diversity, and communication gaps, which led to uncertainty among residency participants. The development of a competency-based matrix represented a significant pedagogical challenge, particularly in defining measurable and applicable performance indicators and in translating them effectively into practice within healthcare services. The new Political-Pedagogical Project (PPP), incorporating the competency-based matrix, has already been implemented and is currently being disseminated. The next step involves creating assessment instruments based on competencies to enable continuous monitoring of training outcomes. This initiative strengthens the residency programs by introducing evaluation methods grounded in reliability, transparency, and pedagogical coherence.

Conclusion: The adoption of a competency-based matrix (Figure 1) requires collective engagement, clear communication, ongoing professional development, and strong institutional support. It aligns educational processes and assessment methods with the real-world demands of healthcare practice, thereby promoting meaningful and transformative learning. It is recommended that residency programs prioritize participatory processes, pedagogical training for preceptors, and the development of evaluation instruments sensitive to professional specificities and

the needs of the SUS. Such efforts help consolidate the competency-based matrix as a key guiding tool in the training process for health professionals.

Keywords: Competency-based education; Professional competence; Internship and residency

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CAAE number: Not applicate.

Research funding: Not applicate.

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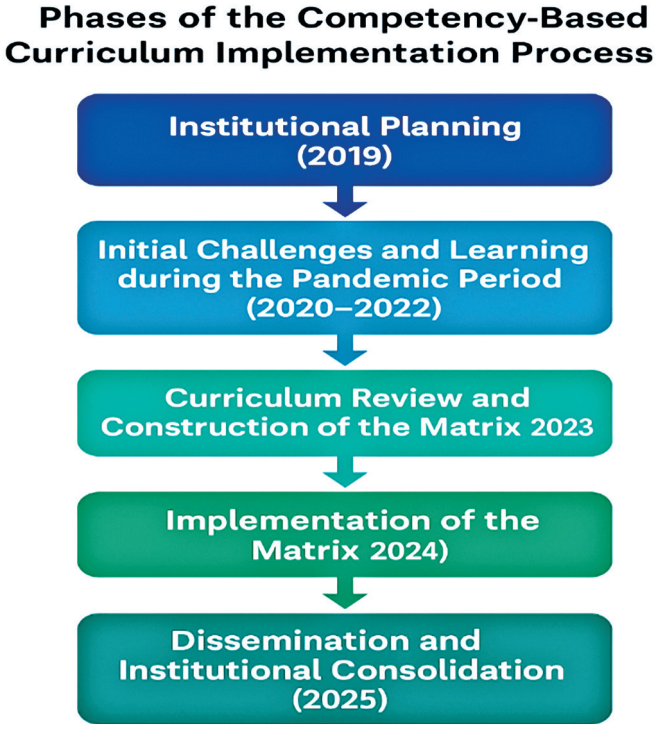

Figure 1. Phases of the Competency-Based Curriculum Implementation Process

Presentation Abstracts

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014

Implementation of a multiprofessional learning journey based on Healthcare Crew Resource Management (HCRM) in primary health care

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Category: Experience Report

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ABSTRACT

Introduction: The Healthcare Crew Resource Management (HCRM) model, originally developed in aviation, has been adapted to healthcare as an effective approach to promote patient safety through the development of non-technical skills such as communication, teamwork, decision-making, situational awareness, and risk management. Evidence indicates that HCRM significantly reduces patient harm and, consequently, improves the quality and safety of care. Although there are experiences reported in hospital settings, no scientific descriptions were found of its application in Primary Health Care (PHC), which gives this project an innovative character.

Objective: To describe the development and structuring process of a multiprofessional learning journey based on the HCRM pillars, designed for PHC within the context of Brazil's Unified Health System and the supplementary healthcare sector.

Methods: The project was part of institutional policies for care quality improvement, focusing on training professionals through the HCRM framework. A multiprofessional committee was formed, composed of representatives from the learning & development department and representatives from public and private healthcare sectors within the institution. This group met weekly over five months to collaboratively define the learning objectives and design formative activities aligned with the reality of PHC. The learning journey was structured in two stages: a preliminary knowledge phase aimed at presenting the HCRM pillars, and a practical, in-person phase focused on behavioral skill training and the use of structured tools. During the in-person session, participants engaged in classroom discussion of an introductory clinical case to revisit previous content and experienced three simulated scenarios: (1) a mental health crisis requiring coordinated multiprofessional action; (2) a team meeting involving a leadership crisis; and (3) an escape room in a critical PHC setting.

