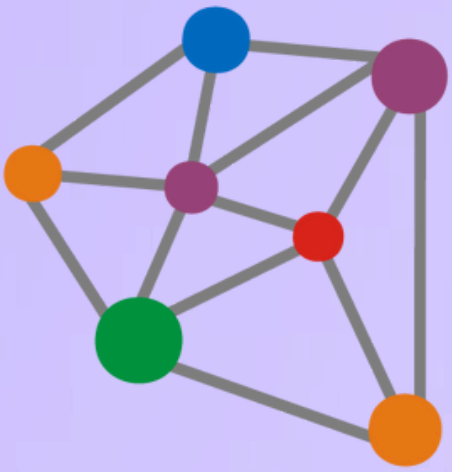

# Simpósio de Intercâmbio Acadêmico 2025

## V Symposium of Academic Exchange

## UFSM

# Proceedings of the

# V Symposium of Academic Exchange

**24, 25 e 26 de novembro de 2025**

Universidade Federal de Santa Maria
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Programa Línguas no Campus

# Proceedings of the V Symposium of Academic Exchange (SAE)

**Organization:**

Carolina Gonçalves Sahym, Larissa Becker Oliveira, Gabriel Salinet Rodrigues, Roséli Gonçalves do Nascimento, Patricia Streppel Hartemink, and Juliana Michelon Ribeiro

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# FOREWORD

The **Symposium of Academic Exchange (SAE)** is conceived as an initiative of Internationalization at Home of the Universidade Federal de Santa Maria (UFSM). We understand the event as an authentic forum for local novice researchers to develop academic literacies in English as an additional language from a glocal perspective, that is, by building skills aimed at international communication while addressing local issues and without leaving the campus. Further, to develop literacies in English, SAE challenges these researchers to build up discursive skills related to popularizing science and, therefore, to communicating scientific knowledge constructed within their groups to peers from other areas, highlighting the extent to which society benefits from the work of public Higher Education institutions such as UFSM.

SAE is organized by the Laboratory of Research and Teaching of Reading and Writing (LabLeR), via Languages in the Campus Program (LINC), and was articulated under the *Internationalization Research Summit* - InteRSummit *2025*, also in collaboration with the International Relations Office (DRI) and the Postgraduation Dean's Office (PRPGP). The fifth edition of SAE indicates its consolidation within the ecosystem of academic conferences and internationalization activities at UFSM. This year we crossed a new milestone, comprising a total of 118 submissions, 100 of which in the Higher Education modality (undergraduate and graduate students from all disciplinary fields) and 18 in the High School modality (from *Colégio Politécnico* and *Colégio Técnico Industrial de Santa Maria*, both affiliated to UFSM). From this total, 111 submissions met the criteria and were accepted. Presentations were distributed in three blocks (the first divided into SAE High School and SAE Higher Education) between November 24 and 26. The Examining and Organizing Committees indicated 18 presentations to be awarded certificates of distinction for their outstanding performance at SAE.

To the best of our knowledge, SAE remains unique in the Brazilian context as a conference that encompasses English as an Additional Language, Science Popularization, Multidisciplinarity, and Multiple academic levels.

# FOREWORD

From these properties, perhaps the most unique relative to similar events is the is that SAE allows for students from different levels of education (High School, Undergraduate and Graduate programs) to have an authentic experience to plan and perform academic texts in English, which gives context to and further rationale for their endeavors in qualifying their proficiency in additional languages. Far from being a formal requisite in scientific practice, developing literacies in additional languages is a need for research practice *per se*, in which researchers are often required to get acquainted with and explore reports and practices from elsewhere, which will probably be available in other languages. New technologies and practices such as the growing adoption of Artificial Intelligence solutions have their importance in assisting communication but they should not be taken as a substitute for the learning of additional languages, which is not only an important means for agency in the academic world but also a civil right.

Additionally, SAE provides pre-service English teachers with a singular opportunity to learn and employ concepts related to English for Academic Purposes and skills related to the organization of conferences, within a controlled environment, that they would probably not be able to in the regular curriculum alone. Every edition the Organizing Committee develops a preparatory course to qualify teachers in initial and continued education for the Examining Committee. In this course, these teachers have the opportunity to discuss aspects related to the assessed genres (abstract and short presentation) but also to the bureaucratic routines of organizing academic conferences that may be sometimes occluded to newcomers. Further to the academic qualification of the involved team, SAE highlights the importance of Language for Academic Purposes specialists in the debate about university internationalization and of language policies for the institution.

As organizers, we sincerely hope that our efforts via SAE have both contributed to the participants' education as internationalized researchers who can also dialogue with the local community and to the awareness of the strategic role of academic literacies and additional languages to overcome the internationalization challenge.

# FOREWORD

To the LabLeR community, our appreciation for all the administrative, logistical, and affective support.

To our external sponsors, our gratitude for believing in this project and assisting in stimulating these novice researchers into accepting the challenge.

To the supervisors and research groups, our acknowledgement for the central role in educating new professionals and researchers.

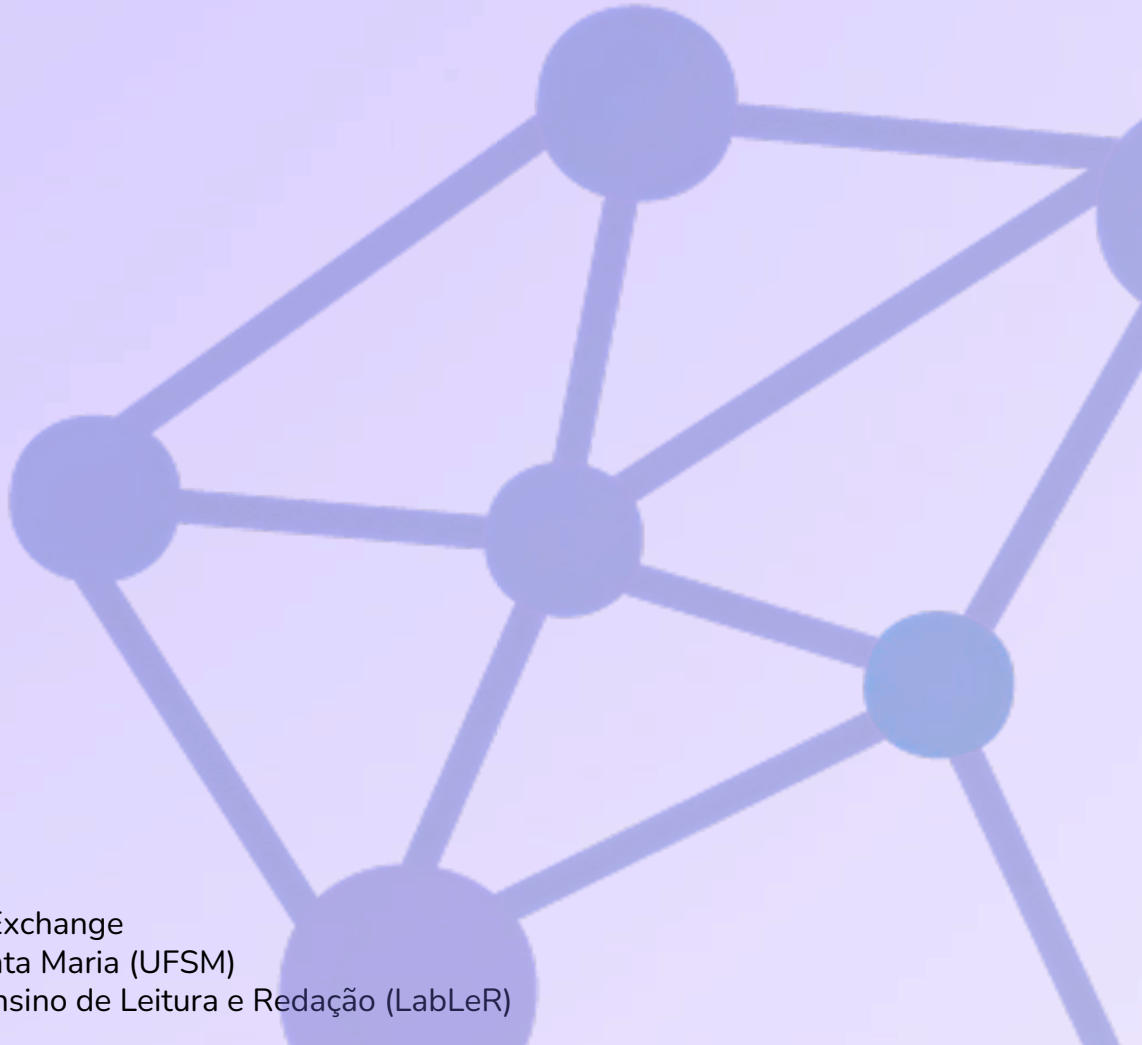
Finally and most importantly, we congratulate all the presenters who undertook the challenge of sharing their research findings in English during the V SAE.

We shall meet again at the InteRSummit 2026 and the VI SAE.

Gabriel Salinet Rodrigues
Roséli Gonçalves do Nascimento
Juliana Michelon Ribeiro
Patricia Streppel Hartemink

# SAE HIGH SCHOOL

SAE High School is aimed at non-Anglophone high-school students from Polytechnic School and Technical Industrial School at UFSM. Young researchers are challenged to present their experiences on reflecting and/or applying key concepts learned within the context of disciplines and projects in English in up to five minutes, in an engaging way, so that it can be understood by wider audiences. The event aims to 1) offer a forum for these students to develop their academic literacies in English, and 2) promote transdisciplinary initiatives.



V Symposium of Academic Exchange
Universidade Federal de Santa Maria (UFSM)
Laboratório de Pesquisa e Ensino de Leitura e Redação (LabLeR)

# IRRIGATION AND FERTIGATION IN CITRUS

Carlos Juchem Cauduro[1], Franciele Antonia Neis[2], Cláudia Letícia de Castro do Amaral[3]

**Abstract**: Citrus cultivation plays a significant role in agricultural production, especially in regions with limited and irregular rainfall. Efficient irrigation practices are essential to ensure sustainable water use, improve productivity, and reduce environmental impact. This study explores four widely used irrigation methods in citrus farming: drip irrigation, micro-sprinkling, conventional sprinkling, and subsurface irrigation. A comparative analysis was conducted based on agronomic performance, water and nutrient distribution efficiency, ease of management, economic viability, and environmental implications. Data were gathered through a literature review focused on current irrigation practices and fertigation techniques. Preliminary findings suggest that modern systems such as drip and micro-sprinkling offer greater water savings and more precise nutrient application, resulting in better fruit quality and reduced losses from leaching. The study aims to support citrus producers in selecting the most appropriate irrigation method for their specific conditions, promoting more sustainable and economically viable farming practices. The results have broader implications for water resource management in agriculture and can inform decision-making processes at both the farm and policy levels.

**Keywords:** Irrigation. Fertigation. Citrus. Sustainability. Productiveness.

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## IRRIGATION AND FERTIGATION IN CITRUS

# THE IMPORTANCE OF SCIENTIFIC OLYMPIADS IN THE BASIC EDUCATION

Cecilia Westphal Rocha[1], Rodrigo Rozado Leal[2], Cláudia Letícia de Castro do Amaral[3]

**Abstract:** The scientific olympiads arose in 1864, in Hungary, with the Mathematics Olympiad (MACIEL, 2008). Since then, they have been popularizing, including in Brazil, with competitions like OBMEP (Olimpíada Brasileira de Matemática das Escolas Públicas), OBF (Olimpíada Brasileira de Física) and ONHB (Olimpíada Nacional de História Brasileira). The objective of this assignment is to highlight the importance of the participation of students in these olympics during elementary and high school. For that, the methodology used is the qualitative analysis of articles. After the study, there were obtained the following results: the scientific olympics seek to identify talents and to encourage students, spreading the science, according to Steegh et al. (2019). Furthermore, they are capable of identifying weaknesses of the education in schools around Brazil, allowing better planning and improvements in those. Therefore, the development and promotion of knowledge competitions from the most diverse areas is essential, increasing the access and arousing the interest in scientific knowledge to basic school students.

**Keywords:** Scientific Olympiads. Education. Brazilian Basic Education.

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# THE IMPORTANCE OF SCIENTIFIC OLYMPIADS IN THE BASIC EDUCATION

THE IMPORTANCE OF SCIENTIFIC OLYMPIADS IN THE BASIC EDUCATION

Encourage students

Identify talents

Spread science

# DEVELOPMENT OF AN INTELLIGENT SELF-WATERING SYSTEM FOR PLANTS

Giordano Ramires de Souza[1], Fernando Guilherme Kaehler Guarda[2], Milene Vânia Kloss[3]

**Abstract:** This project is about the development of an intelligent self-watering system for plants using a microcontroller. The system was designed to address a common problem in our everyday lives: the maintenance of healthy plants, which can be difficult for people who lack time or knowledge, or for those who simply forget to water their plants regularly. By integrating a soil moisture sensor, we can gather data about the plant's needs. The microcontroller processes these data and activates the water pump only when necessary. All the electronics are stored in a 3D-printed base with acrylic windows, where the potted plant stays in the center. During the testing phase, the system was evaluated under various conditions with different types of plants to ensure that the plants could be maintained in a healthy state, avoiding both overwatering and underwatering. It was also concluded that this approach could reduce water waste by only pumping the exact amount the plant requires. Overall, the project demonstrates how the self-watering system can significantly reduce water consumption and help people who struggle to keep their plants healthy. It offers a beneficial solution for households that aim to care for plants while using natural resources efficiently.

**Keywords:** Self watering system. Microcontrollers. Automated Irrigation. Sustainable practices.

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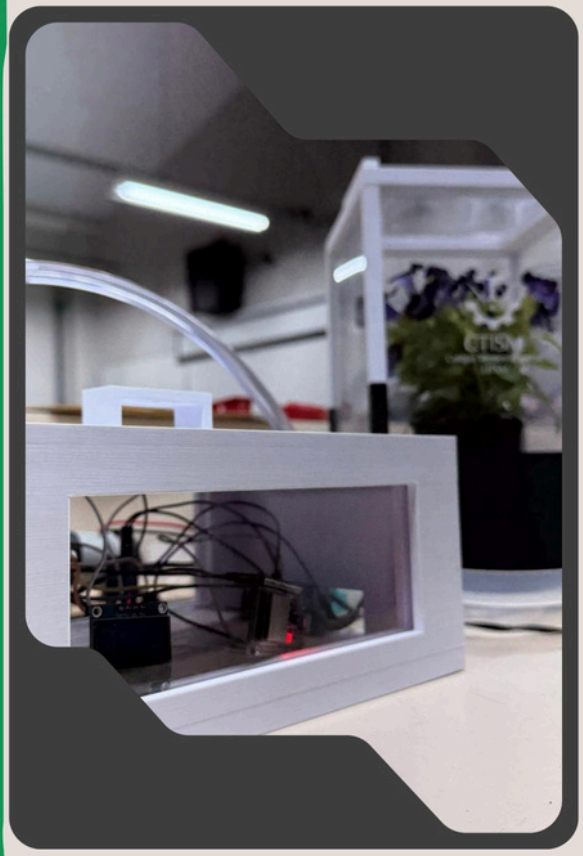
# DEVELOPMENT OF AN INTELLIGENT SELF-WATERING SYSTEM FOR PLANTS

GIORDANO RAMIRES DE SOUZA

UFSM

## DEVELOPMENT OF AN INTELLIGENT SELF-WATERING SYSTEM FOR PLANTS



### PROBLEM

Many people struggle to keep plants healthy due to lack of time, knowledge, or simply forgetting to water them.

### SOLUTION

A microcontroller-based self-watering system that monitors the plant needs and automatically waters it only when necessary.

### HOW IT WORKS

1. Moisture sensor collects real-time soil data
2. Microcontroller processes the information
3. Water pump delivers exact required water

### RESULTS

- Prevents overwatering and underwatering
- Reduces water waste by optimizing consumption
- Keeps the plant healthy

CTISM

# ORAL HISTORY OF THE SOCIOCLIMATE CATASTROPHE OF 2024 AT EMEF SÉRGIO LOPES

Giulia Cirolini Mendonça[1]; Amanda Pretzel Poerschke[2]; Bianca Henke Borges[3], Leonardo da Rocha Botega[4], Cláudia Letícia de Castro do Amaral[5]

**Abstract:** This work documents the impact of the 2024 socioclimate catastrophe on Sérgio Lopes Municipal Elementary School (EMEF Sérgio Lopes) in Santa Maria, Rio Grande do Sul (RS), Brazil. It is part of the *Oral History Project of Those Affected by the Socio-Climate Catastrophe in Rio Grande do Sul*, developed at the Colégio Politécnico of UFSM. The initiative aims to preserve the memories of individuals affected by the historic floods of May 2024 - the most devastating socio-environmental disaster in the state's history. The catastrophe affected 476 municipalities, displacing over 790,000 people and resulting in 172 deaths and 445 missing persons. Santa Maria, in the state's central region, was among the first areas struck. Between April 26 and May 5, rainfall reached 533.3 mm - over three times the monthly average. One of the hardest-hit areas was Vila Renascença, where EMEF Sérgio Lopes is located. To understand the disaster's effects on the school community, interviews were conducted with the principal and vice-principal. Their testimonies reveal how the flood exacerbated pre-existing structural and social vulnerabilities, while also reinforcing community solidarity. The study underscores the multifaceted role schools play in vulnerable communities, particularly during periods of crisis.

**Keywords:** Socioclimate catastrophe. Floods. Community resilience. Oral history. Educational vulnerability.

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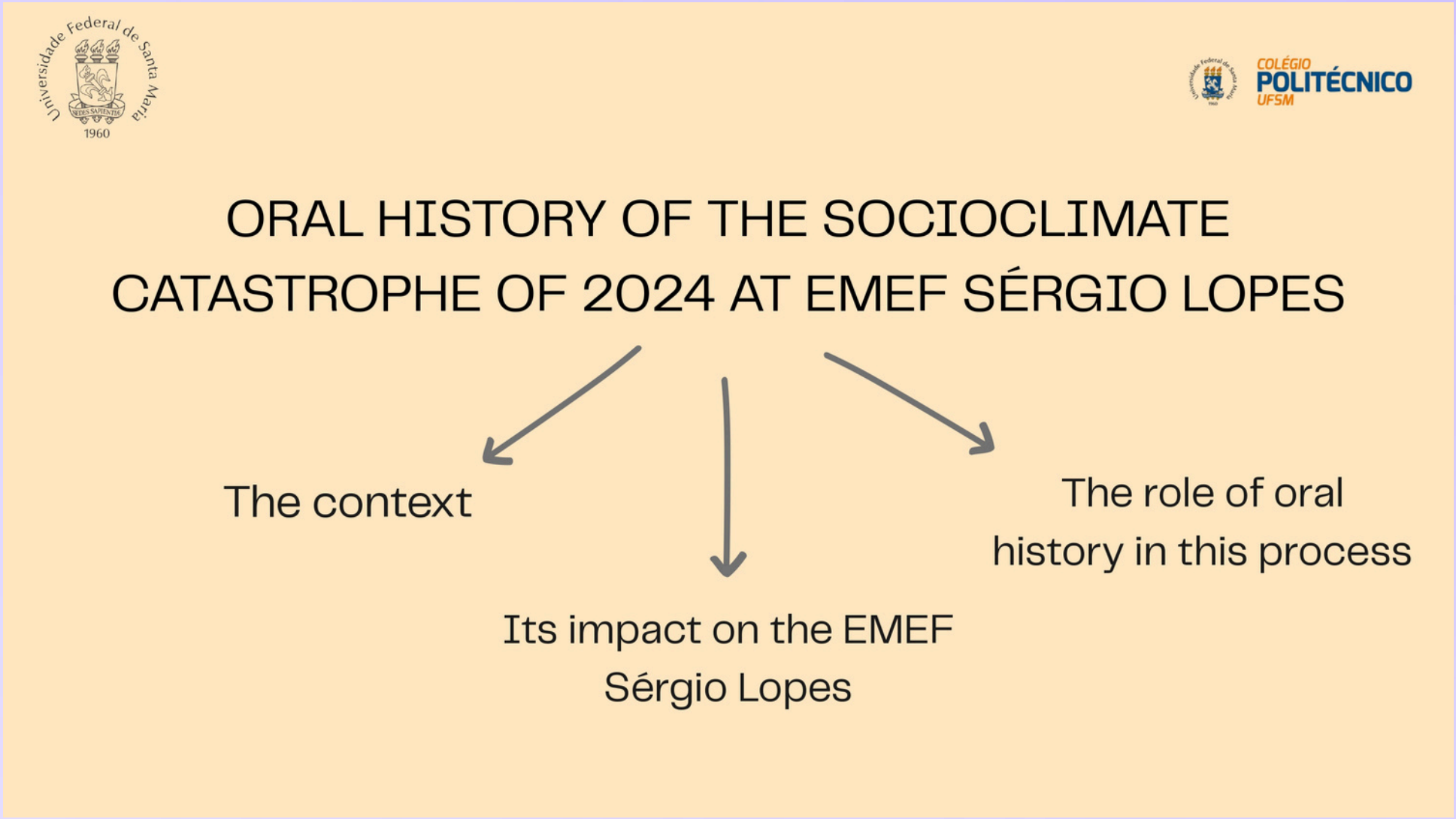
# ORAL HISTORY OF THE SOCIOCLIMATE CATASTROPHE OF 2024 AT EMEF SÉRGIO LOPES



# GENERATIVE AI AS AN ACCESSIBILITY TOOL FOR ADVANCED MATH EDUCATION: SUPPORTING STUDENTS WITH VISION LOSS

Guilherme Kolinski Baccin[1], João Pedro Alves Freitas, Tais Haddad Lemons, Juliana Asevedo Alves[2], Silvana Maldaner[3], Prince Dennis Gokeh[4]

**Abstract:** Teaching advanced math subjects to students who are blind or have low vision is a significant challenge, as mathematics often depends on visual graphs and symbols. Our project explored how Generative Artificial Intelligence (AI) can contribute to developing more accessible teaching methods. The main objective was to make high-level mathematics more inclusive. Our method focused on creating a specific prompt for the AI, instructing it to act as an expert in inclusive education and assistive technologies. We tested prompts with different AIs, observing both theoretical and practical responses. Combining these outputs, we developed an unified, balanced, and effective prompt. The results prove that a well-designed prompt enables AI to generate excellent, adaptable learning materials, including guides for tactile models and content compatible with screen readers. This study highlights Generative AI as a powerful tool for teachers, assisting in the rapid creation of inclusive materials and promoting greater equity for students with visual impairments in STEM fields.

**Keywords:** Generative AI. Inclusive education. Advanced mathematics. Assistive technology. Tactile models.

*Trabalho apoiado pelo edital 003/2025, projeto 062804 CTISM|UFSM*

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# GENERATIVE AI AS AN ACCESSIBILITY TOOL FOR ADVANCED MATH EDUCATION: SUPPORTING STUDENTS WITH VISION LOSS

## GENERATIVE AI AS AN ACCESSIBILITY TOOL FOR ADVANCED MATH EDUCATION

Guilherme Kolinski Baccin

### The Challenge

The visual nature of advanced math creates significant barriers for students with vision loss.

### The Method

We developed a specialized AI prompt to act as an expert in inclusive education and assistive technology.

### The Results

AI generated high-quality materials: tactile model guides & screen-reader-compatible content.

### The Impact

A powerful tool for teachers to rapidly create inclusive materials and promote equity in STEM.

# TRAFFIC AND TECHNOLOGY: OPTIMIZING VEHICULAR FLOW WITH ARTIFICIAL INTELLIGENCE AT THE MARATONA TECH

João Pedro Alves Freitas[1], Guilherme Kolinski Baccin[2], Tais Haddad Lemons[3], Juliana Asevedo Alves[4], Silvana Maldaner[5], Prince Dennis Gokeh[6]

**Abstract:** The increasing challenge of urban density intensifies mobility issues, culminating in chronic congestion that leads to significant economic losses and negative environmental impacts. Current static traffic light systems are at the core of this complex problem. This project, conceived and initiated during Maratona Tech, contextualizes the research within an innovative and technologically advanced solution. The methodology employs the principles of Artificial Intelligence to emulate a virtual traffic engineer capable of making dynamic and adaptive decisions in real-time. The central aspect of this approach lies in prompt engineering, an iterative and continuous process of building and refining detailed instructions for the AI. This enables the artificial intelligence to analyze real-time traffic data, intelligently and efficiently optimizing traffic light cycles. As an expected finding, we project a substantial reduction in vehicle waiting times and fuel consumption, contributing to greater traffic fluidity. This adaptive system not only alleviates congestion but also has direct and beneficial implications for the community by contributing to a cleaner, less stressful, and more sustainable urban environment. It therefore represents a concrete and promising step towards the implementation of Smart City infrastructures.

**Keywords:** Urban Mobility. Artificial Intelligence. Prompt Engineering. Smart Traffic.

*Projeto 062804 CTISM|UFSM*

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# TRAFFIC AND TECHNOLOGY: OPTIMIZING VEHICULAR FLOW WITH ARTIFICIAL INTELLIGENCE AT THE MARATONA TECH

V SYMPOSIUM OF ACADEMIC EXCHANGE 2025

## TRAFFIC AND TECHNOLOGY: OPTIMIZING VEHICULAR FLOW WITH ARTIFICIAL INTELLIGENCE

**At the Maratona Tech**

J.P.A. Freitas, G.K. Baccin, T.H. Lemons, J.A. Alves, S. Maldaner, P.D. Gokeh
Projeto 062804 CTISM | UFSM

### THE CHALLENGE

- **Urban Density:** Rapid population growth intensifies mobility issues in modern cities.
- **Chronic Congestion:** Leads to significant economic losses and negative environmental impacts.
- **The Core Problem:** Current *static traffic light systems* cannot adapt to fluctuating traffic demands.

### METHODOLOGY

**Virtual Traffic Engineer:** AI acts as a dynamic agent capable of real-time decision making.

**Prompt Engineering:** An iterative process of refining instructions to enable the AI to analyze traffic data intelligently.

**Adaptive Cycles:** Optimizing traffic light timing based on live flow rather than fixed timers.

### IMPACT

- **Efficiency:** Substantial reduction in vehicle waiting times.
- **Sustainability:** Lower fuel consumption contributing to a cleaner environment.
- **Smart City:** A concrete step towards intelligent urban infrastructure.

> "Contributing to a cleaner, less stressful, and more sustainable urban environment."

https://www.softlabsgroup.com/ai-solutions/wp-content/uploads/2025/05/Mumbai-Dawn-Traffic-with-AI.jpeg Source: www.softlabsgroup.com

# URBAN ART IN SANTA MARIA: PERCEPTION AND IMPACT ON DAILY LIFE

Julio Pauleski Haselein[1], Matheus da Luz[2], Renato Coutinho[3], Cláudia Letícia de Castro do Amaral[4]

**Abstract:** Urban art in Brazil, displayed on walls, squares, and buildings, has become a powerful form of socio-cultural expression since the 1970s. This study investigates how high school students from Colégio Politécnico at UFSM perceive urban art in their daily lives, focusing on graffiti and tagging, their social and cultural impacts, and the influence of public policies and educational institutions. A structured questionnaire was applied, including both open-ended and closed-ended questions addressing themes such as whether graffiti is viewed as art or vandalism, appreciation of public art spaces, reactions to political messages, and expectations toward local government actions. Results reveal that most students recognize urban art as a legitimate artistic practice capable of improving the city's environment and fostering community identity. Participants also emphasized the importance of promoting mural spaces and school-based projects. These findings highlight the relevance of urban art in enhancing sociability, education, and cultural diversity in Santa Maria, reinforcing the need for policies that support artistic expression while respecting public space.

**Keywords:** Urban art. Graffiti. Cultural identity. Public policy. Education.

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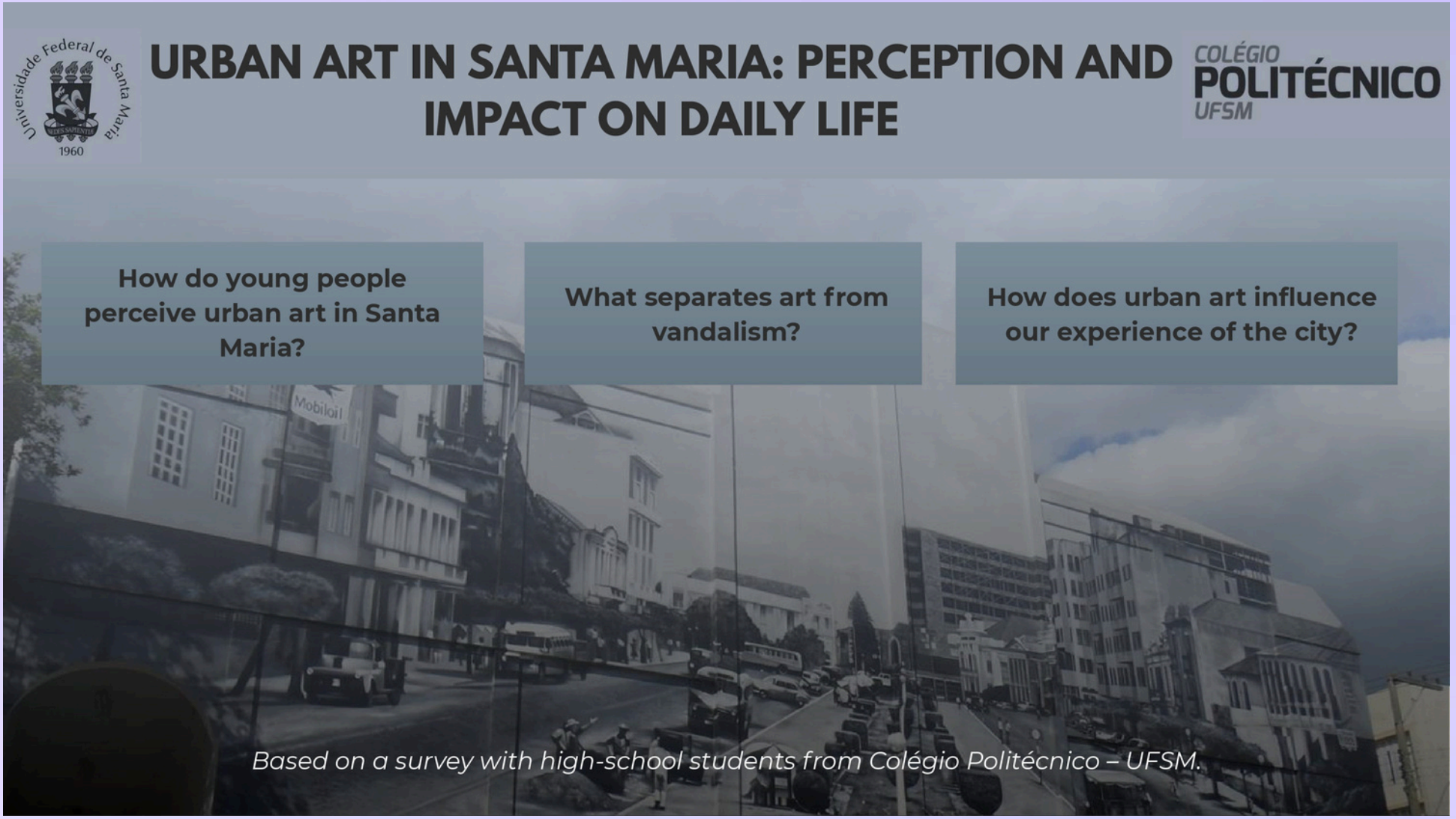
# SAE HIGH SCHOOL

## URBAN ART IN SANTA MARIA: PERCEPTION AND IMPACT ON DAILY LIFE



# POPULAR KNOWLEDGE OF MEDICINAL PLANTS AND THEIR USAGE HABITS

Leonam P. de Castro Cruz[1], Angelina M. da Silva[2], Pedro B. T. Lopes[3], Renato Xavier Coutinho[4], Cláudia Letícia de Castro do Amaral[5]

**Abstract:** This study focuses on the popular knowledge and usage habits related to three species of medicinal plants widely used in Brazil: Guaco (Mikania glomerata Spreng), Lemon Balm (Melissa officinalis L.), and Oregano (Origanum vulgare L.). While the use of plants in folk medicine is a historical practice, the contemporary inappropriate substitution of traditional medicine with herbal remedies is a growing concern. This project aims to disseminate scientific knowledge, raise awareness about the correct uses and mechanisms of action of these plants, and prevent their ineffective or dangerous consumption, with a specific emphasis on their preparation as infusion teas. The methodology combined a comprehensive bibliographic review of scientific articles on the chemical, biological, and botanical properties of the plants, with an analysis of popular use and a local survey to measure the population's understanding. The results identified a significant gap between public recognition and accurate knowledge. A notable portion (58% for Guaco, 71% for Lemon Balm, 98.4% for Oregano) of the population knows the plants; however, most respondents could not correctly identify their primary medicinal use and effects. This finding underscores the urgent need for effective dissemination of scientific information about these species.

**Keywords:** Medicinal Plants. Popular Knowledge. Guaco. Lemon Balm. Oregano.

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# POPULAR KNOWLEDGE OF MEDICINAL PLANTS AND THEIR USAGE HABITS

## POPULAR KNOWLEDGE OF MEDICINAL PLANTS AND THEIR USAGE HABITS

Leonam Parode de Castro Cruz, Angelina Mazuim da Silva, Pedro Bertoldo Thies Lopes.

### Guaco (*Mikania glomerata*)

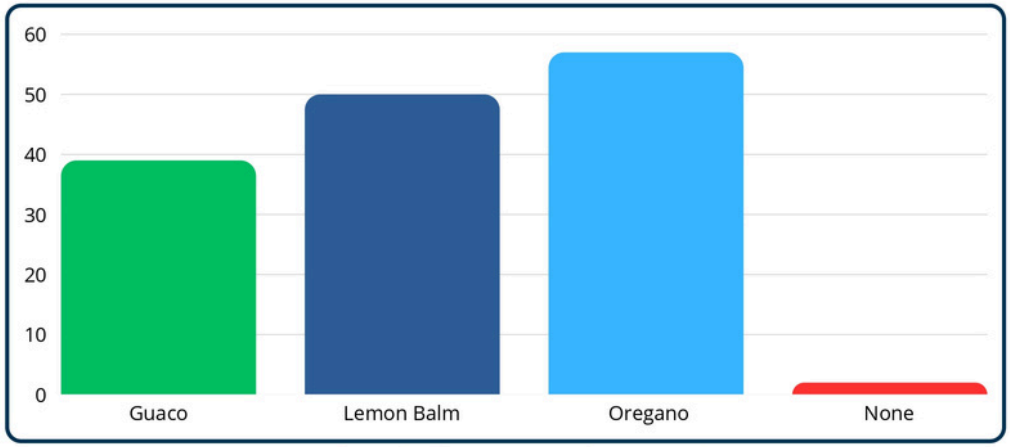
Effective against flus and airway-related allergies, with a bronchodilator and antitussive action.

### Lemon Balm (*Melissa officinalis*)

Effective in the treatment of Alzheimer's Disease, and has an anti-inflammatory and antioxidant action.

### Oregano (*Origanum vulgare*)

Effective in the treatment of asthma, diphtheria and airway-related diseases, and has an antibiotic action.




### Methodology and Results

A notable portion (58% for Guaco, 71% for Lemon Balm, 98.4% for Oregano) of the population knows the plants, however, most respondents could not correctly identify their primary medicinal use and effects. This finding underscores the urgent need for effective dissemination of scientific information about these species.

# THE INFLUENCE OF PHYSICAL ACTIVITY PRACTICE ON QUALITY OF LIFE AND MENTAL HEALTH

Luca Marchi Rodrigues[1], Renato Xavier Coutinho[2], Cláudia Letícia de Castro do Amaral[3]

**Abstract:** The practice of physical activity on a regular basis is widely recognised as an effective means of promoting physical and mental health. This study aims to investigate the impacts of physical activity under an interdisciplinary approach, analysing the nature and extent of its effects on mood, self-esteem, self-image, mental health, and quality of life as a whole. Data collection was conducted via an online survey administered to two groups: one consisting of individuals who engage in regular physical activity (41 respondents, 13 questions); and another consisting of individuals who do not (11 respondents, 9 questions). The collected data include information regarding emotional state, anxiety, and depression symptoms, energy levels, motivation, and body image perception. The results indicated that those who engage in regular physical activity report better mood levels, fewer depressive symptoms, and higher energy levels and overall motivation compared to those who do not exercise regularly. These findings reinforce the relevance of physical activity as an effective tool for overall well-being, going beyond physical benefits, and also promoting emotional and mental care. The study strengthens knowledge about the role of physical exercise on the life of people and its potential usage as a complementary strategy for promoting mental health.

**Keywords:** Physical activity. Mental health. Self-esteem. Mood. Quality of life.

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# THE INFLUENCE OF PHYSICAL ACTIVITY PRACTICE ON QUALITY OF LIFE AND MENTAL HEALTH

## THE INFLUENCE OF PHYSICAL ACTIVITY PRACTICE ON QUALITY OF LIFE AND MENTAL HEALTH

Presenter: Luca Marchi Rodrigues
Supervisors: Renato Xavier Coutinho, Cláudia Letícia de Castro do Amaral

The practice of physical activity on a regular basis is widely recognised as an effective means of promoting physical health, but its impacts on mental health and well-being are not mentioned as often. This study aims to investigate and highlight the impacts of physical activity under an interdisciplinary approach, analysing the nature and extent of its effects on mood, self-esteem, self-image, mental health and quality of life as a whole.

The mains objectives of this study were:

- Verify the existence of a relationship between physical exercise and self-perceived mental health, self-esteem, and daily disposition.
- Demonstrate that physical exercise is a valid form of mitigating or preventing mental health issues;
- Compare prevalence of anxiety and depression symptoms and levels of self-esteem and self-image between sedentary individuals and physically active individuals;

Data collection was conducted via an online survey administered to two groups: one consisting of individuals who engage in regular physical activity (41 respondents, 13 questions); and another consisting of individuals who do not (11 respondents, 9 questions). The collected data include information regarding emotional state, anxiety and depression symptoms, energy levels, motivation, and body image perception. The average age of those surveyed was approximately 22.2 years old.

Simpósio de Intercâmbio Acadêmico
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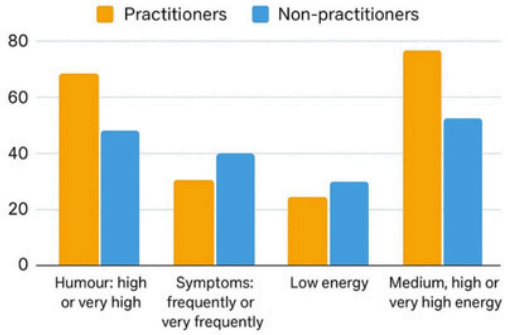
### RESULTS




When comparing the responses obtained from both groups, the main takeaways are:

- Practitioners consistently reported higher humor levels, while non-practitioners tended to stay more neutral;
- Self-reported stress and overload were higher amongst practitioners, possibly due to the lower time disposal associated with incorporating exercise into one's routine;
- Lower incidence of anxiety and depression symptoms amongst practitioners;
- Practitioners report higher energy and daily motivation, with lower levels significantly less frequent than in the non-practitioner group;
- Practitioners predominantly reported higher-than-average humour imediatly after a training session, showcasing that physical activity has a positive effect on short-term mood.

The results obtained in this study allow us to conclude that regular practice of physical activities exerts a significant positive influence on one's mental health, self-esteem, and overall quality of life. Comparing the data obtained between practitioners and non-practitioners highlights the existence of differences in humour and mood, energy and motivation, and the occurrence of symptoms anxiety and depression, confirming that physical exercise can be used as a valid and effective tool not only for physical strengthening, but also for the promotion of mental and psychological well-being.

# THE INFLUENCE OF PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOR ON THE LIFESTYLE OF OLDER ADULTS

Luiza Sofia Zanon Hepp[1], Felipe Lavarda de Andrade[2], Sofia Abitante Swarowsky[3], Renato Xavier Coutinho[4], Cláudia Letícia de Castro do Amaral[5]

**Abstract:** Lifestyle refers to a set of habitual behaviors that reflect individuals' values and directly influence health outcomes. Among older adults, sedentary behavior — characterized by insufficient physical activity — is associated with an increased risk of chronic diseases and reduced autonomy. This study aims to evaluate how regular physical activity impacts quality of life in elderly populations. A quantitative survey was conducted using the Lifestyle Profile Questionnaire from the book Physical Activity, Health and Quality of Life by Markus Vinicius Nahas, adapted into an online format. Data were collected from individuals aged 60 to 80 years, assessing physical, mental, and social health indicators. Results revealed significant differences between active (79%) and inactive (21%) participants. Active individuals reported higher levels of good mood (73% vs. 11%), social satisfaction (82% vs. 44%), self-care practices (94% vs. 67%), healthy eating (73% vs. 33%), and work–leisure balance (82% vs. 33%). The findings highlight the positive impact of regular physical activity on the physical, emotional, and social dimensions of aging, emphasizing its role in promoting health and well-being among older adults.

**Keywords:** Physical activity. Aging. Sedentary behavior. Lifestyle. Health promotion

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# SAE HIGH SCHOOL

## THE INFLUENCE OF PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOR ON THE LIFESTYLE OF OLDER ADULTS

COLÉGIO POLITÉCNICO UFSM

Universidade Federal de Santa Maria 1960

***THE INFLUENCE OF PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOR ON THE LIFESTYLE OF OLDER ADULTS***

**Why is physical activity important for older adults?**

**What percentage of older adults practice physical activity?**


**How does regular exercise positively affect their health and lifestyle?**

# MONITORING OF HYDROLOGICAL RISK AREAS: USE OF DRONES TO ASSIST THE POPULATION IN EMERGENCY SITUATIONS

Muriel Avila de Oliveira[1], Pedro Dalcin Flores[2], Renato Chavier Coutinho[3], Cláudia Letícia de Castro do Amaral[4]

**Abstract:** Monitoring hydrological risk areas has become an urgent necessity in many regions of Brazil, given the increasing frequency and intensity of extreme weather events such as floods and inundations. These phenomena are associated with climate change, rapid urban expansion, and the irregular occupation of environmentally sensitive areas like riverbanks and hillsides. The city of Santa Maria, located in central Rio Grande do Sul, presents urban and geographical characteristics that make it especially vulnerable to such disasters. Several neighborhoods have already suffered from recurrent flooding, which highlights the need for detailed studies and preventive measures. This project is divided into two phases. In the first, interviews with meteorology experts confirmed the feasibility and efficiency of using drones for monitoring and early warning of hydrological disasters. In the second phase, images captured by drones will be analyzed to map and classify risk areas. The main objective is to propose drones as a practical tool for disaster prevention and early alert systems in hydrological risk zones. This technology can identify vulnerable regions and detect irregular constructions. The data collected will be shared with local authorities and Civil Defense to guide evacuation plans and strengthen a culture of prevention and resilience.

**Keywords:** Drone. Hydrological. Floods. Inundations.

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# SAE HIGH SCHOOL

## MONITORING OF HYDROLOGICAL RISK AREAS: USE OF DRONES TO ASSIST THE POPULATION IN EMERGENCY SITUATIONS

# RAPID DIAGNOSTIC TESTS FOR STIs: A KEY STRATEGY TO YOUNG ADULT'S HEALTH

Sofia Abitante Swarowsky[1], Laís Mara Caetano da Silva Corcini[2], Cláudia Letícia de Castro do Amaral[3]

**Abstract:** Sexually Transmitted Infections (STIs) pose a global public health challenge, with a high incidence among young adults in Brazil. Prevention through health education remains a key strategy in reducing new cases. In this context, rapid diagnostic tests (RDTs) stand out as an efficient tool, delivering results within 30 minutes and requiring no complex infrastructure. This study, based on a literature review of scientific articles and governmental documents, identifies key challenges in STI testing and examines its role in early diagnosis and timely intervention. According to the Brazilian Ministry of Health (2023), 37.1% of newly diagnosed HIV cases occur among individuals aged 20 to 29, confirming this group as the most affected. Even when tests are non-reactive, RDTs facilitate access to information on serological status, transmission routes, symptoms, and health risks, thereby supporting both individual and collective prevention efforts. Rapid diagnostic tests play a strategic role in identifying vulnerable groups, raising awareness, and disrupting transmission chains. Despite ongoing awareness campaigns, the persistent vulnerability of young people highlights the need to expand access to testing. RDT thus consolidate their role as a crucial tool for STI screening, prevention, and control, especially among youth.