Results: The process resulted in an educational product aligned with PHC practice, with an emphasis on developing non-technical skills and using structured tools for communication, situational awareness, risk management, teamwork, and decision-making. The introductory case and simulated scenarios addressed realistic, high-stakes situations commonly faced by PHC multiprofessional teams. These methodologies have the potential to enhance participant engagement and support experiential learning across different professional categories, while fostering the exercise of critical competencies for patient safety and collaborative performance.

Conclusion: The participatory and evidence-based construction of the training enabled the creation of an innovative and applicable tool for PHC. Incorporating HCRM principles into this context broadens the scope of a methodology traditionally used in hospital environments. Focusing on the development of non-technical skills directly addresses leading causes of adverse events reported in the literature, particularly those linked to human factors. Adopting this type of training strengthens an organizational culture oriented toward collaboration and risk prevention. Educational models like this have systemic impact potential, as they promote safe practices and foster the integration of multiprofessional teams.

Keywords: Primary health care; Patient Safety; Patient care team; Quality of health care; Learning; Risk Management; Leadership; National Health Programs

SGPP number: Not applicate.

CAAE number: Not applicate.

Research funding: Not applicate.

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Presentation Abstracts

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015

The 3D SELQuest: a gamified progressive model for developing socio-emotional skills across high school years

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Category: Experience Report

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ABSTRACT

Introduction: The 3D Trail is a gamified journey for developing socio-emotional and technical skills throughout the three years of High School. Inspired by international references from the OECD, the World Economic Forum, Finnish Phenomenon-Based Learning, and North American Service Learning programs, the proposal integrates interdisciplinary missions and social projects for students to evolve from "Apprentices" to "Masters," developing communication, cooperation, critical thinking, and digital literacy. Adapted to the Brazilian reality, the model strengthens student protagonism, the school-community bond, and preparation for the academic, professional, and civic challenges of the 21st century.

Objective: To implement a progressive trail that, in three years, develops eight key competencies per grade level—soft skills in the 1st year, intermediate skills in the 2nd year, and hard skills in the 3rd year—combining gamified challenges, problem-based learning, and community service, with continuous assessment of socio-emotional growth, academic performance, and social impact.

Methods: 1) Trail Architecture: Year 1 – Fundamentals (effective communication, collaboration, adaptability, empathy, time management, emotional self-control, active listening, responsibility); Year 2 – Intermediate Competencies (critical thinking, creativity, problem-solving, negotiation, situational leadership, initiative, basic digital literacy, and agile project management); Year 3 – Hard Skills (data & AI literacy, no-code app design, multimedia storytelling, personal finance, design thinking, social entrepreneurship, digital citizenship, and impact assessment). 2) Biweekly SELQuest Cycle: Narrative Briefing with a contextualized challenge; Sprint Lab for investigation and prototyping; Action Day for a micro-social project linked to the SDGs; Guided Reflection in a digital diary; Showcase & XP with peer feedback and a gamified dashboard. 3) Progression and Badges: each completed competency generates a badge; eight badges complete the annual Tier and unlock more complex missions, culminating in a public Capstone project in the 3rd year. 4) Continuous Monitoring and Feedback: the Dash SEL dashboard integrates mini-SSES, project rubrics, and engagement metrics for real-time pedagogical adjustments. 5) Teacher Training: 20 hours of training in gamification, competency-based assessment, and low/no-code digital tools, with a minimum adherence of 80% of the teaching staff.

Results: Increased skills in communication, cooperation, and self-control (1st year); gains in critical thinking and digital literacy (2nd year); proficiency in data analysis and AI (3rd year); reduction in disciplinary incidents; 120 hours of community service per class; improvement in well-being (WHO-5); portfolios with Open Badges.

Conclusion: The 3D SELQuest Trail demonstrates that the combination of gamification, interdisciplinarity, and social projects, supported by real-time data, constitutes an effective and scalable strategy for cultivating essential competencies for academic, professional, and civic life. By offering a sequence of challenges that evolve from soft skills to hard skills, the program prepares students for the future of work, strengthens the school culture of

purpose and agency, and creates concrete evidence of educational and social impact.