**Keywords:** Sexually Transmitted Infections (STIs). Rapid Diagnostic Tests (RDTs). Young Adults / Youth. Public Health.

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# RAPID DIAGNOSTIC TESTS FOR STIS: A KEY STRATEGY TO YOUNG ADULT'S HEALTH.

# TEACHING THE MACHINE TO THINK: A METHODOLOGICAL JOURNEY WITH PROMPTS

Tais Haddad Lemons[1], Guilherme Kolinski Baccin[2], João Pedro Alves Freitas[3], Juliana Asevedo Alves[4], Silvana Maldaner[5], Prince Dennis Gokeh[6]

**Abstract:** The project addresses the inefficiency of traffic lights, a common problem in urban centers, through an innovative methodology focused on continuous dialogue with Artificial Intelligence. The success of our solution lies in the ability to "teach" the AI to act as an urban mobility specialist, adapting to real-time traffic dynamics, rather than relying on traditional programming. The development process was an iterative journey of prompt refinement, starting with generic instructions that resulted in vague responses. Evolution occurred by adding layers of complexity: first, by assigning a specific role to the AI, such as a "traffic engineer," which elevated the technical quality of the responses. Next, we enriched the context with real-world variables, such as vehicle flow and pedestrian presence, making the plans more realistic. Finally, we adopted iteration, asking the AI to revise its own plans based on new contingencies. This succession of tests and adjustments was the key methodology for transforming an abstract idea into a practical and intelligent traffic management plan.

**Keywords:** Prompt Engineering. Research Methodology. Applied Artificial Intelligence. Iterative Learning.

*Projeto 062804 CTISM|UFSM*

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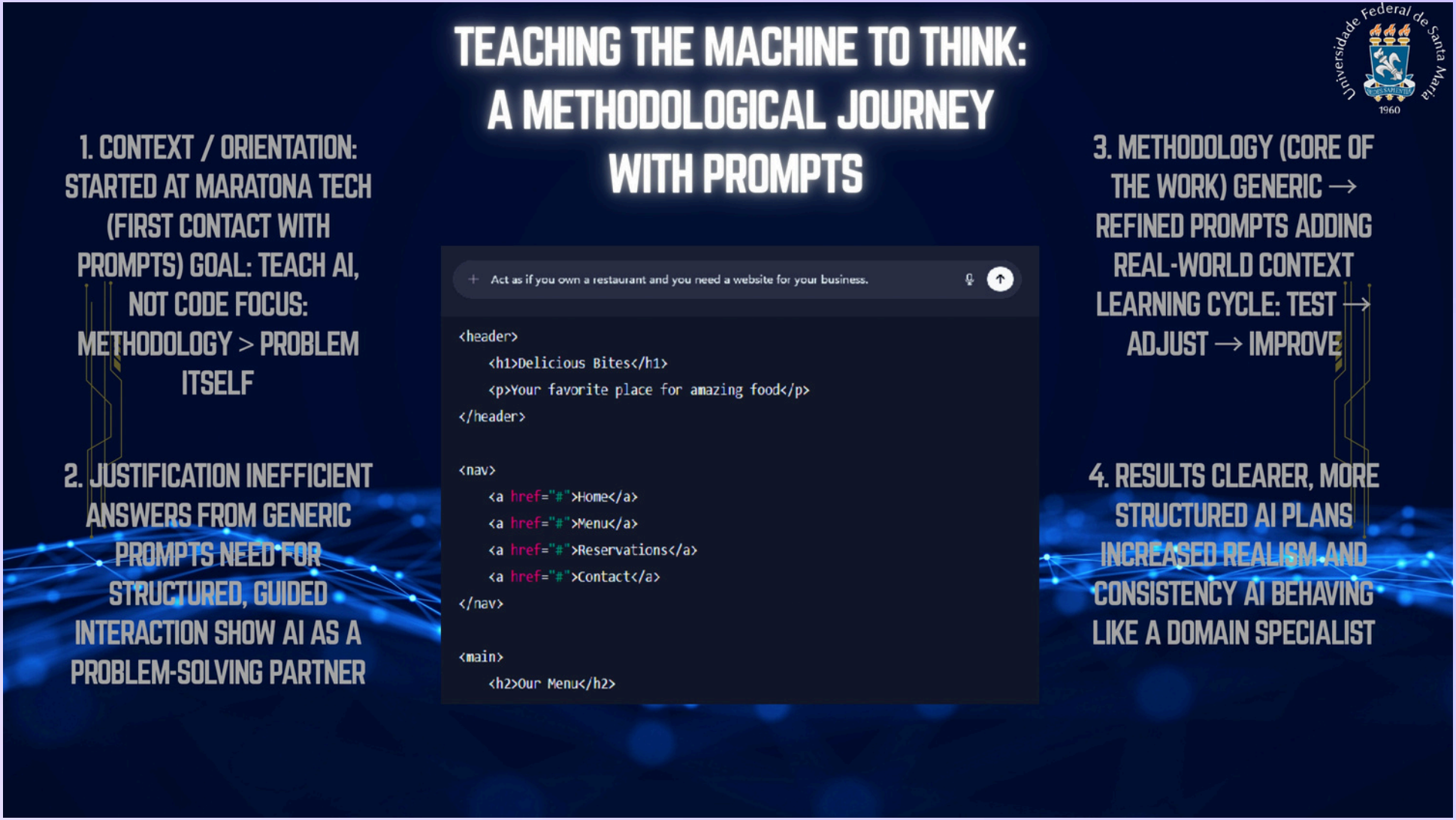
# TEACHING THE MACHINE TO THINK: A METHODOLOGICAL JOURNEY WITH PROMPTS



# THE ABSORPTION OF INFORMATION THROUGH DIFFERENT LEARNING MEDIA: AN ANALYSIS BASED ON COGNITIVE LOAD THEORY

Ynará Rodrigues Moreira[1], Carol Wegner da Silva[2], Guilherme Jesus Dias Walter[3], Renato Xavier Coutinho[4], Cláudia Letícia de Castro do Amaral[5]

**Abstract:** This project, conducted by high school students, investigates the effectiveness of text and video for learning, using Cognitive Load Theory as a foundation. Through a review of recent scientific literature, we analyzed how each medium impacts information absorption. Our findings indicate that neither text nor video is universally superior. Text proves more effective for retaining factual details and understanding complex concepts. In contrast, video is better suited for teaching step-by-step procedures and motor skills. We also verified that the proper combination of multimedia elements can reduce cognitive overload and improve learning. Key factors such as the learner's prior knowledge and the pace of information significantly influence which medium is most effective. We conclude that the choice of learning medium should be strategic, considering the subject matter and the student's profile. This study provides a theoretical basis for more effective educational practices and highlights the importance of a critical approach to selecting learning resources.

**Keywords:** Cognitive Load Theory. Learning Media. Multimedia Learning.

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# SAE HIGH SCHOOL

## THE ABSORPTION OF INFORMATION THROUGH DIFFERENT LEARNING MEDIA: AN ANALYSIS BASED ON COGNITIVE LOAD THEORY

### ABSORPTION THROUGH DIFFERENT LEARNING MEDIA: AN ANALYSIS BASED ON COGNITIVE LOAD THEORY

Ynará Rodrigues Moreira, Carol Wegner, Guilherme Jesus

There are different ways of learning, such as texts and videos. In this scenario, understanding how these media influence information absorption is essential for more effective pedagogical practices.

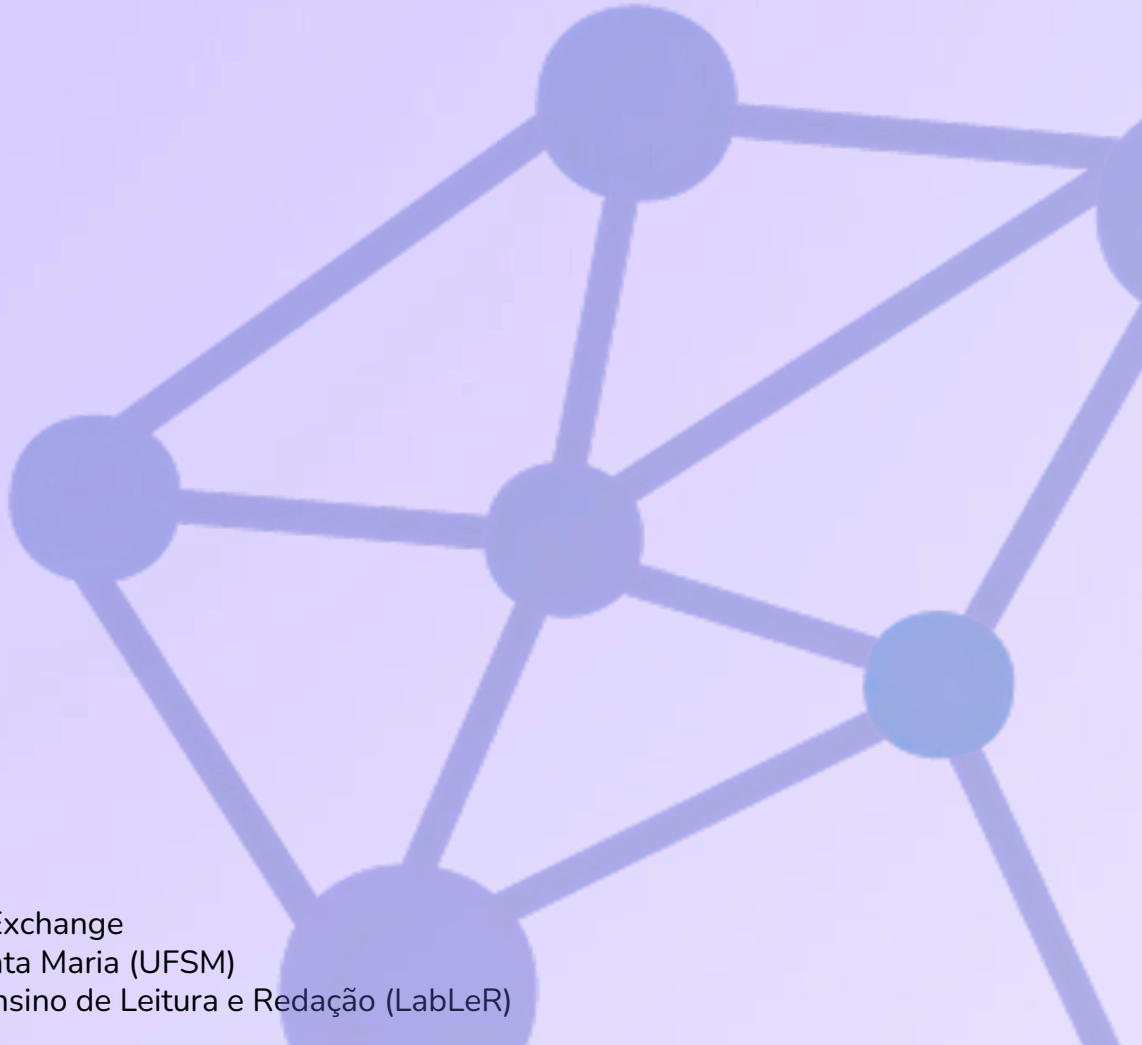
This abstract aims to systematize and critically analyze recent scientific literature on the effectiveness of different learning media—text and video—in information absorption, based on the principles of Cognitive Load Theory.

Source selection was performed by searching academic databases (such as Scopus, Web of Science, and Google Scholar), using the descriptors "cognitive load theory," "multimedia learning," "text vs. video learning".

Text is more effective for factual information and complex concepts, while video is better for procedures and motor skills. Proper multimedia integration reduces cognitive load, and factors like prior knowledge influence effectiveness. The choice should consider content and learner profile.

# SAE
# HIGHER EDUCATION

SAE Higher Education is aimed at non-Anglophone undergraduate and graduate students from UFSM. Novice researchers are challenged to present their works (conducted within research projects in their field of study) in English, in up to five minutes, in an engaging way, so that it can be understood by a non-specialist academic audience. The event aims to 1) foster academic literacies in English; and 2) develop novice scientists' ability to present their research to multidisciplinary audiences, highlighting the potential impact for the community.



V Symposium of Academic Exchange
Universidade Federal de Santa Maria (UFSM)
Laboratório de Pesquisa e Ensino de Leitura e Redação (LabLeR)

# PODCASTS AS EMERGING TOOLS FOR SCIENTIFIC DISSEMINATION: A CASE STUDY OF THE LACCOG GROUP IN 2025

Alana Goettems de Almeida[1], Genara Jardim Mello[2], Clarissa Tochetto de Oliveira[3]

**Abstract:** This study explores the creation and implementation of the LACCog Podcast, an outreach initiative developed by the Laboratory of Cognitive Assessment and Clinical Practice (LACCog) at the Federal University of Santa Maria, as a medium for scientific communication. The podcast was designed to make psychological knowledge more accessible to the broader community, while fostering dialogue between academic research and professional practice. Methodologically, the investigation adopted a case study design with a quantitative and descriptive approach, drawing on analytics provided by Spotify for Podcasters. Data were collected from the first eleven episodes released through 2025 and analyzed in terms of audience reach, engagement, and demographic profile. Preliminary findings indicate a favorable reception, with 21 five-star ratings, 65 followers, and 407 total streams/downloads, averaging 37 plays per episode. Audience engagement was evidenced by an average completion rate of 61.72%, with the majority of listeners being women (61.5%) aged 35-44 (41.5%). These results suggest that the LACCog Podcast functions as an effective and strategic vehicle for scientific dissemination. Beyond expanding access to psychological knowledge, it enhances community engagement and strengthens the role of research groups in bridging the gap between theory and practice.

**Keywords:** Scientific communication. Podcast. Psychology. Knowledge dissemination.

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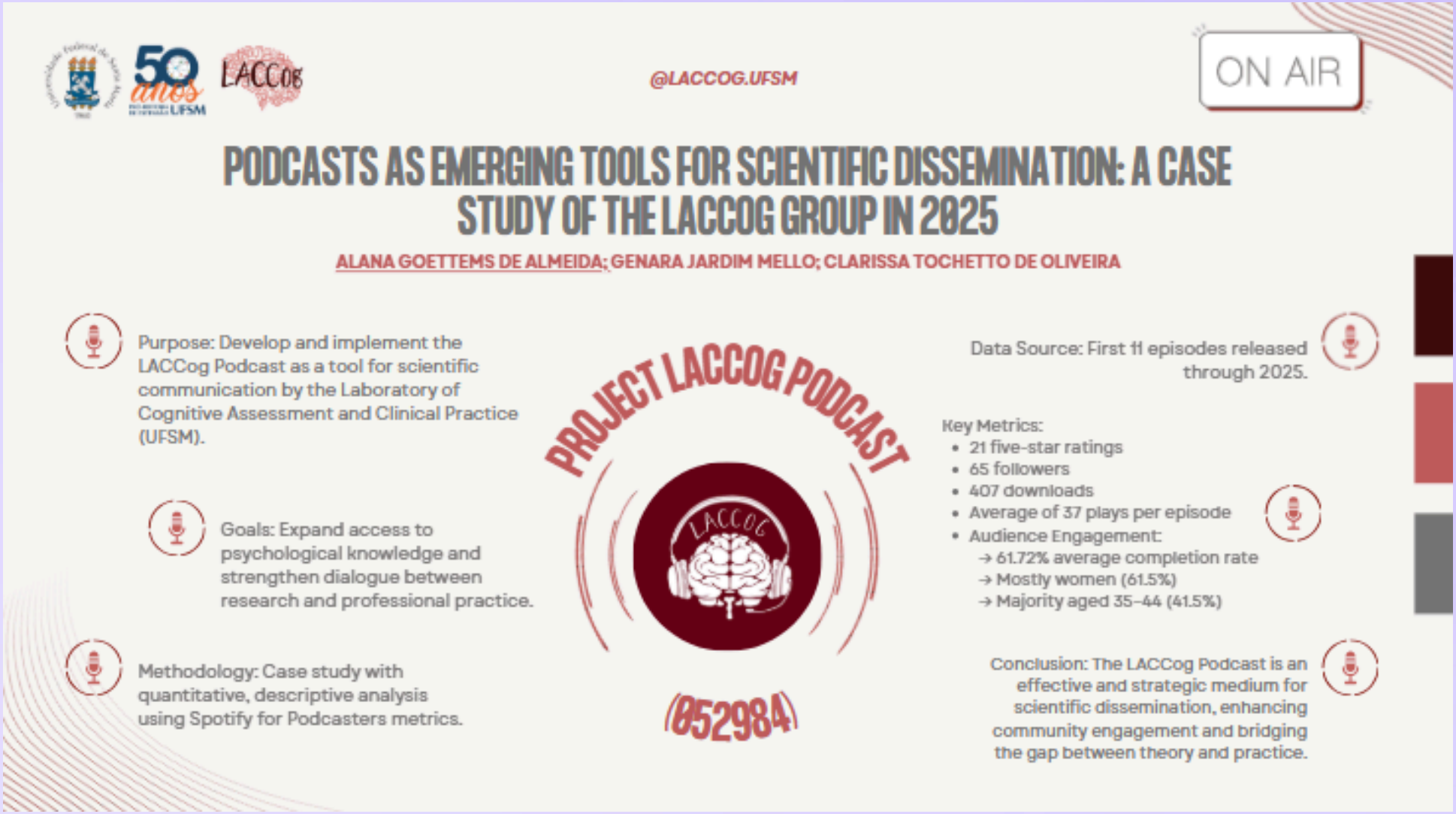
# PODCASTS AS EMERGING TOOLS FOR SCIENTIFIC DISSEMINATION: A CASE STUDY OF THE LACCOG GROUP IN 2025



# RELATIONSHIP BETWEEN FOLIAR POTASSIUM LEVELS AND NORMALIZED DIFFERENCE VEGETATION INDEX (NDVI) IN SOYBEAN CROP

Aline Lampert Dutra[1], Alessandro Carvalho Miola[2]

**Abstract:** Precision agriculture offers a wide and diversified set of tools for nutritional diagnosis at the within-field scale. Among key nutrients, potassium ($K^+$) supports central physiological processes in soybeans, while the Normalized Difference Vegetation Index (NDVI) has become the most widely used index for monitoring canopy vigor through remote sensing. This study aimed to map the spatial and temporal dynamics of foliar K and to test the linear relationship between K and NDVI in a soybean field (2024/2025 season). Thirteen georeferenced points were sampled on nine dates during the soybean cycle from V3 to R5.1. K was determined using a portable ion meter (Fast-K/LAQUAtwin), and NDVI was extracted from images with a 15 m buffer per point. Data were integrated into Quantum Geographic Information System -QGIS (IDW- Inverse Distance Weighting interpolation) and analyzed by Pearson correlation for each date. The results illustrated initial maps showing coincidence between low NDVI and reduced K levels in some areas, while statistical analysis by date revealed weak and non-significant associations between foliar K and NDVI throughout the cycle.

**Keywords:** Foliar potassium. Precision agriculture. Normalized Difference Vegetation Index (NDVI). Remote sensing.

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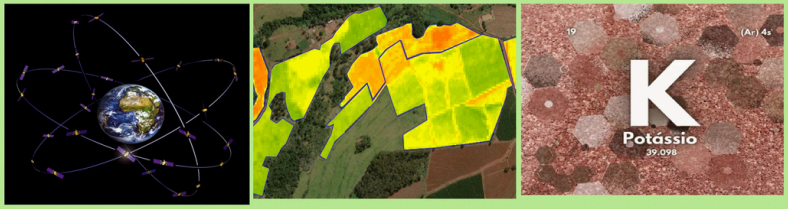
# RELATIONSHIP BETWEEN FOLIAR POTASSIUM LEVELS AND NORMALIZED DIFFERENCE VEGETATION INDEX (NDVI) IN SOYBEAN CROP

## RELATIONSHIP BETWEEN FOLIAR POTASSIUM LEVELS AND NORMALIZED DIFFERENCE VEGETATION INDEX (NDVI) IN SOYBEAN CROP

1 Aline Lampert Dutra
2 Alessandro Carvalho Miola

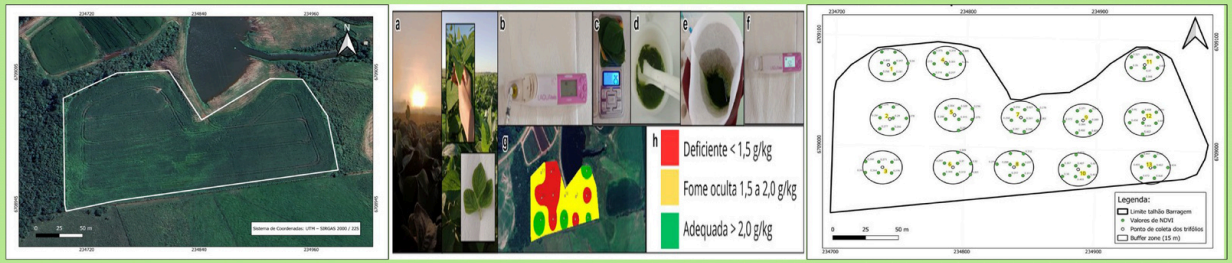
### INTRODUCTION

**Precision agriculture offers a wide and diversified set of tools for nutritional diagnosis at the within-field scale.**

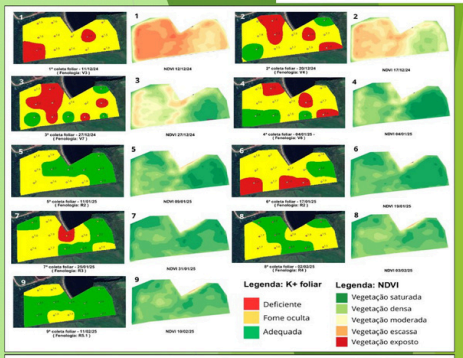


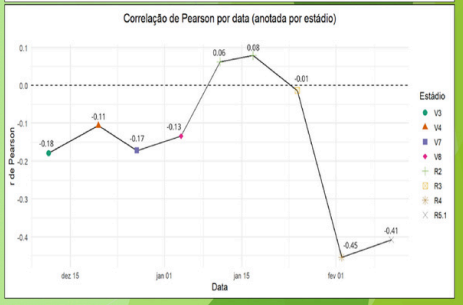

**This study aimed to map the spatial and temporal dynamics of foliar *K* and to test the linear relationship between *K* and NDVI in a soybean field (2024/2025 season).**

### METHODOLOGY




### RESULTS




**The results illustrated initial maps showing coincidence between low NDVI and reduced *K* levels in some areas, while statistical analysis by date revealed weak and non-significant associations between foliar *K* and NDVI throughout the cycle.**

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# EACH ON WITH ITS OWN BEAK: LEARNING EVOLUTION IN A PLAYFUL WAY

Amanda Everling Viégas[1], Cadidja Coutinho[2], Sheila Forgiarini Martins[3]

**Abstract:** This activity was applied on World Environment Day (June 5th) at the State Elementary School João Belém, and it was conducted by a scholarship holder from the Institucional Program for Teaching Initiation (PIBID), with sixth and seventh grade students. The dynamic, named "Each One with Its Own Beak", aimed to teach students about species'adaptations and the impacts caused by human activities. First, the students were introduced to basic concepts of Evolution. Then the game started, each student acted as a "bird" and selected one type of clamp from several available, which represented their "beak.", and within one minute, each student had to try to collect as many seeds as possible, with different sizes and shapes, to represent food available in the environment. At the end of the game, the class reflected on what would happen to the "birds" that managed to gather the greatest number and variety of seeds, and what would happen to those that could not obtain enough food. The discussion also created space to talk about human impacts on animals. It was concluded that this pedagogical activity allowed students to reflect on the importance of each species and how small changes can generate significant impacts.

**Keywords:** Environment. Evolution. Beaks.

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# SAE HIGHER EDUCATION

## EACH ON WITH ITS OWN BEAK: LEARNING EVOLUTION IN A PLAYFUL WAY

### Objective:

- Teach the concept of evolution and natural selection.
- Show how adaptations (like beak shapes) relate to survival and food sources.
- Engage students through playful and practical activities.

### Development:

- Activity designed using simple materials to simulate different bird beaks.
- Students test each "beak" with various food items to see efficiency.
- Game-based approach helps connect scientific theory with practice.

EACH ON WITH ITS OWN BEAK: LEARNING EVOLUTION IN A PLAYFUL WAY.

Amanda Everling Viégas;
Cadidja Coutinho;
Sheila Forgiarini Martins.

### Conclusion:

- Students better understand diversity and adaptation in nature.
- The playful method makes learning more meaningful and engaging.
- Reinforces evolutionary concepts through experimentation and interaction.

### Photos:

# HIGH SCHOOL MATHEMATICS GAPS THAT AFFECT UNIVERSITY SUCCESS

Amanda Monte de Souza[1], Luciane Gobbi Tonet[2]

**Abstract:** Many students arrive at university without a solid understanding of matrices and determinants, which makes it harder for them to succeed in higher education linear algebra courses. This study investigated the origin of this gap in order to inform improvements in basic education of mathematics. Methodologically, questions from 15 years of the National High School Exam (ENEM) were analyzed. Furthermore, the guidelines of the National Common Curricular Base (BNCC) were reviewed and an online survey in high schools from Santa Maria was conducted. The results revealed a serious underrepresentation of matrices in ENEM: only three questions in 15 years and a superficial and ambiguous treatment of the topic in the BNCC. The online survey of high schools confirmed widespread inconsistency in curriculum coverage. Based on this feedback, support materials were developed and provided to students for supplemental learning and review, such as questions and solutions. Finally, we conclude that strengthening the teaching of matrices at the secondary level can help students transition more smoothly into advanced mathematics and areas such as science, engineering, economy, and technology.

**Keywords:** Basic Education. Matrices. School Curriculum.

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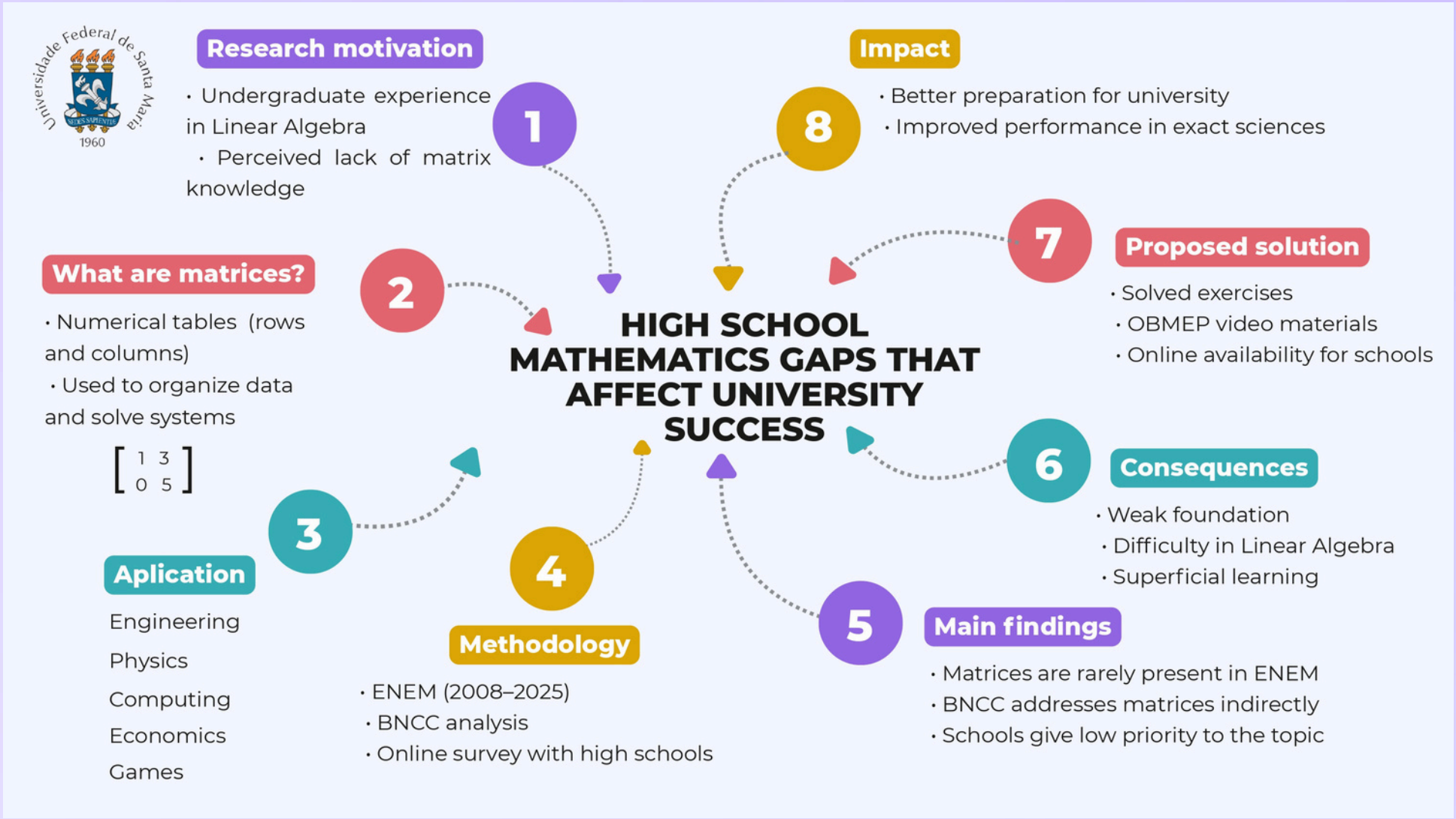
# SAE HIGHER EDUCATION

## HIGH SCHOOL MATHEMATICS GAPS THAT AFFECT UNIVERSITY SUCCESS



# MAGGOT DEBRIDEMENT THERAPY – FEEDING HOPE AND SAVING LIVES

Ana Carolina Koenemann Franco[1], Silvia Gonzalez Monteiro[2]

**Abstract:** Maggot Debridement Therapy (MDT), also known as larval therapy, is a biotherapy that uses *Lucilia cuprina* disinfected fly larvae to remove necrotic tissue from wounds. This method has gained increasing attention due to its effectiveness in promoting healing where conventional treatments fail. The present study contextualizes the application of this therapy in both veterinary and human medicine. Since 2017, the procedure has been employed in animals in Santa Maria, and more recently, it has also been approved for human patients with chronic or non-healing wounds. The methodological approach involves placing sterile gauze containing larvae directly over the wound, allowing their enzymatic secretions to degrade devitalized tissue. After 24–48 hours, the larvae are removed and the bandage is replaced to assess wound progression and determine the need for further applications. Maggot therapy accelerates tissue regeneration, reduces infection, and offers an accessible alternative for patients who may have limited treatment options. Expected results include fully healed wounds and improved quality of life. This study highlights the potential impact of larval therapy on public and veterinary health, as it represents an innovative, low-cost, and sustainable solution for the management of chronic wounds.

**Keywords:** Therapy. Wounds. Larvae. Lucilia cuprina.

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# MAGGOT DEBRIDEMENT THERAPY – FEEDING HOPE AND SAVING LIVES

## MAGGOT DEBRIDEMENT THERAPY – FEEDING HOPE AND SAVING LIVES

*ANA CAROLINA KOENEMANN FRANCO*

HUMAN

EQUINE

# GENDER NONCONFORMITY AND ANXIETY SYMPTOMS IN UNIVERSITY STUDENTS

Ana Carolina Yukari Arakaki[1], Felipe Barreto Schuch[2]

**Abstract:** Introduction: Gender Non-conforming (GNC) students face mental health issues. Anxiety is one of the most prevalent disorders among students, but there is a scarcity of studies investigating the associations between GNC and anxiety in students. Objective: To analyze the association between gender identity and anxiety symptoms among Brazilian university students. Methods: This is a cross-sectional analysis using data from the UNILIFE-M study. Inclusion criteria were: 1) aged 16-35 years old; 2) being enrolled in undergraduate or graduate courses. Data collection was carried out online. Students were grouped into: 1) cisgender and 2) non-cisgender. Anxiety symptoms were assessed with the DSM-5 Level 1 Cross-Cutting Symptom Measure, and the Generalized Anxiety Disorder 7-items. Associations were tested using Logistic Regression analysis, and results were presented as Odds Ratios (OR) with 95% confidence intervals. Results: The sample included 6,662 (96.58%) cisgender students and 239 (3.41%) non-cisgender students. The prevalence of anxiety symptoms was 43.23%. A higher prevalence of anxiety symptoms was found among non-cisgender students (OR: 1.93; 95%CI:1.46–2.57;$p<0.001$). Conclusion: Non-cisgender students are more likely to experience anxiety symptoms compared to cisgender students.

**Keywords:** Gender non-conforming. Anxiety. University.

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# GENDER NONCONFORMITY AND ANXIETY SYMPTOMS IN UNIVERSITY STUDENTS

Ana Carolina Yukari Arakaki
Julia Amaral Teixeira
Debora Tornquist
Felipe Barreto Schuch

Simpósio de Intercâmbio Acadêmico
Symposium of Academic Exchange

## GENDER NON-CONFORMING AND ANXIETY IN UNIVERSITY STUDENTS: A CROSS-SECTIONAL COHORT ANALYSIS

### Introduction

Entering university means great transformation, but also of high psychological stress.

Padovani et al. 2014

Students who identify as gender non-conforming (identities that challenge traditional binary thinking) face specific challenges.

Silva et al. 2021

Anxiety stands out as one of the most prevalent disorders in the university environment.

Silva et al. 2018

Minority stress theory argues that social minorities experience specific stressors in addition to everyday stressors.

Meyer, I. H. 2003

### Objective

To analyze the association between gender identity and anxiety symptoms in Brazilian university students.

### Methods

UniLife-M

REDCap

1) 16-35 years
2) undergraduate and graduate students
3) informed consent

Gender identification - Self Reported
Anxiety - DSM-5 (Score ≥ 2) e GAD7 (Score ≥ 10)


Logistic regression
Odds Ratio (OR)
RStudio

### Results

6261

Prevalence of anxiety: 43.23%

**Association between gender identity and social anxiety**

| Gender identity | OR (95%) |
|---|---|
| Cisgender | 1 |
| GNC | 1,93(1,46-2,57) |

P<0,001

# MATERIAL CULTURE IN TITUS ANDRONICUS' KITCHEN

Ana Luiza Ribeiro[1], Régis Augustus Bars Closel[2]

**Abstract:** One of the most striking moments in Titus Andronicus (1592) occurs when Titus serves Queen Tamora a pie made from her sons' flesh. Between their murder and the banquet, Shakespeare omits what the audience must imagine: the skinning and blooding of the bodies, the preparation of the meat, the making of the pies. That silent interval can be explored through an everyday Elizabethan object: the basin. Mentioned explicitly only once, when Lavinia collects the blood of Chiron and Demetrius, the basin reverberates throughout the play as both a domestic and ritual tool. In early modern England, basins were associated with both purification and food preparation, a space marked as feminine but often linked to violence. Through this object, Titus Andronicus intertwines the practical and symbolic dimensions of the kitchen and ritual sacrifice. Drawing on material culture studies (Richardson, 2011; 2016) and food studies (Bassnett; Nunn, 2022), this analysis proposes that the basin functions as metaphor, ritual vessel, and culinary instrument of revenge. The play's final act of violence, therefore, can be understood not merely as brutal revenge, but as the transfiguration of a domestic object into an instrument of poetic justice.

**Keywords:** William Shalespeare. Titus Andronicus. Material culture. Food studies.

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# SAE HIGHER EDUCATION

## MATERIAL CULTURE IN TITUS ANDRONICUS' KITCHEN

"Enter Titus Andronicus with a knife, and Lavinia with a basin."

- early modern kitchen - violence
- basin as cooking ware and ritual vessel
- when her hands are cut, lavinia can no longer wash them in the ritual basin
- cooking basin becomes the symbol of Lavinia's revenge

# HAVE YOU HEARD OF ECOPERFORMANCE? A BRIEF STUDY ON THE TOPIC WITHIN THE CHOREOSEED PROJECT

Angélica Flores Venturini[1], Professor Daniel S. Aires[2]

**Abstract:** This study explores the concept of ecoperformance within the ChoreoSeed project: reflorestar a terra com sementes de dança, developed by the Kháos Research Group/Laboratory: danças, encruzilhadas e tecnologias (CNPq). This interdisciplinary, practice-based project merges dance, technology, and ecology. Motivated by my participation, the research aims to enrich the artistic perspective on ecosocial and ecopolitical dimensions related to the final stage of the project. The methodology includes Performing Arts literature and analysis of ecoperformance video dances. Ecoperformance uses the body in communion with nature to create art and raise socio-environmental awareness among the current planetary crisis. Baiocchi (2023) defines ecoperformance through three pillars: environment, body, and ancestry. Doud (2018) links it to climate change, cultural collaboration, and environmental activism, while Holanda (2020) highlights its emergence at the intersection of art, other disciplines, and the expansion of ecoactivism. Future ecoperformances in the ChoreoSeed project aim to serve as artistic and poetic tools for reforestation and environmental action, aiming to mitigate the environmental damage caused by the Anthropocene. This study concludes that employing dance as both a symbol and an action for environmental change is a powerful and meaningful path — one that deserves further exploration within the field of the Arts.

**Keywords:** Ecoperformance. Dance. Environmental activism.

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# SAE HIGHER EDUCATION

## HAVE YOU HEARD OF ECOPERFORMANCE? A BRIEF STUDY ON THE TOPIC WITHIN THE CHOREOSEED PROJECT

# Have You Heard of Ecoperformance?
## A brief study within the ChoreoSeed Project

**ChoreoSeed - Reflorestar a Terra com Sementes de Dança**

3D dance recordings & animations

Dancing avatars & digital sculptures

Sculptures with seeds 🌱 → planting performances

**What is Ecoperformance?**

Body + Nature + Ancestry

Art + Ecoactivism

Interdisciplinarity

Socio-environmental critique through dance

**Why it Matters**

✨ Dance as both symbol and action for ecological restoration

**References**: Baiocchi, 2023; Doud, 2018; Holanda, 2020

**Angélica Flores Venturini**
Department of Performing Arts, Federal University of Santa Maria
**Advisor:** Prof. Daniel Aires

# 3D PRINTED FILMS CONTAINING NIFEDIPINE: A NOVEL PHARMACEUTICAL PLATFORM FOR SUBLINGUAL DELIVERY

Bárbara Felin Osmari[1], Letícia Cruz[2]

**Abstract:** The sublingual route features a permeable epithelium and intense vascularization, promoting direct drug absorption and enhanced bioavailability. Solid pharmaceutical films are an effective alternative, optimizing drug release, permeation, and protection. Three-dimensional (3D) printing is an exciting technology for obtaining pharmaceutical products. Nifedipine, used for the treatment of cardiovascular diseases, is a strong candidate for sublingual delivery due to its low solubility and first-pass metabolism. Guar gum-pullulan films were obtained using the semisolid extrusion (GGP-NIFE-HG-F) and were exposed to phosphate buffer to assess the swelling index, dispersion, and disintegration times. In vitro release was analyzed using dialysis bags, and ex vivo permeation in Franz cells. HET-CAM and hemolysis tests were employed to evaluate the safety of the films. Sublingual mucoadhesive properties were tested in a tensile stress tester. All films presented fast dispersion and disintegration time, corroborating the high swelling index. The hemolysis and HET-CAM assays suggest that the films are safe for human use, and texture analysis showed that GGP-NIFE-HG-F had adhesion to the mucosa. Guar gum controlled nifedipine release without hindering mucosal permeation, allowing systemic absorption. Overall, the results support the potential of 3D-printed mucoadhesive films as a safe and efficient platform for sublingual administration of nifedipine.

**Keywords:** 3D printing. Hypertension. Oral mucosa. Polysaccharide. Films.

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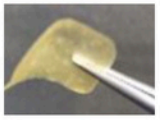
# 3D PRINTED FILMS CONTAINING NIFEDIPINE: A NOVEL PHARMACEUTICAL PLATFORM FOR SUBLINGUAL DELIVERY

3D PRINTED FILMS CONTAINING NIFEDIPINE: A NOVEL PHARMACEUTICAL PLATFORM FOR SUBLINGUAL DELIVERY

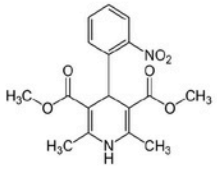
labtec UFSM nano

Universidade Federal de Santa Maria 1960

Intense vascularization promotes direct drug absorption and improves the bioavailability

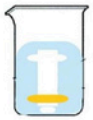


Films are an interesting solid dosage form for sublingual drug delivery




Nifedipine has low oral bioavailability

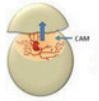
Films were obtained using 3D printing



*In vitro* release was analyzed using dialysis bags

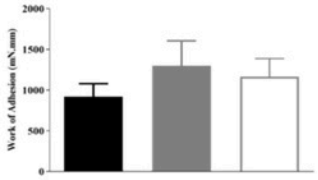
Swelling index, dispersion, and disintegration times were evaluated using phosphate buffer

*Ex vivo* permeation was analyzed using Franz cells

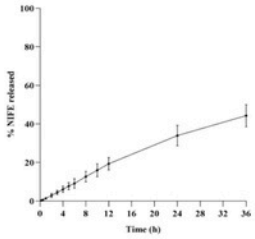


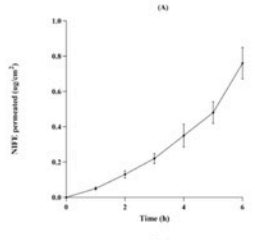

Irritation potential was analyzed by HET-CAM

Mucoadhesive properties

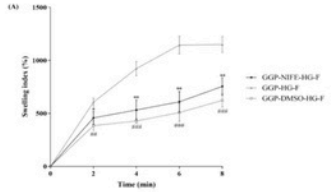



Nifedipine permeated through the sublingual mucosa

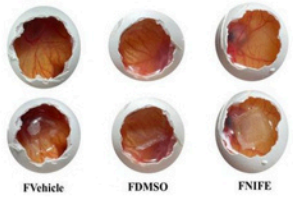


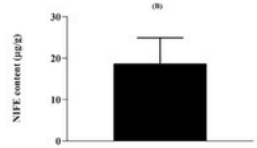

All films presented fast dispersion and disintegration time and high swelling index




Safe for human use




Guar gum controlled nifedipine release



# GREENHOUSE GAS EMISSIONS IN A GRAZED PASTURE FERTILIZED WITH UREA OR AMMONIUM NITRATE

Bruno Dovigi Maggi[1], Luciana Pötter[2]

**Abstract:** Nitrous oxide ($N_2O$) is a greenhouse gas, with a potential far greater than $CO_2$ at increasing the greenhouse effect, i.e., it plays an important role within climate change. When we are dealing with a grazing system, such as the one evaluated in this study, conducted at the Federal University of Santa Maria (UFSM), Brazil, where cattle feed on planted ryegrass, its emissions will come out mainly from the soil, due to microbiological activity, as nitrification and denitrification, and this process is increased when we add nitrogen-based fertilizers, that stimulate them. So the objective was to measure and compare the emissions of nitrous oxide using two different fertilizers: Urea, more widely used and generally cheaper, and Ammonium nitrate. Based on research, it was expected that Urea would result in higher emissions, due to its volatility. But after all the measurements, between June and October, 2024, with 3 treatments and 4 repetitions, the results showed increased emissions compared to the Control treatment (with no fertilizer), but no statistical difference between the two. This concludes that simply changing the use of one fertilizer to another does not make it a better alternative in reducing nitrous oxide emissions.