Keywords: Emotional intelligence; Education, secondary; Competency-based education; Gamification; Adolescent development

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Presentation Abstracts

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016

Telesimulation for the development of Socratic Dialogue: design and validation of a cognitive behavioral therapy training program

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Category: Experience Report

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ABSTRACT

Objective: Telesimulation has been recognized as an educational strategy that integrates practical application and critical reflection to develop professional skills. Although widely used in health education, its application in psychology remains limited. This gap is particularly relevant in the context of Cognitive Behavioral Therapy (CBT), where Socratic dialogue, central to guided discovery, faces barriers in the teaching process. Therefore, telesimulation using standardized patients offers a novel approach to a structured and safe teaching of this skill. The objective of this work is twofold. First, to develop a CBT training programme to improve Socratic dialogue skills. Second, to validate the training programme and the knowledge assessment tool.

Methods: This is a methodological study involving a quantitative and qualitative approach divided into two stages. First, the development of a training program using telesimulation with standardized patients and a knowledge assessment tool. The second stage involves validating the training content and tool by expert judges in terms of scope, clarity, relevance, objectivity, and practicality. Five expert judges (doctors in psychology/psychiatry), with at least five years of teaching and/or research experience, participated in the study. Instruments used included sociodemographic and background forms, as well as a 6-point Likert scale content assessment.

Results: The first stage was the "Developing Therapeutic Competence in Socratic Dialogue" training course, which comprised five main components. The training was designed to be delivered in a single online 8-hour session and included prior preparation, pre- and post-assessments, and follow-up. The Systematization Model, based on the 5-part Model,[1] covered the following elements: why, what, structure, response, feedback and reward. The Telesimulation Scenarios involved the application of the Socratic Dialogue[2] method using the standardized patient modality (professional actor) to emphasize safety, fidelity, and repetition.[3] These scenarios consisted of one only clinical case that gradually increased in complexity. The debriefing model was based on the DML model[4] and included reflection on, in, and beyond the action, as well as the Socratic method. Finally, the knowledge instrument, called 'Assessment of DS knowledge in CBT', was developed from a clinical vignette of anxiety, containing six questions: four were objective and two were application questions. In the second stage, content validation by expert judges indicated the need for adjustments in the first round of evaluation. Therefore, a second round was required. The final programme was achieved with 100% agreement and an adequate content validity index[5,6] (IVC=1).

Conclusion: Content validation by expert judges enabled the refinement of the training and knowledge acquisition instrument, ensuring its validity and replicability. Incorporating telesimulation in the teaching of psychology, especially in CBT, alongside

the development of professional skills, represents a significant innovation in clinical training. The programme is now ready for pilot application with the target audience, in the next stage of the study.

Keywords: Health education; Clinical competence; Simulation training; Cognitive behavioral therapy

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Research funding: Not applicate.

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Presentation Abstracts

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017

Interdisciplinary experience in teacher training for higher education: an experience report from the Teaching Improvement Program (TIP-USP)

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Category: Experience Report

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ABSTRACT

Objective: Teaching in contemporary higher education transcends technical-scientific mastery, requiring pedagogical and communication skills to create truly meaningful formative processes.(1) Aware of this need, the *Universidade de São Paulo* (USP) offers the Teaching Improvement Program (TIP), which aims to qualify its graduate students for teaching practice. This paper reports the experience of a pharmacist and a dental surgeon in the "Teaching in Higher Education" course, a fundamental stage of the TIP program that promoted multiprofessional training and reflection on interdisciplinary healthcare. To report the experience in the Pedagogical Preparation discipline of the TIP, focusing on its formative impacts, the teaching-learning methodologies used, and reflections on the importance of interdisciplinary education for training future teachers in the health field.

Methods: The course, taken in 2023, was a space for intense multiprofessional exchange, bringing together graduate students from various health fields, such as Pharmacy, Dentistry, Medicine, and Nursing. The classes were led by professors with extensive experience in education and health, who applied a diverse set of active methodologies to engage students and connect theory with practice.(2) Table 1 details the main strategies used.