**Keywords:** Greenhouse gases. Nitrous Oxide. Nitrogen-based fertilizers. Climate change. Grazing systems.

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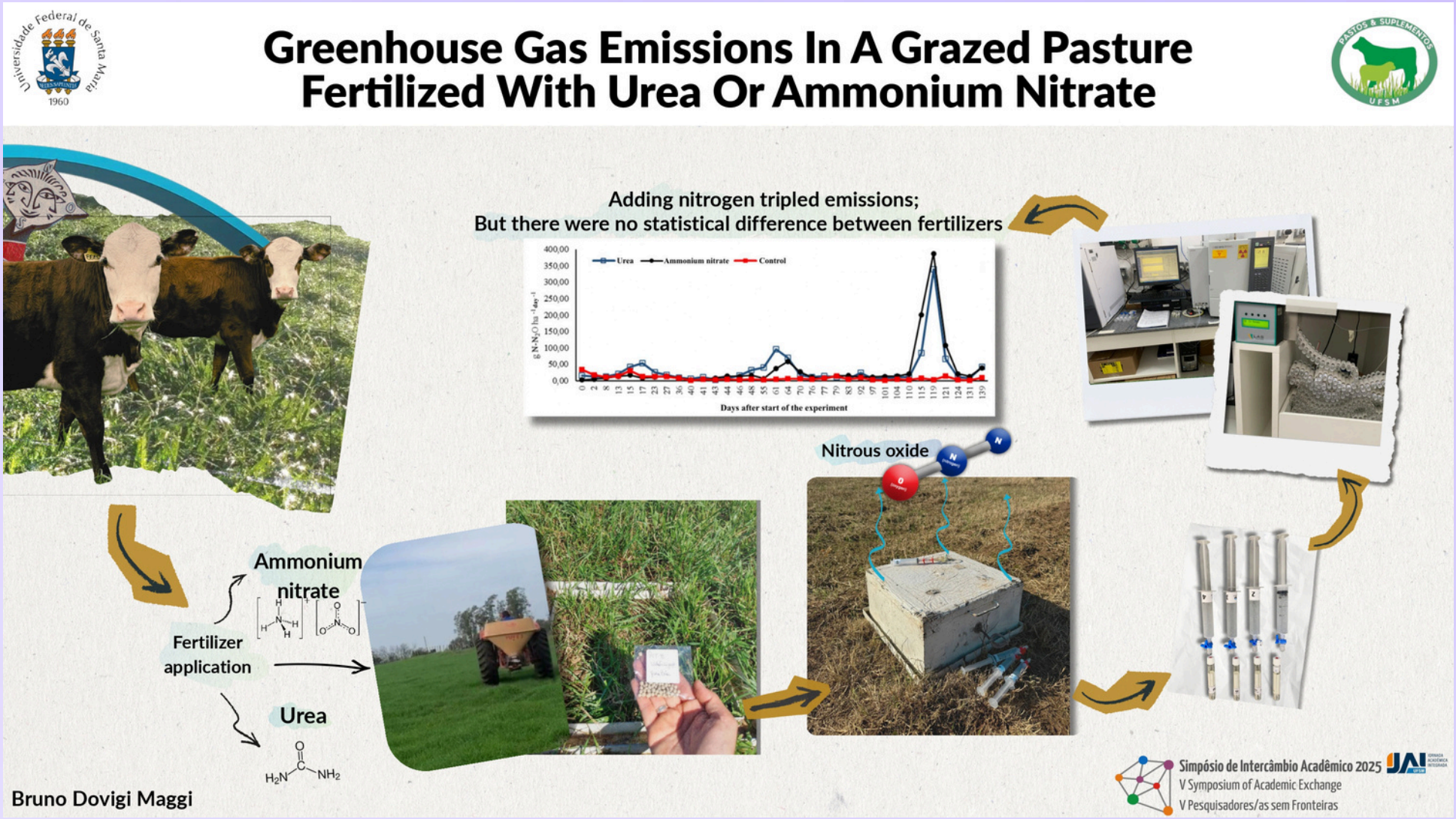
# GREENHOUSE GAS EMISSIONS IN A GRAZED PASTURE FERTILIZED WITH UREA OR AMMONIUM NITRATE



# AI IN PUBLISHING: A DOUBLE-EDGED SWORD FOR TEXTUAL PRODUCTION

Carlos Alexandre Geovanini dos Santos[1], Naura Letícia Nascimento Coelho[2], Anderson José Machado Linck[3]

**Abstract:** Artificial Intelligence (AI) has matured to the point where it can make significant contributions to the publishing industry while also sparking concerns about the potential replacement of human creativity. This study explores the impacts of AI on textual production within the publishing sector, focusing on its influence on writing processes and mapping the ethical and legal issues that underline its use. Drawing on the theoretical frameworks of Haslam (2010) and Thompson (2013), the research adopts a descriptive, qualitative approach, combining a literature review with an open-ended questionnaire applied across the three widely used AI tools (ChatGPT, Gemini, and Copilot). The findings indicate that, when appropriately applied, AI has the potential to democratize literature, support emerging authors, and diversify literary production. At the same time, the study highlights risks such as content homogenization, bias, and challenges related to copyright infringement. The study outlines three guiding principles for sustainable integration: authorship should remain with the individual who conceptualizes and completes the work; the use of AI must be explicitly disclosed; and all sources should be cited accurately. Socially, this research contributes by promoting equitable access to literature, supporting cultural diversity, and encouraging ethical editorial practices that protect both creators and readers.

**Keywords:** Generative AI. Publishing industry. Text production. Autorship. Copyrigt.

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# AI IN PUBLISHING: A DOUBLE-EDGED SWORD FOR TEXTUAL PRODUCTION

## AI in Publishing: A Double-edged Sword for Textual Production

*Carlos Geovanini (carlos.geovanini@acad.ufsm.br)*
*Advisor: Naura Coelho PhD.*
*Media and Communication Studies: Editorial Production*
*Objective:* AI's impact on textual production in publishing

### 💡 Justification

AI reshapes editorial processes.

**Will AI replace human creativity?**

### 🔍 Methodology

Descriptive, qualitative approach

Literature review:
- Google Scholar; Scielo (2020 – 2025)
- Haslam (2010) and Thompson (2013)

Questionnaire ChatGPT, Gemini, Copilot

### 📊 Findings

Democratization of literature.

Coexistence: AI as a support, not replacement.

Ethical and legal issues: copyright and transparency.

### 🤝 Implications

**Guiding Principles**

- Authorship: individual who plans, conceptualizes and finalizes the work.
- AI use should always be disclosed.
- Sources must be cited accurately.

✨ ***AI as support, not replacement. Balance innovation with creativity in publishing.***
***Thank you!***

# ALPHA-TOCOPHEROL AND DIAZINE CO-ENCAPSULATED: A NEW APPROACH TO INCREASE ANTIOXIDANT PONTENTIAL

Caroline Figueiró Machado[1], Taíne de Bastos Brum[2], Letícia Cruz[3]

**Abstract:** Alpha-tocopherol (AT) is the active form of vitamin E, known for its high antioxidant properties. Diazine (DIA) is a chalconic compound with multiple activities, such as anti-inflammatory and antitumor properties. Co-encapsulating these two compounds in nanocapsules (NC) can be beneficial for investigating antioxidant activity, a relevant area in health research, as it reduces free radicals that could slow the inflammatory process caused by UV light (sun) and optimize overall health. That way, it is used 2,2'-azino-bis-3-ethylbenzthiazoline-6-sulphonic acid (ABTS) and 1,1-diphenyl-2-picrylhydrazyl (DPPH) radicals to evaluate the antioxidant effect of AT with DIA suspensions, previously characterized, through a concentration curve of 1.25, 2.5, 5, 10, and 20 µg/mL. The antioxidant activity was compared to nanocapsules containing the isolated AT and DIA compounds. The results showed that DIA nanocapsules alone did not display antioxidant activity; however, co-encapsulation with AT yielded high antioxidant activity (93%). Therefore, co-encapsulating these two compounds offers a promising strategy for radical scavenging, benefiting human health, and likely helping to mitigate oxidative stress caused by external factors, such as UV light, which can lead to sunburns.

**Keywords:** Alpha-tocopherol. Diazine. UV light. Antioxidant. Nanocapsules.

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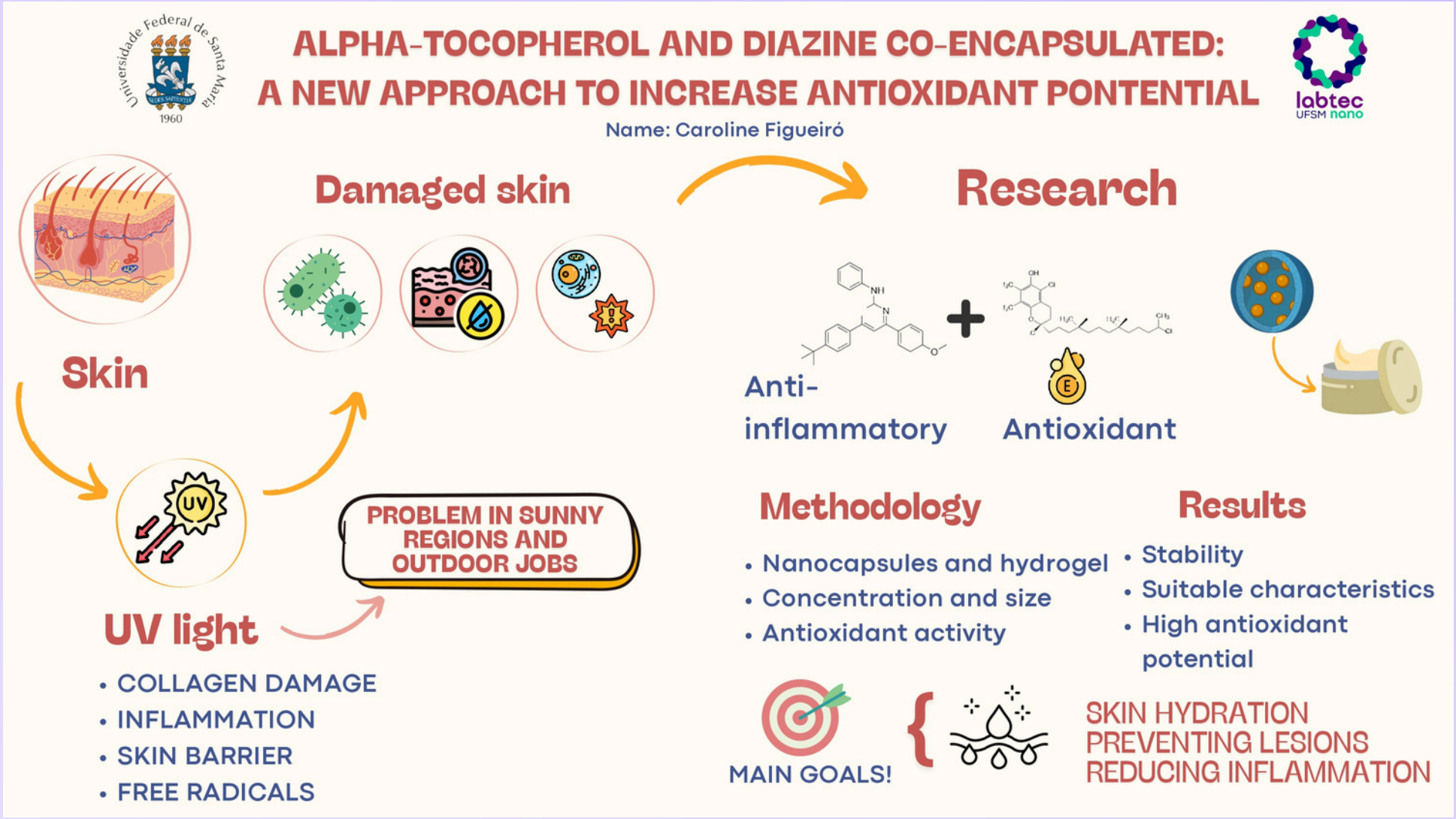
# SAE HIGHER EDUCATION

## ALPHA-TOCOPHEROL AND DIAZINE CO-ENCAPSULATED: A NEW APPROACH TO INCREASE ANTIOXIDANT PONTENTIAL



# CINEMA TO TEACH HISTORY

Cirilo Hoch Concatto da Rosa[1], Mara Regina do Nascimento[2]

**Abstract:** This research aims to discuss the potential of cinema as a pedagogical resource in classroom contexts. The idea is to highlight the importance of diversifying teaching strategies beyond traditional methods, pointing out how films can stimulate learning processes and engage students more actively. Cinema brings together sound and image in a way that enhances attention, awakens curiosity, and facilitates understanding of abstract or complex subjects. Its use allows learners to connect emotionally and cognitively with historical, cultural, and social content, making lessons more dynamic and meaningful. In addition, to emphasize the importance of critical analysis of films, encouraging students to go beyond passive watching and develop interpretative skills, linking the narratives of cinema with broader educational goals such as citizenship formation, critical thinking, and cultural awareness. The reflections presented reinforce the educational value of cinema when integrated into a well-planned teaching practice, in which films are used not as mere entertainment, but as meaningful tools that contribute to knowledge construction and social formation.

**Keywords:** History teaching. Cinema. Education. Pedagogical practices. Critical thinking.

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**Universidade Federal de Santa Maria**
**Internationalization Research Summit - InteRSummit**
**Simpósio de Intercâmbio Acadêmico 2025**
**V *Symposium of Academic Exchange***

# CINEMA TO TEACH HISTORY

Cirilo Hoch Concatto da Rosa[1]
Mara Regina do Nascimento[2]

- **Contextualization:** Study on the use of cinema as historical language to develop the historical consciousness of 6th-grade students, using the movie *Gladiador* (Ridley Scott, 2000) as a case study.
- **Methodology:** Qualitative research with theoretical analysis, film study, application of a didactic sequence, and evaluation by questionnaires and student productions.
- **Expected Results:** Greater engagement, critical reading of images, understanding the past as an interpretive construction, and expansion of cultural repertoire.
- **Implications for the Community:** Democratization of audiovisual access, strengthening of teaching practices, and stimulation of critical thinking.

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# COOPERATION AND CONFLICT IN COUNTERTERRORISM: AN ANALYSIS OF TURKISH POLICY IN THE MIDDLE EAST REGIONAL SECURITY COMPLEX

Clara Pavanelo Feliciani[1], Júlio César Cossio Rodriguez[2]

**Abstract:** Within regional security complexes, the threats perceived by individual states and their subsequent responses shape broader regional dynamics. For this reason, this hypothetical-deductive study analyzes how Turkey responds to the security dynamics of the Middle East in the context of counterterrorism. The research follows a qualitative approach, based on the analysis of official documents and literature review. The study outlines the concept of regional security complexes and examines Turkey's position within this framework. It seeks to explore how Turkey develops and implements the strategies to combat terrorism, focusing on groups such as the PKK, ISIS, and other Kurdish factions in the Middle East. The paper also investigates patterns of cooperation and conflict with other Middle Eastern countries, with the USA, and with NATO members in counterterrorism efforts. The findings suggest that Turkey follows a mixed approach: it takes unilateral action against Kurdish and extremist groups, while engaging in selective cooperation with other countries. This dual strategy creates tensions with some neighbors but also strengthens tactical partnerships with NATO and Gulf states. The relevance of this study lies in how Turkey, as a regional power, can influence regional stability depending on how it manages threat perceptions and security dynamics.

**Keywords:** Regional Security Complexes. Middle East. Counterterrorism. Turkey. PKK.

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# COOPERATION AND CONFLICT IN COUNTERTERRORISM: AN ANALYSIS OF TURKISH POLICY IN THE MIDDLE EAST REGIONAL SECURITY COMPLEX

## Cooperation and Conflict in Counterterrorism:

An Analysis of Turkish Policy in the Middle East Regional Security Complex

**Authors:** Clara Pavanelo Feliciani and Gabriela Dresch

**Advisor:** Júlio César Cossio Rodriguez

Simpósio de Intercâmbio Acadêmico 2025
V Symposium of Academic Exchange

### Methodologic approach

- Hypothetical-deductive study;
- Qualitative approach;
- How does **Turkey** respond to the **security dynamics** of the **Middle East** regional security complex regarding the fight against terrorism, and how does this influence trends of cooperation and conflict in the region?
- Specific objectives:
  1) frame Turkey inside the Middle Eastern regional security complex;
  2) examine how Turkey reacts to terrorism;
  3) analyze how its responses to terrorism influence the tendencies of conflict or cooperation.

### Justification and Relevance

- Turkey as a key actor influencing the regional stability of the Middle East.
- The security dynamics between the countries in the Middle East complex are more intense than the security dynamics outside this complex.
- How Turkey handles perceived threats impacts its national security and regional alliances.


### Findings

A **hybrid stance** from Turkey, combining **unilateral actions** to contain ISIS and Kurdish groups with **selective cooperation initiatives**, creating tensions with Syria, Iraq, the U.S., and NATO, while also fostering closer ties with Gulf countries.

# USE OF ULTRASOUND-ASSISTED: A GREEN PRETREATMENT FOR BIOENERGY

Débora Pereira de Almeida[1], Cezar Augusto Bizzi[2]

**Abstract:** Lignocellulosic biomass is crucial for renewable energy, but its high chlorine content causes severe equipment corrosion and lowers product quality. This study addresses this issue by developing a sustainable pre-treatment process. We introduce an optimized Ultrasound-Assisted Extraction (UAE) method to efficiently remove chlorine from key agricultural and forestry wastes, including sugar cane straw, bagasse, pine, eucalyptus, and energy cane. Through systematic experimentation, we determined that using only water as a solvent under mild conditions (62 °C for 7 minutes) successfully removes over 89% of chlorine from most biomasses. This performance surpassed that of other common reagents, which failed to achieve similar efficiency under identical conditions. This advancement has significant cross-disciplinary implications. It offers engineers and the industry a cost-effective, scalable solution to improve operational safety and biorefinery viability. It provides environmental scientists and green chemists with a cleaner process by eliminating harsh chemicals and reducing toxic waste. It also enables the agricultural and waste management sectors to more effectively valorize residues. By providing this highly efficient, water-based decontamination, our research represents a critical step towards an industrially practical and environmentally sustainable bioeconomy, directly contributing to cleaner energy production and a circular economy.

**Keywords:** Ultrasound-assisted extraction. Waste Valorization. Green solvents. Chlorine removal. Biomass demineralization.

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# USE OF ULTRASOUND-ASSISTED: A GREEN PRETREATMENT FOR BIOENERGY

## Ultrasound Energy as a Greener Protocol for Biomass Valorization

### Feedstock & Context

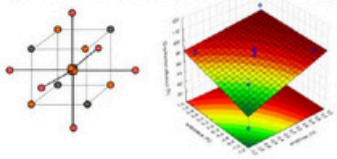
*Lignocellulosic biomass* (sugarcane bagasse, pine, eucalyptus residues) → **renewable** feedstock

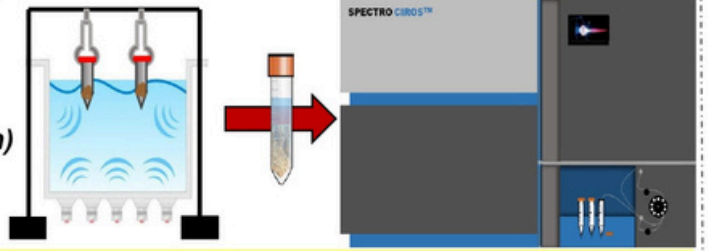
**X Fouling in pipes**
**X Slagging processes**
**X Increased cost of process**

### Method: *Ultrasound-assisted extraction (UAE)*

- ✓ *US bath (45 kHz, 130 W)*
- ✓ Aqueous *extractant solution*

***DCC***
***(central composite design)***






**Key variables:** *temperature, sonication time, biomass-solvent ratio.*

### Results & Optimization

**Experimental conditions:** 250 mg of biomass, 45 kHz of acoustic frequency, and $H_2O$ as the extractant solution.

- ✓ **CI** → Removed **all different types of biomass**;
- ✓ **DCC + UAE** → Optimized the process: UAE Efficiencies **above 89%,** under milder operational conditions (38 °C, 7 min, 52%);
- ✓ Chemicals → Reducing toxicity and promoting the use of renewable waste.

### Industrial Implications

- ✓ **Better quality raw materials;**
- ✓ **Large-scale** →
- ✓ **Environmentally friendly** protocol;
- ✓ **Cost-effective and efficient** operation;
- ✓ Improved manufacturing **process flow.**

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# WEAVING PATHS OF PARTICIPATION: BUILDING A STUDENT GUILD IN A PUBLIC SCHOOL

Eduarda Domingues Kohls[1], Helena Lampert Larré[2], Késia Maria Maximiano de Melo[3]

**Abstract:** Social inequalities reflect directly in the social participation, impact in citizenship, and social rights access. In this scenario, through the extension program Vulnerabilidades, Desigualdade e Diferença: Tecendo caminhos, based in the social occupational therapy methodological references, we aim to develop strategies to promote other experiences beyond the classroom lesson contents with young people of a public school settled in a territory marked by social inequalities and affected by the lack of material and human resources. This report explains the construction of a Student Guild as a tool for youths mobilization and active participation in school, allowing them to equip themselves to deal with the difficulties they face every day. Using social technologies developed by social occupational therapy, we are working in two parallels: the foundation of the Student Guild itself with four 8th and 9th grade students, two of each, and debating with all the other students from those same grades about youth participation in school, school clubs, and collective action. Our Student Guild meetings became an important space of experimentation to provide other ways of communication and negotiation. A new school experience can turn it into a place of belonging – raising repertory to elaborate collective projects in democratic way.

**Keywords:** Student Guild. Public School. Social Occupational Therapy. Social inequalities. Social technologies.

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# SAE HIGHER EDUCATION

## WEAVING PATHS OF PARTICIPATION: BUILDING A STUDENT GUILD IN A PUBLIC SCHOOL

### WEAVING PATHS OF PARTICIPATION: BUILDING A STUDENT GUILD IN A PUBLIC SCHOOL

Eduarda Domingues Kohls[1], Helena Lampert Larré[1], Késia Maria Maximiano de Melo[1]
[1]Universidade Federal de Santa Maria (UFSM)

**Social inequalities** → social participation → citizenship, social right access

**Extension program *Vulnerabilidades, Desigualdade e Diferença: Tecendo caminhos***

(based in the social occupational therapy methodological references)

to develope strategies

**other experiences beyound the classroom lesson contents**

**young people of a public school settled in a territory marked by social inequalities and affected by the lack of material and human resources.**

Explain the construction of a Student Guild as a tool for youths mobilization and active participation in school.

**using social technologies developed by social occupational therapy, we are working in two parallels:**

- the foundation of the Student Guild itself
- debating with al the other students from those same grades about:

youth participation in school | school clubs | collective action

Our Student Guild meetings became an important space of experimentation to provide other ways of **communication** and **negociation.**

New schools experiences can turn it into a **place of belonging** - raising **repertory to elaborate collective projects** in a **democratic way.**

# FOLIOSE LICHENS OF THE RESERVA BIOLÓGICA DÁRVIN JOÃO GEREMIA

Eduardo Silveira Lemes[1], Patrícia Jungbluth[2]

**Abstract:** Lichens are a symbiotic relationship between a mycobiont (ascomicete or basidiomicete) and a photobiont (algae and/or cyanobacteria), where the fungus parasites the photobiont. The aim of this study is identify the species of foliose lichenized fungi that occur in the Reserva Biológica Dárvin João Geremia, a conservation unity in the municipality of Bento Gonçalves, state of Rio Grande do Sul, and use these results to make a field guide that will help the team of the conservation unity in environmental education projects. Specimens were collected by active search using a serrated knife and then deposited in the Herbarium PALM for subsequent taxonomic identification. In the laboratory, the material was examined by morphological, anatomical and chemical analysis, and compared with specialized literature. Preliminary results revealed 51 species of lichenized fungi in 18 genera. This research significantly advances lichen knowledge for the region, recording the first species citations for the municipality. Furthermore, the findings not only enrich the herbarium collection but also enhance the biological relevance of the conservation unit, providing essential data for planning and promoting science popularization through the field guide that will be available for visitors.

**Keywords:** Biodiversity. Conservation. Fungi. Field Guide. Taxonomy.

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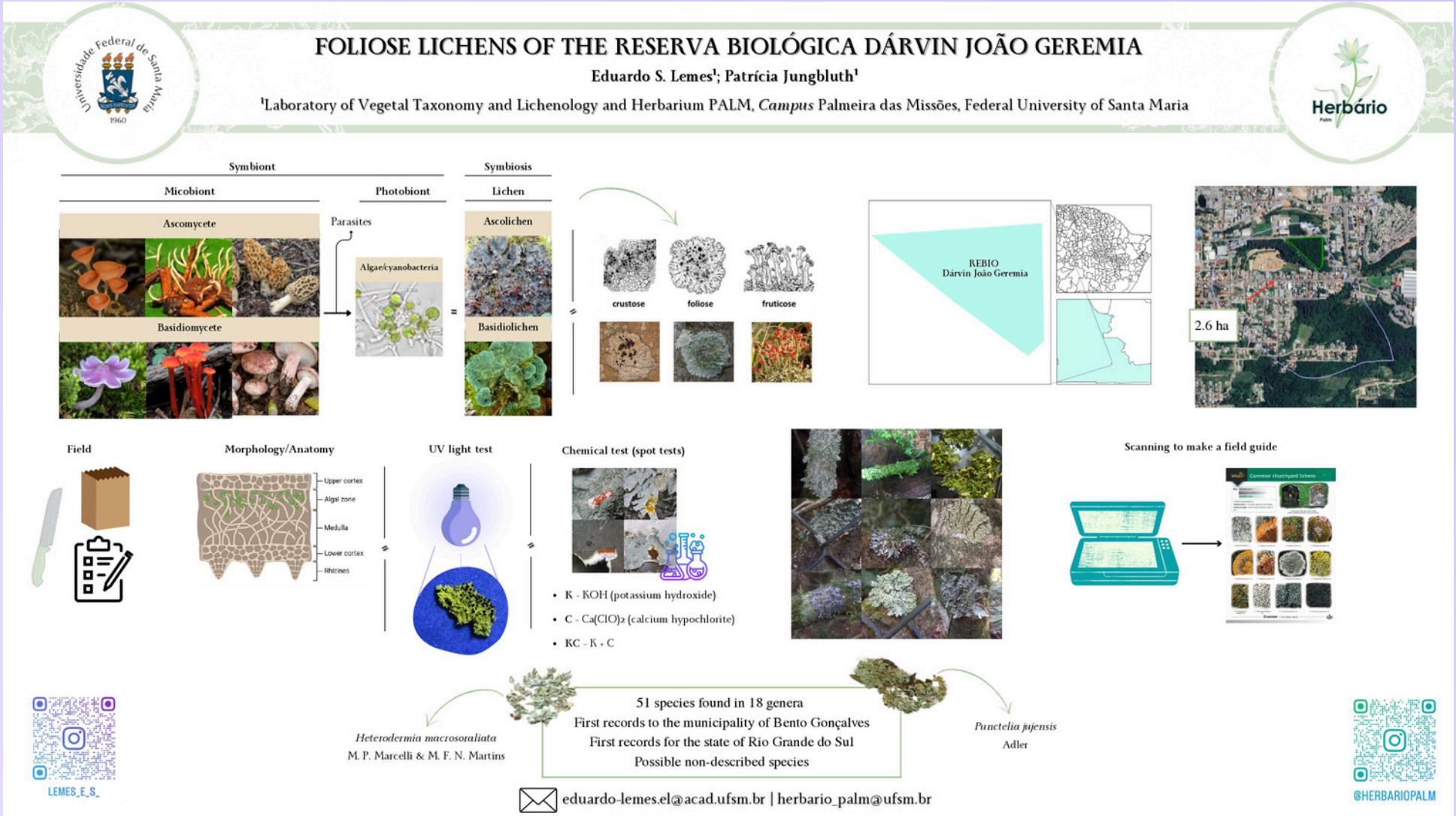
# SAE HIGHER EDUCATION

## FOLIOSE LICHEN OF THE RESERVA BIOLÓGICA DÁRVIN JOÃO GEREMIA



# OCCURRENCE OF THE PUMA (*PUMA CONCOLOR*) IN RIO GRANDE DO SUL

Éllen Daísa Hermann[1], Nilton Carlos Cáceres[2]

**Abstract:** The cougar (*Puma concolor*) is the second-largest feline in the Americas, living from Canada to Patagonia. In southern Brazil, its presence is currently rare. This study aimed to examine the species' occurrence in Rio Grande do Sul state over the last 30 years, by identifying areas where it is still found and whether it has returned to places where it had previously disappeared. Scientific articles, theses, dissertations, undergraduate papers, newspaper reports, online platforms, and social media were analyzed. The search used popular names of the species along with "Rio Grande do Sul." A total of 53 records were found, but only 38 had reliable evidence, such as photos, videos, or tracks. These data were divided into scientific records (primary) and citizen science (secondary), reported by residents, local media, or specialized platforms. Each record was classified by date, location, and type of evidence, with coordinates obtained through Google Maps. Results indicate that cougars still face threats, including illegal hunting, agricultural expansion, and a lack of public awareness. Nevertheless, they show strong adaptability and remain mostly in areas with more forests, especially in the northeastern and central-northern regions of the state, where they may be reappearing after local extinctions in the past.

**Keywords:** Geographic distribution. Puma concolor. Species occurrence. Southern Brazil. Rio Grande do Sul.

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# OCCURRENCE OF THE PUMA (PUMA CONCOLOR) IN RIO GRANDE DO SUL

## THE FRAGILE COMEBACK: PUMA OCCURRENCE IN RIO GRANDE DO SUL

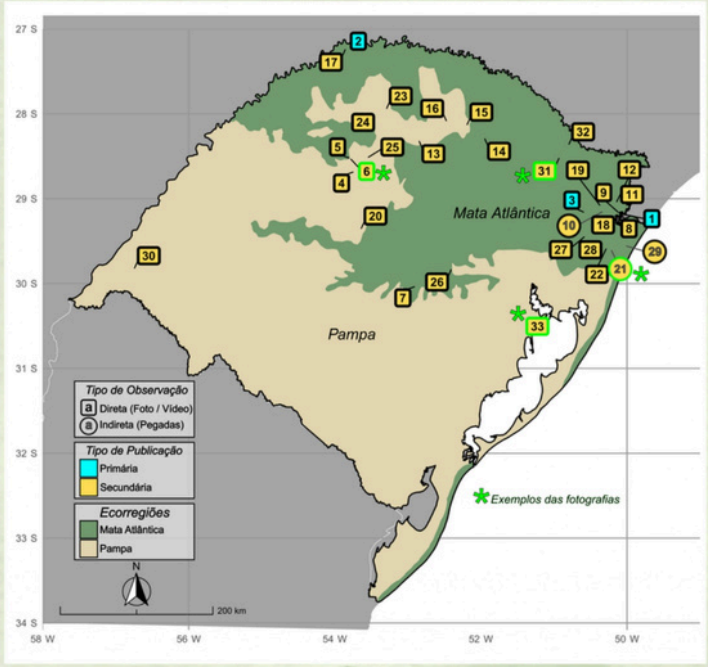
Authors: Éllen Hermann; Lourenço Chuma; Nilton Cáceres.

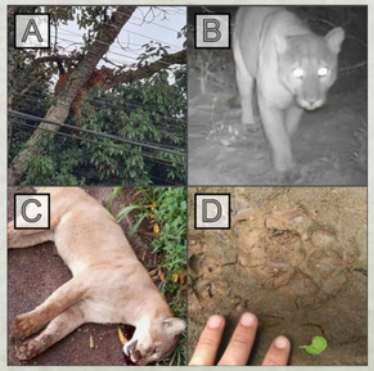
Universidade Federal de Santa Maria
1960

Strong presence in Forested, Preserved Regions (Northeast & North-Central).

33 Verified Records (Scientific + Citizen Science).

High Adaptability




Protect the forest, and the Puma will protect the balance of nature.

# ASSOCIATION OF ADVANCED PERIODONTITIS WITH IMPAIRED ORAL HEALTH- RELATED QUALITY OF LIFE IN SURVIVORS OF HEAD AND NECK CANCER

Emanuelle Marder[1], Raquel Pippi Antoniazzi[2]

**Abstract:** Individuals with head and neck cancer (HNC) undergoing antineoplastic therapy often experience adverse effects on general and oral health, including deterioration of periodontal tissues and impaired on oral health-related quality of life (OHRQoL). This study aimed to investigate the association between stage IV periodontitis and OHRQoL in survivors of HNC. A cross-sectional study was conducted with 129 HNC survivors who had completed curative treatment. Periodontitis was determined through full-mouth clinical examinations, and OHRQoL was assessed using the validated Brazilian version of the Oral Health Impact Profile (OHIP-14). All participants presented periodontitis, and 13.5% were edentulous. Survivors with stage IV periodontitis exhibited significantly higher OHIP-14 scores compared with those with stage II/III (18.6 ± 13.3 vs. 12.3 ± 11.1; p = 0.009). In adjusted Poisson regression models, stage IV periodontitis was associated with a 44% greater negative impact on OHRQoL compared with stage II/III (RR = 1.44; 95% CI: 1.03–2.04; p = 0.036). The domains affected were psychological discomfort and physical disability. These findings indicate that severe periodontitis significantly impaired OHRQoL in HNC survivors, underscoring the importance of comprehensive periodontal assessment and management in this population.

**Keywords:** Head and Neck Neoplasms. Oral health. Oral health-related quality of life. Periodontal diseases.

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# SAE HIGHER EDUCATION

## ASSOCIATION OF ADVANCED PERIODONTITIS WITH IMPAIRED ORAL HEALTH-RELATED QUALITY OF LIFE IN SURVIVORS OF HEAD AND NECK CANCER

### ASSOCIATION OF STAGE IV PERIODONTITIS WITH POOR ORAL HEALTH – RELATED QUALITY OF LIFE IN SURVIVORS OF HEAD AND NECK CANCER (HNC)

Emanuelle Ledermann Marder; Raquel Pippi Antoniazzi

- Survivors HNC undergoing antineoplastic treatment tend to have poor oral health, including periodontal tissue
- **Radiotherapy** induces cellular and vascular alterations that impair tissue repair and host defense, increasing pro-inflammatory mediators
- **Chemotherapy** also damages epithelial and connective tissues and enhances inflammation

  ↳ **Periodontal breakdown**
- Presence of advanced periodontitis may exacerbate the impairment of oral health-related quality of life (OHRQoL).

### AIM

Evaluate the association between stage IV periodontitis and OHRQoL in HNC survivors.

### METHODOLOGY

- Cross-sectional study
- 129 HNC survivors in University Hospital of Santa Maria (HUSM)

  ↳ Reference center for high-complexity oncology treatment
- The diagnosis of HNC followed the criteria of the Global Cancer Observatory (GLOBOCAN),
- **Periodontal status** was assessed through full-mouth clinical examination at six sites per tooth and OHRQoL was measured using the Brazilian version of the Oral Health Impact Profile **(OHIP-14)**

### RESULTS

- Stage IV periodontitis presents considerable complexity and can lead to significant disability related to tooth loss, masticatory dysfunction, and poor aesthetics
- Patients with stage IV periodontitis presented significantly higher OHIP-14 scores than those with stage II/III

  18.6 ± 13.3 vs. 12.3 ± 11.1; p = 0.009).
- The most affected OHIP-14 domains were psychological discomfort, physical disability, and social disability.
- The physical and psychological burden of oncology therapy may lead to reduced adherence to oral hygiene practices and dental care , thereby increasing the risk of periodontal deterioration and poorer OHRQoL.

### CONCLUSION

- The findings underscore the importance of promoting patient education, multidisciplinary support, and continuous dental follow-up before, during, and after oncologic therapy.

# BRAKE SYSTEM WEIGHT REDUCTION FOR FORMULA SAE PROTOTYPE

Felipe Goulart Leães[1], Roberto Begins Hausen[2]

**Abstract:** The Formula SAE is an international competition that challenges engineering students to design and build a race car during their undergraduate studies, applying the theoretical knowledge acquired in class to a real prototype. In Brazil, this annual competition has been held since 2004 in Piracicaba, São Paulo, every August. The top two teams qualify to compete in the United States.

In the context of Formula SAE, the car must perform well under all conditions, but safety is also a top priority. Brakes are the primary safety component, and at the same time they must be as lightweight as possible.

After the August 2025 competition, a weight reduction in the braking system was proposed. Based on studies, software simulations, and mathematical models, it was determined that replacing the 4 mm rear brake discs used in the 2025 prototype with 2 mm discs, along with substituting the brass brake fluid line for an aluminum one, would reduce the braking system's weight by 15%. All of these new components are currently under manufacturing to be tested on the real car.

**Keywords:** Brakes. Formula SAE. Weight Reduction. Brake Discs. Fluidline.

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# SAE HIGHER EDUCATION

## BRAKE SYSTEM WEIGHT REDUCTION FOR FORMULA SAE PROTOTIPE

**V Symposium of Academic Exchange**

Mechanical Engineering

**BRAKE SISTEM WEIGHT REDUCTION FOR FORMULA SAE PROTOTIPE**

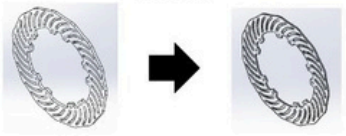
Felipe Goulart Leães1(EN); Roberto Begins Hausen1(O)
1Departamento de expressão gráfica, Universidade Federal de Santa Maria;

### Formula SAE

### Formula UFSM

### Target

4 to 2 mm



### Limitations


| Friction Coeficient μ | Estimated effective range |
|---|---|
| ~0.39 | until ~500 °C |
| **Compound** | **Optimal operating temperature** |
| APH420 | 150–300 °C |