Results: The immersive experience in the course generated profound and lasting impacts, fundamentally reshaping the participants' pedagogical perspectives. These transformations can be detailed across three interconnected areas: 1) Enhanced Appreciation for Interdisciplinarity: The multiprofessional classroom environment, which brought together professionals from fields like Pharmacy, Dentistry, and Medicine, was instrumental in breaking down professional silos. Active collaboration in group work and case studies revealed how different clinical perspectives can converge to create a more holistic approach to patient care and, consequently, to health education. This direct interaction fostered a deep appreciation for interdisciplinarity not merely as a concept, but as an essential practice for training future health professionals capable of working effectively in complex team settings.(3) 2) Mastery and Application of Active Methodologies: The course moved beyond theoretical discussion, providing hands-on application of active learning strategies. The use of tools like problem-based learning and flipped classrooms demonstrated how to shift the focus from a teacher-centered model to one centered on the student's active construction of knowledge. Participants learned not just what these methodologies are, but how to implement them to stimulate critical thinking, clinical reasoning, and lifelong learning skills. This appropriation of practical tools provided a concrete framework for designing more engaging and effective learning experiences in their future teaching roles. 3) Redefinition of the Teacher's Identity: The most significant impact was the

fundamental shift in understanding the teacher's role. The experience facilitated a transition from viewing the educator as a mere transmitter of technical content to seeing them as a mediator and facilitator of the learning process. This new identity involves creating safe and collaborative learning environments, guiding students through complex problems, and fostering ethical and reflective practice. This redefinition represents a commitment to not only imparting knowledge but also shaping professionals who are more humane, critical, and prepared for the collaborative demands of modern healthcare.[4] Figure 1 illustrates the structure of the course modules that guided these transformative reflections.

Conclusion: Participating in the "Teaching in Higher Education" course was a transformative experience that strengthened our commitment to a more critical, ethical, and integrated teaching practice in healthcare. The multiprofessional approach and the use of innovative methodologies proved essential for preparing future teachers for the real challenges of higher education. Initiatives like this are fundamental and should be increasingly institutionalized in graduate programs to consolidate interprofessional educational practices and qualify the training of new masters and doctors.

Keywords: Teacher training; Interdisciplinarity; Active methodologies

SGPP number: Not applicate.

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Research funding: Not applicate.

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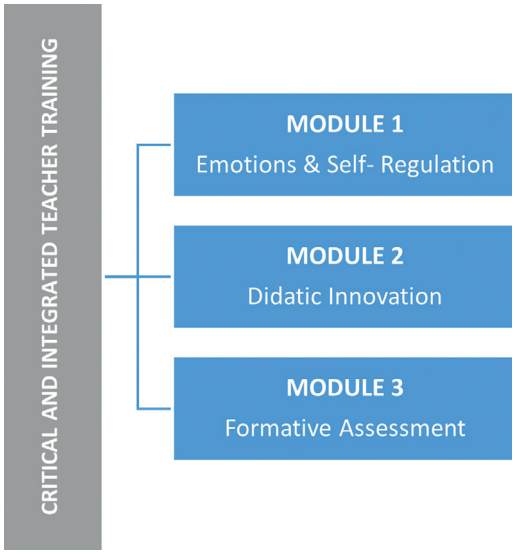
Table 1. Active strategies and methodologies used in the course

Pedagogical strategy	Description of application
Problem-Based Learning	Discussion of real teaching challenges based on complex situations
Case Study	Analysis of clinical cases to develop critical and communication skills
Flipped Classroom	Students' prior preparation to optimize in-class time for discussions and practical activities
Group Work	Use of group dynamics to develop collaborative and reflective skills
Concept Maps	A tool to organize reasoning and visually assess students' understanding
Reflective Portfolio	A record of the learning journey to develop critical thinking about one's own practice



Caption: The chart illustrates the three modules that structured the course: (1) the importance of emotions and self-regulation in the teaching-learning process; (2) planning classes with active methodologies and digital resources; and (3) the application of continuous and formative assessment methods.

Figure 1. Structuring pillars of teacher training in the course

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018

Preceptorship in pediatric clinical pharmacy: in-service teaching as a tool for critical and collaborative training

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Category: Experience Report

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ABSTRACT

Objective: Health education, particularly within multiprofessional residency programs, is a powerful strategy for training professionals with critical clinical thinking, a focus on comprehensive care, and interprofessional collaboration.(1) In this context, the preceptor plays a central role as an in-service educator, guiding residents through real-world clinical challenges.(2) This report describes the experience of preceptorship in Pediatric Clinical Pharmacy at a high-complexity public pediatric hospital in São Paulo, which involved training pharmacy residents from various institutions. The goal of this work is to present reflections and practices developed during the preceptorship in Pediatric Clinical Pharmacy, highlighting the teaching-learning strategies, challenges, and formative impacts on both the residents and the preceptor.

Methods: The preceptorship program employed active learning methodologies at the bedside.(3) These included structured techniques like the one-minute preceptor, in-depth clinical case discussions, structured feedback sessions, and critical analysis of scientific literature. To foster autonomy, asynchronous and reflective activities were also assigned. The training was structured to progressively build skills, starting with foundational knowledge and moving toward independent practice. A summary of the teaching strategies is detailed in table 1.

Results: The preceptorship program served as a powerful catalyst for professional growth, significantly advancing the residents' clinical, ethical, and relational competencies. This development was not merely theoretical but was forged in the dynamic, high-stakes environment of pediatric clinical care. Key improvements were observed in their transition from basic data gathering to sophisticated clinical reasoning, enabling them to critically analyze complex pharmacotherapy, weigh evidence, and justify therapeutic recommendations. Their ability to communicate effectively with the multidisciplinary team also matured, as they learned to translate complex pharmacological data into clear, actionable insights for physicians and nurses.

This growth is best illustrated by specific clinical interventions led by the residents: One notable case involved a resident autonomously managing a critically ill patient in the ICU with necrotizing pneumonia. By applying advanced pharmacokinetic principles to guide a continuous vancomycin infusion, the resident demonstrated a high level of analytical skill and clinical ownership, ensuring optimized, safe, and effective therapy for a high-risk patient; In another instance, a resident proactively identified a gap in care and developed an evidence-based lock therapy protocol using meropenem and heparin for a pediatric nephrology patient. This initiative showcased not only a commitment to evidence-based practice but also leadership in improving patient safety and standardizing care.

Despite these successes, a primary challenge persisted: the inherent tension between the high demands of clinical service and the structured time required for effective teaching. This is a well-documented issue in preceptorship programs,(4) requiring educators to be agile and opportunistic. The program's structure, which provided differentiated immersion periods for first-year

(R1) and second-year (R2) residents as illustrated in figure 1, represented a deliberate attempt to create a scaffolded learning experience to mitigate this challenge and foster progressive autonomy.

Conclusion: Preceptorship in a high-complexity pediatric hospital represents a significant formative and ethical commitment to the public health system. Despite structural challenges, this experience demonstrates that in-service teaching can transform professional trajectories and strengthen a culture of collaborative care. This practice reaffirms pharmaceutical preceptorship as a legitimate and transformative educational space, promoting a more critical, collaborative, and patient-centered approach to pediatric pharmacy.

Keywords: Health education; Preceptorship; Clinical pharmacy

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CAAE number: Not applicate.

Research funding: Not applicate.

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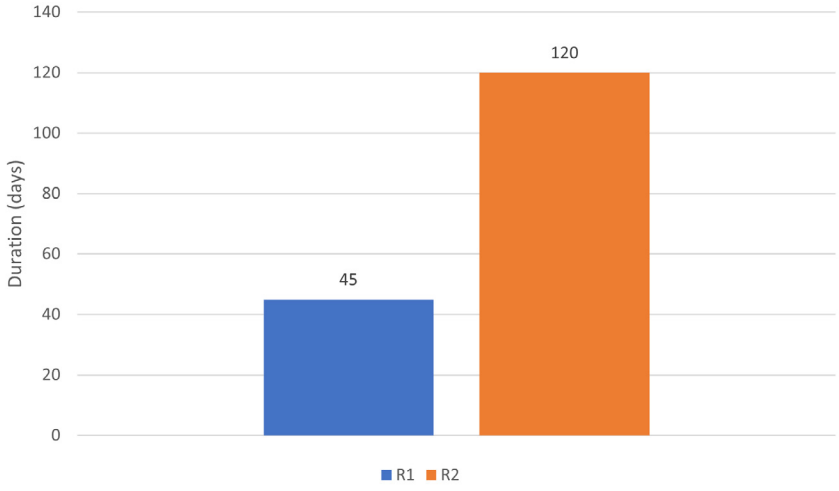
Table 1. Teaching and learning strategies in the preceptorship program