### Theoretical

```
--- RESUMO FINAL POR DISTRIBUIÇÃO ---
80/20: a_real=0.61 m/s^2, tf_real=54.47s
   Temp pico single stop: front=304.0 °C, rear2=121.7 °C, rear4=90.8 °C
   Temp final após 20 full cycles: front=113.8 °C, rear2=28.5 °C
   Avaliação: ✅ traseiro 2mm SEGURO (<500°C)

70/30: a_real=0.61 m/s^2, tf_real=54.47s
   Temp pico single stop: front=269.1 °C, rear2=170.0 °C, rear4=123.7 °C
   Temp final após 20 full cycles: front=102.7 °C, rear2=30.2 °C
   Avaliação: ✅ traseiro 2mm SEGURO (<500°C)

60/40: a_real=0.61 m/s^2, tf_real=54.47s
   Temp pico single stop: front=234.2 °C, rear2=218.3 °C, rear4=156.5 °C
   Temp final após 20 full cycles: front=91.6 °C, rear2=31.9 °C
   Avaliação: ✅ traseiro 2mm SEGURO (<500°C)
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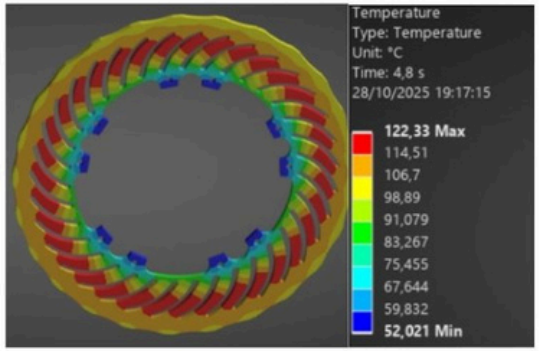


### Results

# EVALUATION OF THE QUALITY OF BARE-ROOT STRAWBERRY SEEDLINGS

Gabrieli Rieth Marasca[1], Dilson Antônio Bisognin[2]

**Abstract:** In Brazil, strawberry production commonly begins with seedlings imported from Chile, where propagation occurs through vegetative shoots from the parent plant, technically known as stolons. Assessing seedling quality is crucial to ensuring successful crop establishment. In this study, eight trays containing fifty plants each were used, and two destructive evaluations were conducted: one at four weeks after planting and another at eight weeks. From each tray, one plant was randomly selected to measure crown diameter and count the number of primary and secondary roots. For dry mass determination, the crown was separated into shoot and root components, which were then oven-dried at 60 °C for four days. By the second evaluation, seedlings exhibited a marked increase in root number (from an average of 9.6 to 31.3). A proportional relationship between shoot and root development was observed, along with a steady increase in dry weight throughout the eight weeks. These results indicate that the evaluated seedlings demonstrated good quality for transplantation. Overall, this study provides valuable insights for strawberry producers, supporting the evaluation and selection of high-quality seedlings.

**Keywords:** Seelings. Quality. Destructive. Propagation.

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# SAE HIGHER EDUCATION

## EVALUATION OF THE QUALITY OF BARE-ROOT STRAWBERRY SEEDLINGS

## Introduction

- Strawberry propagation- **stolons**;
- Crop estabilishment = **high quality plants**;
- Chile: important producer of seedlings.

## Objective

- Evaluate destructively the quality of seedling from Chile.

## Methodology

- **Eight** trays containing fifty plants;
- Two destructive evaluations- four and eight weeks;
- Measurements: crown diameter; number of primary and secondary roots; and dry mater (oven-dried at 60 °C for four days).

## Results

- First evaluation: non-uniforms plants;
- Second avaliation:

-more roots;
-proportional relationship between shoot and root ;
-increase in dry weight .

## Conclusion

- Good quality for transplantation;
- Valuable insights.

Melhoramento e Propagação Vegetativa de Plantas UFSM

Universidade Federal de Santa Maria 1960

# LIBRAS IN MEDICAL EDUCATION AT UFSM: A PATH TO INCLUSION AND HEALTH EQUITY

Gabriella Bagatini Primaz, Larissa Garcia Cardoso[1], Giovana Medianeira Fracari Hautrive[2]

**Abstract:** Healthcare education aims to train professionals who promote global well-being, including equitable care for the deaf community, which continues to face communication barriers in medical settings. The Libras course is crucial in undergraduate programs, as communication is a core component in medical practice. Making it mandatory could enhance physician training in alignment with the principles of the Brazilian Unified Health System (SUS). This study aims to analyze the perception of students who took the Libras elective for Medicine in early 2025 regarding its importance and the perceived deficiencies. A qualitative survey study was conducted using an electronic form containing two open-ended questions: one about academic and professional contributions and other about needs. Among the 15 valid responses, recurring ideas were selected in 60% of the sample. A positive perception of the course was evident, as it breaks down communication barriers and develops empathetic professionals. Reported needs included increased course load,integrating healthcare-specific content, and expanded practical training. It is concluded that students consider Libras essential for the desired medical practice, and that it is essential to disseminate their knowledge during undergraduate studies.

**Keywords:** Libras. Medical Education. Inclusive healthcare.

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# SAE HIGHER EDUCATION

## LIBRAS IN MEDICAL EDUCATION AT UFSM: A PATH TO INCLUSION AND HEALTH EQUITY

**Gabriella Bagatini Primaz**; Larissa Garcia Cardoso, Giovana Medianeira Fracari Hautrive.

# LIBRAS IN MEDICAL EDUCATION AT UFSM:

## a path to inclusion and health equity

### QUALIFIED AND PROFICIENT PROFESSIONALS

- Inclusion of the deaf community
- Lack of proficient professionals
- Communication = core component

### OBJECTIVE

- Analyze the perception of students who took de Libras elective for Medicine in early 2025

### METHODOLOGY

- Qualitative survey study
- Online questionnaire
- 2 open-ended questions

**"Indicate the importance of the Libras course for undergraduate medical studies and your academic and professional trajectory"**

**"Indicate what you consider could be improved or changed in the Libras course for Medicine."**

### RESULTS

- Positive perception

Breaks down communication barriers

Greater empathy among professionals

- Needs

Increasing the course load

Making the subjective mandatory

Incorporate specific health-related content

Strenghthening practical activities

### CONCLUSION

Learning Libras is essencial for the desired medical practice and can revolutionize medical training and the management of the healthcare system

# EVALUATING THE FINANCIAL KNOWLEDGE OF PUBLIC SCHOOL STUDANTES

Glória Lopes de Vasconcello[1], Kalinca Léia Becker[2]

**Abstract:** According to the National Common Curricular Base (BNCC), financial education is an essential transversal content for fostering critical thinking, so efforts to integrate these topics into the education system have been strengthened. This research evaluated the financial knowledge of public school students impacted by the Universidade Federal de Santa Maria (UFSM) extension program, Sumo Educacional, which provides financial education classes within the Eighth Regional Education Coordination (CRE) and is supported by PROEXT-PG UFSM Além do Arco. A structured questionnaire covering personal finance concepts and participant profiles was administered before the classes began. Descriptive statistical analysis showed most students were aged between 15 and 16 years, with a balanced gender representation. Results showed that 51.82% of the students exhibit a low level of financial knowledge, struggling with basic concepts. Meanwhile, 39.96% demonstrated an intermediate level, revealing some command but with knowledge gaps. Only 8.21% presented a high level with good financial knowledge and the ability to apply concepts in complex situations. This scenario reinforces the importance of public policies promoting financial education in the public schools through programs such as Sumo Educacional, which form economically conscious citizens.

**Keywords:** Financial knowledge. Public school. Extension program.

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Glória Lopes de Vasconcello[1], Kalinca Léia Becker[2]

# EVALUATING THE FINANCIAL KNOWLEDGE OF PUBLIC SCHOOL STUDANTES

## Introduction

According to the National Common Curricular Base (BNCC), financial education is an essential transversal content for fostering critical thinking, so efforts to integrate these topics into the education system have been strengthened.

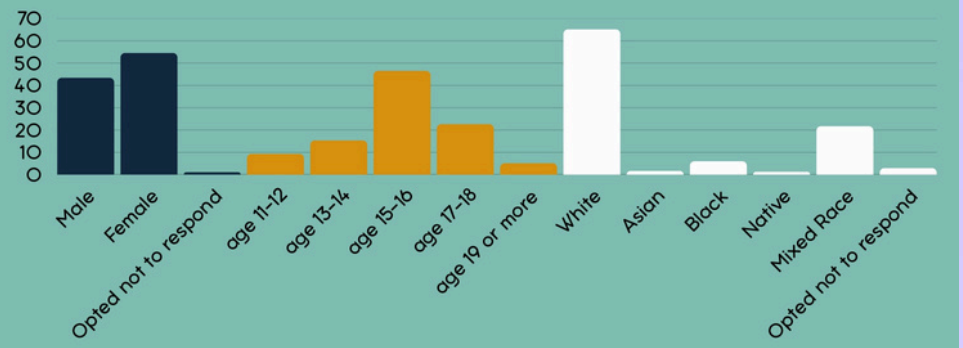
## Objective

This research evaluated the financial knowledge of public school students impacted by the Universidade Federal de Santa Maria (UFSM) extension program, Sumo Educacional,

## Method

- Structured questionnaire;
- Descriptive analysis.

## Results




| Financial Knowlegde | Percentual |
|---|---|
| Low | 51,82% |
| Moderate | 39,96% |
| High | 8,21% |

# ACOUSTIC METAMATERIALS FOR LOW-FREQUENCY SOUND INSULATION

Guilherme Aquino Souza Andrade[1], Giovanna Pisicchio Zanoni[2], Paulo Henrique Mareze[3]

**Abstract:** Acoustic materials are designed to control and manipulate sound, either by absorbing its energy or reducing its transmission. Sound insulation is of particular interest in preventing or minimizing the passage of sound waves into another environment, providing comfort or acoustic quality. For example, between the walls of adjacent rooms in a building, different types of materials can be used to reduce the noise transmitted between two enclosed spaces separated by them. Traditional noise-insulating materials usually perform well at high frequencies. However, for improvement at low frequencies, the use of metamaterials becomes a good alternative compared to traditional materials. In this work, the sound insulation of traditional materials, such as metal plates, Medium-Density Fiberboard (MDF), and metamaterial-based panels, is studied. The latter are composed of traditional panels with mass inclusions that act as resonators. The purpose of these resonators is to vibrate at the frequency that is intended to be isolated, while the main structure neither vibrates nor emits sound at that frequency. Preliminary simulation results show improvements in sound insulation at low frequencies, and this behavior is expected to be observed in experimental specimens of metamaterial panels.

**Keywords:** Acoustic materials. Sound insulation. Acoustic Metamaterials. Resonators. Low-frequency.

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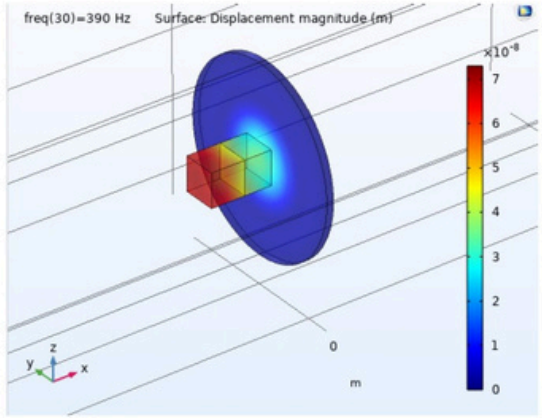
## ACOUSTIC METAMATERIALS FOR LOW-FREQUENCY SOUND INSULATION

### PROBLEM

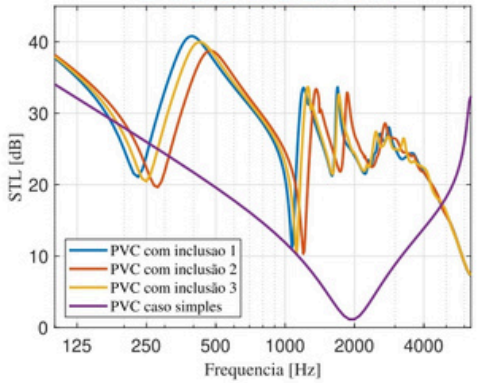
Traditional materials — applications and limitations

### METHODOLOGY



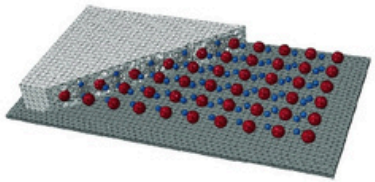

Specimens simulation

### RESULTS AND DISCUSSION

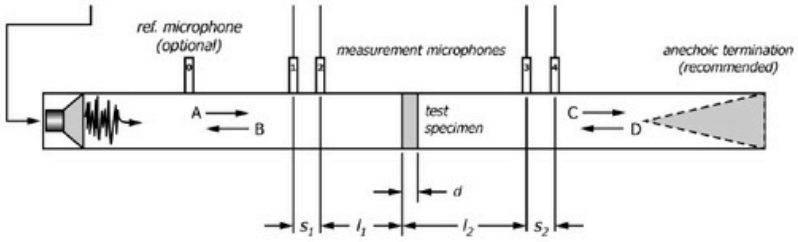



Simulation results
Peaks at low-frequency

### SOLUTION



Acoustic metamaterials




Real specimens impedance tube

Plate specimens with inclusions

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# THE BLEATING OF THE SHEEP: A SPATIAL ANALYSIS OF THE EARLY MODERN DRAMA THE DUCHESS OF MALFI (1614)

Gustavo Sontag[1], Prof. Dr. Régis Augustus Bars Closel[2]

**Abstract:** In 1516, Thomas More published Utopia, a work that addresses critical issues in English society, such as the "enclosure of land," which deprived peasants of their livelihoods and fueled rising criminality (Closel, 2018). This context of displacement toward London provides a cultural and historical key to interpret early modern drama, in which the places often play a central role and conflicts are articulated around spatial issues such as mobility and belonging (Stage, 2018; West, 2002). Within this framework, the present paper investigates the spatial experience of the criminal Bosola in John Webster's The Duchess of Malfi (1614). As a former soldier turned spy, Bosola moves across peripheral spaces and assumes ambiguous roles, occupying a liminal position that renders him marginal yet paradoxically central to the play's dynamics. In order to engage with the intersection of subjectivity, plot, and mobility intersect in, the paper draws on Henri Lefebvre's (1991) conception of space as socially produced, in dialogue with recent scholarship on space and place in Renaissance drama (Bozio, 2020; Dustagheer, 2017). By examining his circulation among different social worlds, this paper highlights how Webster's drama depicts later developments and consequences of early capitalist transformations already diagnosed in Utopia.

**Keywords:** Early modern drama. Space. John Webster.

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# THE BLEATING OF THE SHEEP: A SPATIAL ANALYSIS OF THE EARLY MODERN DRAMA THE DUCHESS OF MALFI (1614)

Author: Gustavo Sontag
Adviser: Régis Augustus Bars Closel
PPGL-UFSM

## Bosola's journey in *The Duchess of Malfi*

restrictive physical spaces

+

someone without power in these spaces

=

shapes a personal experience of frustration and anger

**In real life these people's lives are not recorded, are prosaic like the bleating of a sheep.**

# SWANS AND SPIRALS: THE INTERMEDIALITY OF THE FEMININE BETWEEN HILMA AF KLINT AND SWAN LAKE BY TCHAIKOVSKY

Hannah dos Santos Rossatto[1], Lucas da Cunha Zamberlan[2]

**Abstract:** This essay, currently being developed within the research group Brazilian Literature and its Intermedialities at the Portuguese Language and Literature undergraduate program at UFSM, aims to analyze how the symbolic image of the Swan is expressed through different art forms such as painting, music, and literature. The study draws on "Group IX – The Swan (1914–1915)" by Hilma af Klint and the ballet "Swan Lake (1876)" by Pyotr Ilyich Tchaikovsky, seeking to understand the symbolic dimensions of the Feminine as represented by the Swan. Using intermedial analysis — understood as a method that integrates diverse artistic languages and explores their expressive intersections, the study engages with the archetypes of goddesses described by Jean Shinoda Bolen and with Antoine Compagnon's reflections on art and reality. The essay demonstrates how these works express contrasts such as light and shadow, purity and desire, strength and surrender, revealing the Feminine as a symbolic and multifaceted dimension. Through the interpretation of the Swan as a symbol of transformation and integration of opposites, the study seeks to broaden the understanding of the Feminine in art and its poetic, aesthetic, and symbolic manifestations.

**Keywords:** Literature. Intermediality. Visual Arts. Feminine. Symbolism.

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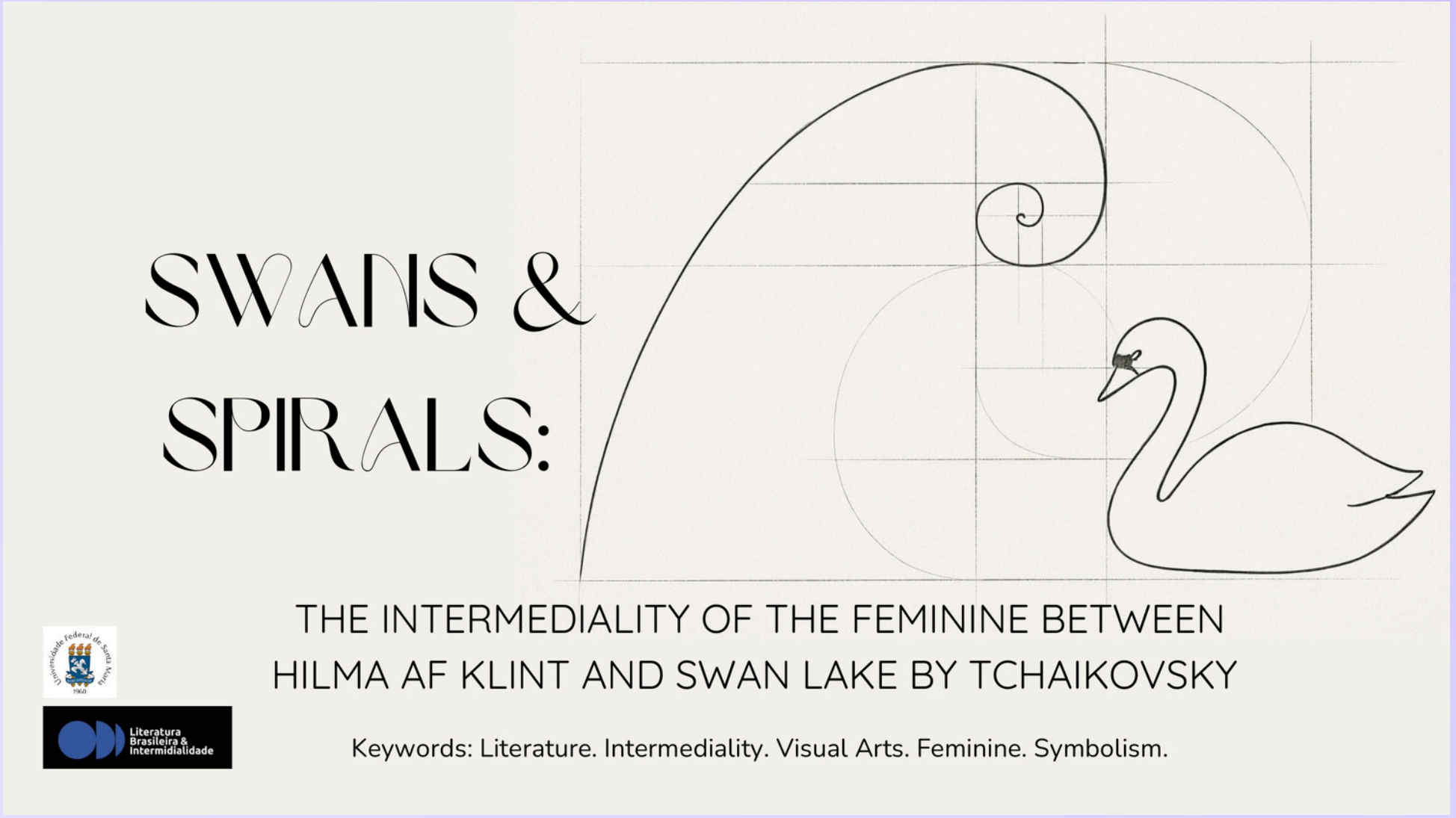
# SWANS AND SPIRALS: THE INTERMEDIALITY OF THE FEMININE BETWEEN HILMA AF KLINT AND SWAN LAKE BY TCHAIKOVSKY



# BILINGUAL MATHEMATICS EDUCATION IN ELEMENTARY SCHOOL

Isabel Cristina Lencina Paz[1], Prof. Dr. Mario Vásquez Astudillo[2]

**Abstract:** This ongoing study is part of the Master's degree program in Education at UFSM and aims to investigate bilingual education practices in elementary school. The research is being carried out with two 5th-grade classes in a public school, in partnership with Mathematics and English teachers. Joint meetings were held between the teachers to plan and implement bilingual activities aligned with curricular content. Based on the demands of the Mathematics subject, tasks incorporating English elements were created and collaboratively applied by the teachers. At the same time, students were guided to use the Duolingo app daily as a hybrid activity, extending their exposure time to English. The observations indicate that students showed curiosity, engagement, and autonomy when facing the proposed activities. The expected results include greater integration between subjects, improvement in English proficiency, and the development of bilingual teaching strategies. The study highlights the need for ongoing teacher training and paves the way for expanding bilingual practices in other subjects as well, broadening the use of English for teaching content, in addition to hybrid learning as a reinforcement strategy for bilingual education.

**Keywords:** Bilingual Education. Bilingual Mathematics Education. Hybrid Learning. Teacher Training. Public School.

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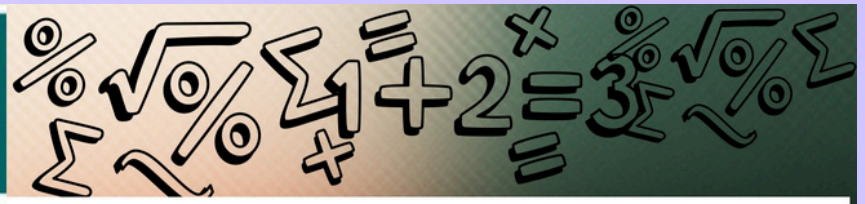
# SAE HIGHER EDUCATION

## BILINGUAL MATHEMATICS EDUCATION IN ELEMENTARY SCHOOL

Universidade Federal de Santa Maria 1960

Simpósio de Intercâmbio Acadêmico 2025
V Symposium of Academic Exchange

InteRSummit
Internationalization Research Summit



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# ART-SCIENCE-TECHNOLOGY MUSEUM: INTERFACES OF THE FUTURE

Isabella Bittencourt dos Santos[1], Fernando Codevilla[2]

**Abstract:** The MACT project, in collaboration with the Laboratory of Contemporary Art, Technology and Digital Media (LABART), explores Visual Arts through a transdisciplinary approach to art, science, and technology. In 2025, two major events were organized: FACTO12 and the 20th Contemporary Art Symposium, both centered on the theme "Interfaces of the Future", inspired by Franco Berardi's book "After the Future" (2019). Organizing these events involved months of general weekly meetings and the creation of working groups (Curatorship, Exhibition Design, Digital Media, and Administration). Was selected 14 artists and collectives across the world whose works and research explored diverse perspectives and reflections on uncertainties of the future amid the technological and environmental changes. The events culminated in fourteen days of art exhibition and three days of lectures with artist-researchers, who shared creative visions, current projects, and strategies for the future. Events such as those organized by LABART highlight the relevance and impact that scientific research, access to museological spaces, and international reach have in the construction of critical thinking, academic training, and the understanding of art's impact on the community.

**Keywords:** Art-science-technology. Transdisciplinarity. Futurability. Museum.

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# SAE HIGHER EDUCATION

## ART-SCIENCE-TECHNOLOGY MUSEUM: INTERFACES OF THE FUTURE

### ART-SCIENCE-TECHNOLOGY MUSEUM

MUSEU arte ciência tecnologia

**Objective**

Explore how nature, art, and technology intersect to predict the possibles futures. Inspired by Berardi's book After the Future, the project aimed to create an Art -Science-Technology Festival to promote reflection, critical thinking and experimentations in contemporary art.

**Development**

Collaborative work with teams in curatorship, exhibition design, digital media, and administration.
Analysis and selection of artists and collectives investigating technology–nature relations.

**Results**

The result was an art exhibition with 14 artists from Brazil, Argentina, Spain, Colombia, Chile, and China helped us reflect on how we interact with the environment and what our possible futures could be.


# QUALITY OF LIFE, FUNCTIONAL COMMUNICATION AND LANGUAGE IMPROVE AFTER CLOWN THERAPY WITH PEOPLE WITH CHRONIC EXPRESSIVE APHASIA

Isadora Uberti da Silva[1], Lenisa Brandão[2]

**Abstract:** Clown therapy has shown positive effects on emotional well-being in older adults and people with dementia, but little is known about its impact on individuals with aphasia. This study examined the effects of clown therapy on quality of life, communication, and language in people with stroke-related expressive aphasia. A Phase I pre-/post-test study was conducted with 26 participants more than one year post-stroke. The five-month intervention included weekly two-hour clown therapy sessions, either alone or combined with conventional therapy. Quality of life was assessed using the Stroke and Aphasia Quality of Life Scale (SAQOL-39), communication with the ASHA Functional Assessment of Communication Skills (ASHA-FACS), and language with the Brief Language and Aphasia Assessment Battery (ABLA). Significant improvements were observed in overall quality of life ($Z = -3.000$; $p = 0.003$), the communication domain of SAQOL-39 ($Z = -2.400$; $p = 0.016$), and functional communication ($Z = -3.667$; $p = 0.001$). Language scores also improved, with gains in directed interview, repetition, and naming tasks. Participants with depression or anxiety showed greater increases in energy ($p = 0.047$) and total language scores ($p = 0.031$). Clown therapy was well accepted and may complement aphasia rehabilitation, especially for individuals with emotional symptoms.

**Keywords:** Clown therapy. Aphasia. Quality of life. Communication. Language.

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# QUALITY OF LIFE, FUNCTIONAL COMMUNICATION AND LANGUAGE IMPROVE AFTER CLOWN THERAPY WITH PEOPLE WITH CHRONIC EXPRESSIVE APHASIA