Strategy	Description
Bedside Teaching	Application of active methodologies directly at the point of care to connect theory and practice
One-Minute Preceptor	A brief, structured approach to assess, teach, and provide feedback during clinical encounters
Clinical Case Discussion	Collaborative analysis of complex patient cases to develop clinical reasoning
Critical Literature Analysis	Review and discussion of scientific articles to promote evidence-based practice
Structured Feedback	Use of models like the "sandwich feedback" to provide constructive and balanced evaluations
Progressive Autonomy	Gradual increase in resident responsibility, from observation to leading clinical rounds and making autonomous decisions



Caption: The chart shows the duration of the pediatric clinical pharmacy rotation, with first-year residents (R1) completing a 45-day immersion and second-year residents (R2) completing a 90 to 120-day immersion.

Figure 1. Duration of pediatric immersion for pharmacy residents

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The journal **einstein** (São Paulo) has the following sections: Original Article, Health Economics and Management, Case Report, Reviews, Learning by Images, Letters to the Editor, and Special Articles.

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Original Articles report results of scientific research relevant to medicine and health, including clinical, translational and basic research. The article must be original and unpublished and contain the following items: 1) Structured Abstract (Objective, Methods, Results, Conclusion), 2) Introduction, 3) Methods, 4) Results, 5) Discussion, 6) Conclusion, and 7) References. Original Articles should not exceed 4,500 words, 250-word Abstract, up to 7 figures/

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Articles from journals
Moniz MH, Low LK, Stout MJ. Intensive nurse home visiting program and adverse birth outcomes. JAMA. 2022;328(1):23-4.

Oliveira MM, Andrade KF, Lima GH, Rocha TC. Metformin versus glyburide in treatment and control of gestational diabetes mellitus: a systematic review with meta-analysis. einstein (São Paulo). 2022;20:eRW6155.

Books
Ritchie S. Science fictions: how fraud, bias, negligence, and hype undermine the search for trusth. New York: Metropolitan Books; 2020.

Chapters of books
Josephson CD, Strauss RG. Plasma transfusions. In: Behrman RE, Editor. Nelson textbook of pediatrics. 21st ed. Philadelphia (PA): Elsevier; c2020. p.2585-6.

Works presented in conferences
Rivarola E, Dimuro CA, Scandolo MC, Quintero Florez A. Design of gourmet menus high in fiber for diabetic patients of the French sanatorium: evaluation of the nutritional content, acceptability, organoleptic characteristics and glycemic control. Clinical Nutrition ESPEN. 2021;46:S690. [ESPEN 2021 Virtual Congress; 2021 Sep 9-14].

Thesis
Pinheiro LL. Avaliação da aorta torácica de brasileiros tabagistas por tomografia de tórax de baixa dose: diâmetros e prevalência de aneurismas [tese]. São Paulo: Faculdade Israelita de Ciências da Saúde Albert Einstein; 2021.

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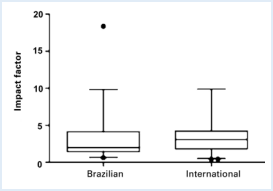
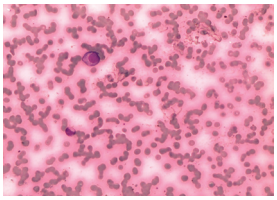
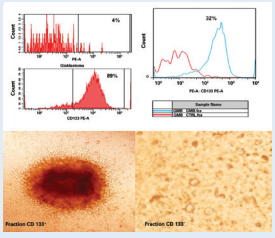
Line art	An image composed of lines and text, which contains no tonal or shaded areas		tif or eps	Monochrome 1 bit or RGB	900 to 1,200 dpi
Halftone	A continuous tone photograph containing no text		tif	RGB or Grayscale	300 dpi
Combo	Image contains halftone plus text or line art elements		tif or eps	RGB or Grayscale	500 to 900 dpi

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