## QUALITY OF LIFE, FUNCTIONAL COMMUNICATION AND LANGUAGE IMPROVE AFTER CLOWN THERAPY WITH PEOPLE WITH CHRONIC EXPRESSIVE APHASIA

Isadora Uberti da Silva [1]; Lenisa Brandão[2]
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### Introduction

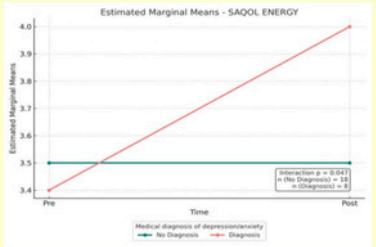
- Clown therapy has shown positive effects on **older adults** and **people with dementia**
- **Impact on individuals with aphasia**

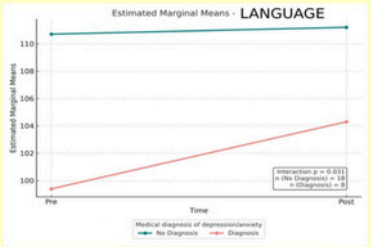
### Methods

- **26 participants with chronic aphasia**
- **Pre- and post-intervention assessments**
- Five months of weekly clown therapy
- Theater plays

| Measure | Pre Mean (SD) | Post Mean (SD) | p-value |
|---|---|---|---|
| SAQOL-39 Total | 3.7 (0.9) | 4.0 (1.0) | 0.003 |
| SAQOL-39 Comm. Domain | 3.0 (1.0) | 3.5 (1.3) | 0.016 |
| ASHA-FACS Soc. Comm. | 6.0 (1.0) | 6.2 (1.0) | <0.001 |
| ABLA Battery (Overall) | 107.2 (27.9) | 109.1 (26.1) | 0.05 |
| Directed Interview | 16.6 (3.6) | 16.8 (3.5) | 0.039 |
| Word Repetition | 5.7 (3.0) | 6.3 (2.6) | 0.02 |
| Noun Naming | 13.2 (6.9) | 14.0 (6.6) | 0.049 |
| Verb Naming | 4.2 (2.3) | 4.5 (2.3) | 0.03 |

### Results




### Conclusion

- A promising approach to **complement aphasia rehabilitation**
- Especially for individuals with **coexisting depression and anxiety**

# A SYSTEMATIC REVIEW OF MICRONEEDLE-BASED DRUG DELIVERY SYSTEMS FOR THE MANAGEMENT OF CHRONIC PAIN

Izabel Quevedo Cunha Koehler[1], Paulo Ricardo de Souza[2]

**Abstract:** Chronic pain is defined as a sensory and emotional experience that persists for more than three months. It represents a global healthcare burden that compromises daily functioning and quality of life, often leading to depression, anxiety, and even substance abuse. Current treatments, including oral, parenteral, and topical drug delivery systems, remain the mainstay of therapy but are frequently limited by adverse effects, poor efficacy, and reduced patient adherence. Transdermal drug delivery systems represent a promising alternative since they allow for painless and controlled administration. In particular, microneedle-based systems can cross the skin barrier and reach dermal circulation effectively, offering ease of use and improved tolerability. These characteristics suggest they could provide a safer and more acceptable option for patients living with chronic pain. This systematic review will compare microneedle-assisted delivery of analgesics or adjuvant drugs to conventional treatments in adults with chronic pain. Studies reporting at least one pain-related outcome will be analyzed. Data will be collected from PubMed, ScienceDirect, and Google Scholar, and results will be synthesized using a random-effects model. The review is expected to clarify the potential of microneedle technology as an innovative and more patient-friendly strategy for chronic pain management.

**Keywords:** Review1. Microneedles2. Chronic pain3. Pharmaceutical technology4. Innovation5.

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# SAE HIGHER EDUCATION

## A SYSTEMATIC REVIEW OF MICRONEEDLE-BASED DRUG DELIVERY SYSTEMS FOR THE MANAGEMENT OF CHRONIC PAIN

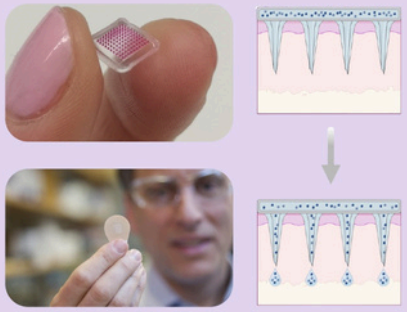
Presenter: Izabel Quevedo Cunha Koehler  Contact: izabel.koehler@acad.ufsm.br
Advisor: Paulo Ricardo de Souza

A SYSTEMATIC REVIEW OF MICRONEEDLE-BASED DRUG DELIVERY SYSTEMS FOR THE MANAGEMENT OF CHRONIC PAIN

**Chronic Pain**

**Current treatments**

**Microneedles**



**Do microneedles work better than current treatments for adults' long-term pain?**

**Methodology**

Databases:

PubMed  ScienceDirect  Google Scholar

Keywords:

- Pain
- Pain AND treatment
- Chronic Pain
- Micro needles
- Chronic pain AND treatment
- Micro needles AND treatment
- Micro-needles
- Micro-needles AND treatment
- Microneedles

**Data Processing**

Relation to pain outcome

Random-effects model

**Expected Results**

The review is expected to clarify the potential of microneedle technology as an innovative and more patient-friendly strategy for chronic pain management.

# THE IMPORTANCE OF KNOWING ABOUT CHRONIC DISEASES

Jenika Romain[1]

**Abstract:** According to the IBGE, Brazilian Institute of Geography and Statistics, more than 52% of the Brazilian population is diagnosed with at least one chronic disease. Usually, chronic diseases start gradually and last a long or uncertain period. Most of the time, it can have multiple causes and require lifestyle changes. Main examples in Brazil are: diabetes, cardiovascular diseases, cancer, depression, obesity, asthma, and Alzheimer's disease. The objective of this research is to share information about the importance of knowing how to prevent chronic disease and to provide more information about the topic. Data and information have been collected from Brazilian governmental websites, such as IBGE and Biblioteca Virtual em Saúde webpages. As a result, it is expected to help, inform, and guide people in preventing chronic diseases to maintain good health. Having good health can be achieved by simple changes in behavior, for example, staying away from alcohol and tobacco, exercising regularly, eating healthy, and scheduling regular medical appointments. These are good ways to prevent chronic diseases.

**Keywords:** IBGE. Chronic disease. Healthy life.

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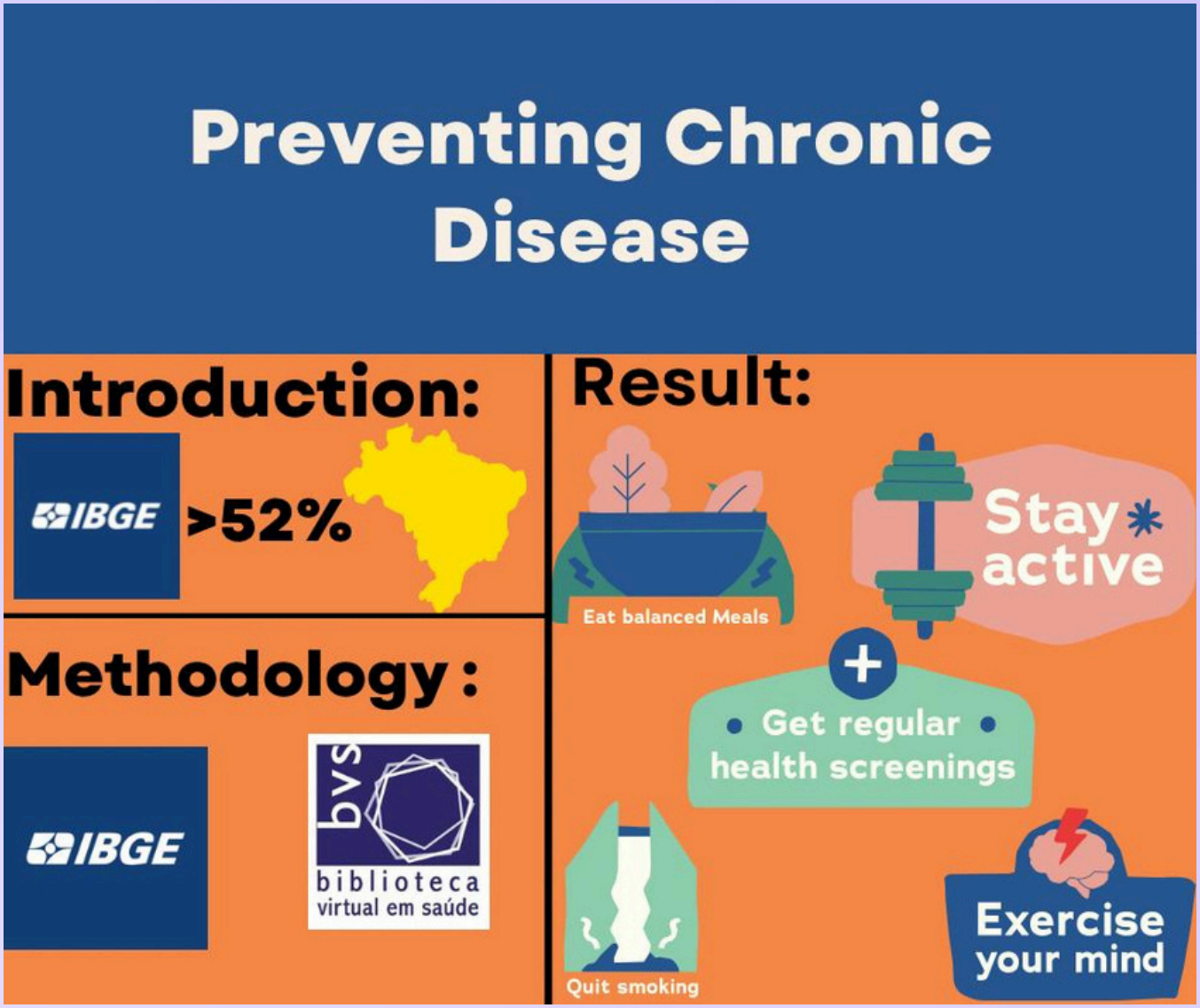
# SAE HIGHER EDUCATION

## THE IMPORTANCE OF KNOWING ABOUT CHRONIC DISEASES



# CULTURE FOR ALL? ACCESS AND INEQUALITY IN THE STREAMING ERA

Júlia Gonsalo de Carvalho[1], Patrícia M. Pérsigo[2]

**Abstract:** This study explores forms of cultural mediation within the digital environment by comparing digital piracy facilitated through Stremio with Netflix, as a hegemonic streaming platform. It analyzes how each system structures access to audiovisual content, considering factors such as communication strategies, business models, curatorial practices, economic, technical, and legal constraints. Employing a qualitative methodology that includes document and content analysis, the research investigates how these platforms shape distinct modes of cultural engagement. The study critically examines whether streaming services promote cultural democratization or perpetuate existing inequalities through concentrated distribution and algorithm-driven access and subscription models. Preliminary findings indicate that digital piracy may operate as a curatorial mechanism and a mode of resistance, enabling the circulation of content excluded from mainstream catalogs and contributing to cultural preservation. The research contributes to the field of Communication by fostering dialogue on alternative modes of cultural circulation, the legitimacy of informal practices, and the broader implications for cultural access, in alignment with public interest communication and democratization frameworks.

**Keywords:** digital piracy. streaming platforms. popular curation. cultural access. alternative communication.

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# Culture for All? Access and Inequality in the Streaming Era

**Author: Júlia Gonsalo de Carvalho**
**Advisor: Patricia M. Pérsigo, PhD**

This exploratory research examines the impact of **platformization** on access to **audiovisual culture** through the case of **Stremio**, a platform that integrates **official** functionalities with **unofficial community-developed** extensions. The study investigates the dynamics between legality, alternative curation, and sharing practices.

**Main question**

How does the platformization of communication shape the mediations of access to audiovisual culture, based on the experience of Stremio?

## Research Focus

- How people access movies and series today;
- Streaming platforms are important but also create barriers;
- Official and unofficial ways of accessing content;
- Focus on Stremio (official version + community-developed extensions).

## Theory

Based on Jesús Martín-Barbero's theory of mediation, communication is influenced by culture, technology, and social practices, with users regarded as active participants who interpret and engage with content in diverse ways.

## Methodology

- Bibliographic research;
- Document analysis of Stremio's official and unofficial environment;
- Semi-structured interviews with:
  - Communication and platform experts;
  - Digital curators who use/create unofficial extensions;
- Content Analysis of interviews.

## Expected results and societal impacts

- Foster critical reflection on the right to access culture in Brazil, examining how digital platforms shape and mediate this access.
- Contribute to broader debates on the platformization of communication and its regulation—extending beyond news coverage and social media to include cultural production, distribution, and consumption.

# "TRADUZA" RESEARCH PROJECT: TRANSLATION AS A MEANS OF DEMOCRATIZING ACCESS - USES OF FEMINIST EPISTEMOLOGY IN VISUAL ARTS

Júlia Israel da Silva Maciel[1], Thays Tonin[2]

**Abstract:** "TraduzA: Grupo de Pesquisa em Tradução de Arquivos e Acervos de Artes Visuais" is a research group affiliated with the education project *ArquivA: Práticas em Acervos e Arquivos de Artes Visuais*, within the Laboratório de Estéticas e Epistemologias Descentradas das Artes. For centuries, standard art-history texts have largely omitted women artists, resulting in a canon shaped by colonial and patriarchal perspectives. Only recently, a strong movement of women scholars emerged writing about these artists, highlighting their significance in different historical contexts. This situation is compounded by the limited dissemination of academic studies which relies on translation because much of the relevant literature remains in the authors' native languages. The aim of TraduzA is to produce critical translations of these studies from a visual-arts perspective, to acknowledge the field's critical heritage, and to publish the translations in local, non-profit journals. The group's current research focus is Whitney Chadwick's *Women, Art and Society*. The group comprises undergraduate, graduate students and faculty members.

**Keywords:** Art History. Feminist epistemology. Women artists. Translation.

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# SAE HIGHER EDUCATION

## “TRADUZA” RESEARCH PROJECT: TRANSLATION AS A MEANS OF DEMOCRATIZING ACCESS - USES OF FEMINIST EPISTEMOLOGY IN VISUAL ARTS


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J.I.S. MACIEL; TONIN, T.

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INTERESSADES PODEM ENTRAR EM CONTATO VIA PÁGINA OFICIAL DO PROJETO

Simpósio de Intercâmbio Acadêmico
Symposium of Academic Exchange

TRADUZA- GRUPO DE TRADUÇÃO COLETIVA DE PESQUISADORAS FEMINISTAS; TÁTICAS DE DESCENTRALIZAÇÃO PARA AS ARTES VISUAIS

LEEDA LABORATÓRIO DE PESQUISA EM ESTÉTICAS & EPISTEMOLOGIAS DESCENTRADAS DAS ARTES

# HOW JOURNALISTS EVALUATE THE RADIO'S PERFORMANCE IN COVERING THE 2024 FLOODS IN RIO GRANDE DO SUL, IN CITIES AFFECTED BY THE CATASTROPHE

Júlia Negrello Decarli[1], Mirian Redin de Quadros[2]

**Abstract:** This work presents an ongoing undergraduate thesis research, developed in the Journalism course, with the theme Coverage of Disasters in Radio Media. The research analyzes the floods that hit the Brazilian state of Rio Grande do Sul in 2024, affecting 2.3 million people. The research problem investigates how journalists evaluate the performance of radio in covering the 2024 floods in Rio Grande do Sul, in cities affected by the catastrophe. As specific objectives, we seek to reflect on the role of radio journalism in covering socio-environmental disasters, to map the most affected cities and radio stations operating there and to analyze the radio's performance during the disaster period from the journalists' perspective. The theoretical framework discusses the concept of event, environmental disasters and journalistic and radio coverage of disasters. Based on this framework, we understand the 2024 floods as socio-environmental catastrophes, events that are characterized by destabilizing journalistic work and demanding reflections on their causes and consequences. The empirical stage of the research will be carried out through interviews with journalists who participated in the radio coverage of the floods. The data obtained will be interpreted using the Content Analysis method.

**Keywords:** Radio journalism. Disaster coverage. Floods. Rio Grande do Sul. Socio-environmental disasters.

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# SAE HIGHER EDUCATION

## HOW JOURNALISTS EVALUATE THE RADIO'S PERFORMANCE IN COVERING THE 2024 FLOODS IN RIO GRANDE DO SUL, IN CITIES AFFECTED BY THE CATASTROPHE

### RADIO COVERAGE OF THE 2024 FLOODS IN RIO GRANDE DO SUL FROM THE PERSPECTIVE OF JOURNALISTS

**Author: Júlia Negrello Decarli**
**Advisor: Mirian Redin de Quadros, PhD**

The research analyzes the journalistic coverage of the floods that hit the Brazilian state of Rio Grande do Sul in 2024, that affected 2.3 million people. The research problem investigates **how journalists evaluate the performance of radio in covering the 2024 floods in Rio Grande do Sul**, in cities affected by the catastrophe.

### Contextualization:

- During the floods the **radio** became **essential** in **the face of power outages** and **unstable internet** in several regions;
- **Radio** stations acted as a reliable **source of information**, **services**, and **public communication.**

### Research methods:

- Bibliographic research - happening theory, environmental disasters; journalistic and radio coverage of disasters; manual of disasters coverage;
- Semi-structured interviews with journalists who were working on affected areas;
- Content analysis.

### Expected results and impacts on society:

With this, it will be possible to understand how journalists work during times of crisis and if it is possible for them to follow the manual of disasters coverage's recommendations.

# PRESERVING THE INFORMATION ECOSYSTEMS: HOW CAN ENVIRONMENTAL LAW HELP US REGULATE DIGITAL PLATFORMS?

Júlia Schmidt Kronbauer[1], Rafael Santos de Oliveira[2]

**Abstract:** To explain the phenomenon of platformization, Van Dijck compares it to a tree, illustrating how information ecosystems are interdependent structures. She highlights the parallels between the digital and the natural environments, allowing cyberspace to be interpreted as a techno-informational ecosystem. Therefore, it is possible to understand disinformation as a form of pollution. The present research traces analogies between Environmental Law and Digital Law, asking how can Environmental Law offer perspectives of regulation of digital platforms and disinformation? Philosophical Hermeneutics is combined with bibliographic and documentary research to answer this question, also aiming to comprehend how disinformation is created and propagated in digital platforms and to verify the risks that it creates for democracy. The conclusion is that disinformation is enabled by the big techs that operate digital platforms and their algorithms, which create “bubble filters” and culminate in Empoli’s “quantum politics” and Han’s “infocracy”. In this sense Environmental Law can lend Digital Law the Precautionary and the Polluter Pays Principles, which are to be applied in the development and in the use of the algorithms that govern those platforms. The Abstract Risk Theory can also be applied to hold big techs accountable.

**Keywords:** Digital Plaftorms. Digital Law. Environmental Law. Democracy.

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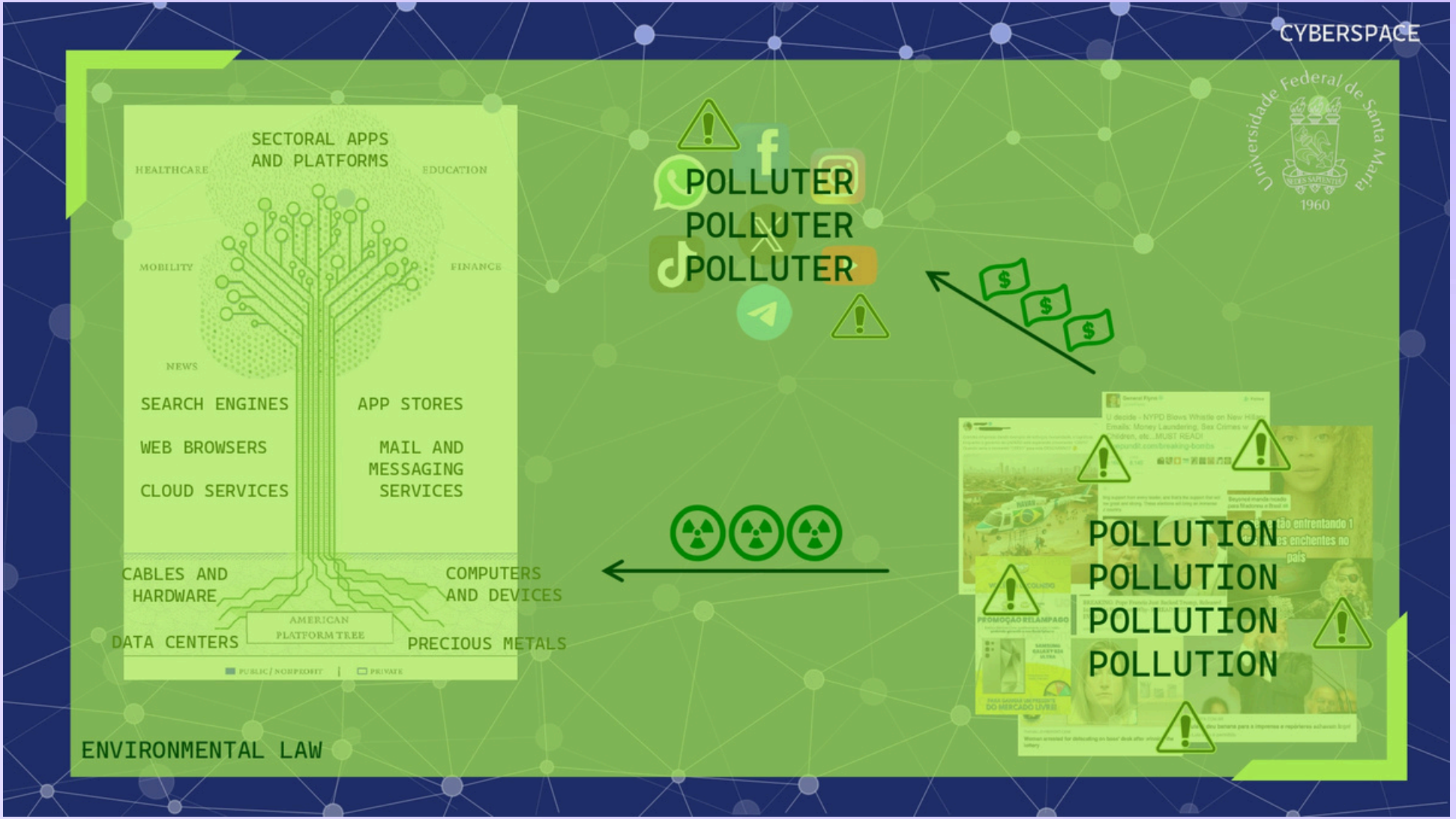
# SAE HIGHER EDUCATION

## PRESERVING THE INFORMATION ECOSYSTEMS: HOW CAN ENVIRONMENTAL LAW HELP US REGULATE DIGITAL PLATFORMS?



# GENDER REPRESENTATIONS IN THE NEWS COVERAGE OF THE 2023 FIFA WOMEN'S WORLD CUP, FROM THE GUARDIAN AND RNZ PORTALS

Júlia Weber[1], Lana D'avila Campanella[2]

**Abstract:** This study analyzes gender representations in the journalistic coverage of the 2023 FIFA Women's World Cup, focusing on articles published by The Guardian and RNZ. The objective is to understand how media narratives contribute to the construction of the public image of women's football and to the shaping of public opinion about the sport. The study is situated within the field of Communication and Public Relations, discussing the role of the media in mediating social discourses and legitimizing sports practices. A qualitative methodology is employed, drawing on content analysis and the principles of Agenda-Setting Theory to identify frames, discursive patterns, and thematic hierarchies in the journalistic coverage. The research seeks to examine whether the analyzed outlets foster greater visibility and recognition of women's protagonism in sport or reproduce stereotypes that reinforce gender inequalities. By situating women's football within the context of a global mega sporting event, the study contributes to reflections on the construction of public opinion and on the challenges related to gender equality in the sports field.

**Keywords:** Football. Gender. Media. Public opinion. Public relations.

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# SAE HIGHER EDUCATION

## GENDER REPRESENTATIONS IN THE NEWS COVERAGE OF THE 2023 FIFA WOMEN'S WORLD CUP, FROM THE GUARDIAN AND RNZ PORTALS

### Gender Representations in News Coverage of the 2023 FIFA Women's World Cup: The Guardian and RNZ

**Author: Júlia Weber**
**Advisor: Lana Campanella, PhD**

### Objective

To examine how **media narratives** influence **public opinion** and contribute to the construction of the **public image of women's** football.

### Methodology

Qualitative approach, using content analysis, guided by Agenda-Setting Theory to identify frames, discursive patterns, and thematic priorities.

### Theoretical Framework

**Agenda-Setting** Theory, complemented by **Public Opinion** studies (Miguel, Gomes) and perspectives from **Public Relations** (Kunsch, Grunig). It examines how media discourse shapes perceptions, contributes to legitimacy, and affects the visibility of women soccer.

### Expected Results:

This study seeks to identify discursive patterns, elements of invisibilization, strategies used to highlight and value women athletes, and differences in the narratives constructed by the two news portals analyzed.

# THE IMPACT OF MARATONA TECH IN PROFESSIONAL EDUCATION: A STEAM APPROACH ANALYSIS

Juliana Asevedo Alves[1], Carina Petry Lima Brackmann[2], Julyane de Rosso Kirsch[3], Silvana Maldaner[4], Prince Dennis Gokeh[5]

**Abstract:** In the context of Professional and Technological Education (EPT), the Brazilian equivalent of Vocational and Technical Education (VTE), there is an increasing demand for pedagogical models aligned with the demands of the contemporary workforce. The study examines the impact of technology marathons as an active learning methodology, taking the "Marathon Tech" event as a case study. The approach is based on Project-Based Learning (PBL), in which high school students identify real problems in their communities and develop solutions using Generative Artificial Intelligence (AI). The results show significant advances in desirable competencies for the current century, such as critical thinking, complex problem-solving, collaboration, and digital literacy. The educational model clarifies the STEAM (Science, Technology, Engineering, Arts, and Mathematics) framework by integrating multiple disciplines to address concrete challenges. The methodology enhances student engagement by linking theoretical concepts to hands-on application. Moreover, the technology marathon model proves a powerful pedagogical tool, successfully stimulating an innovative mindset and better preparing students for future professional challenges.

**Keywords:** Project-Based Learning. STEAM Education. Tech Marathons. Professional and Technological Education. Active Learning.

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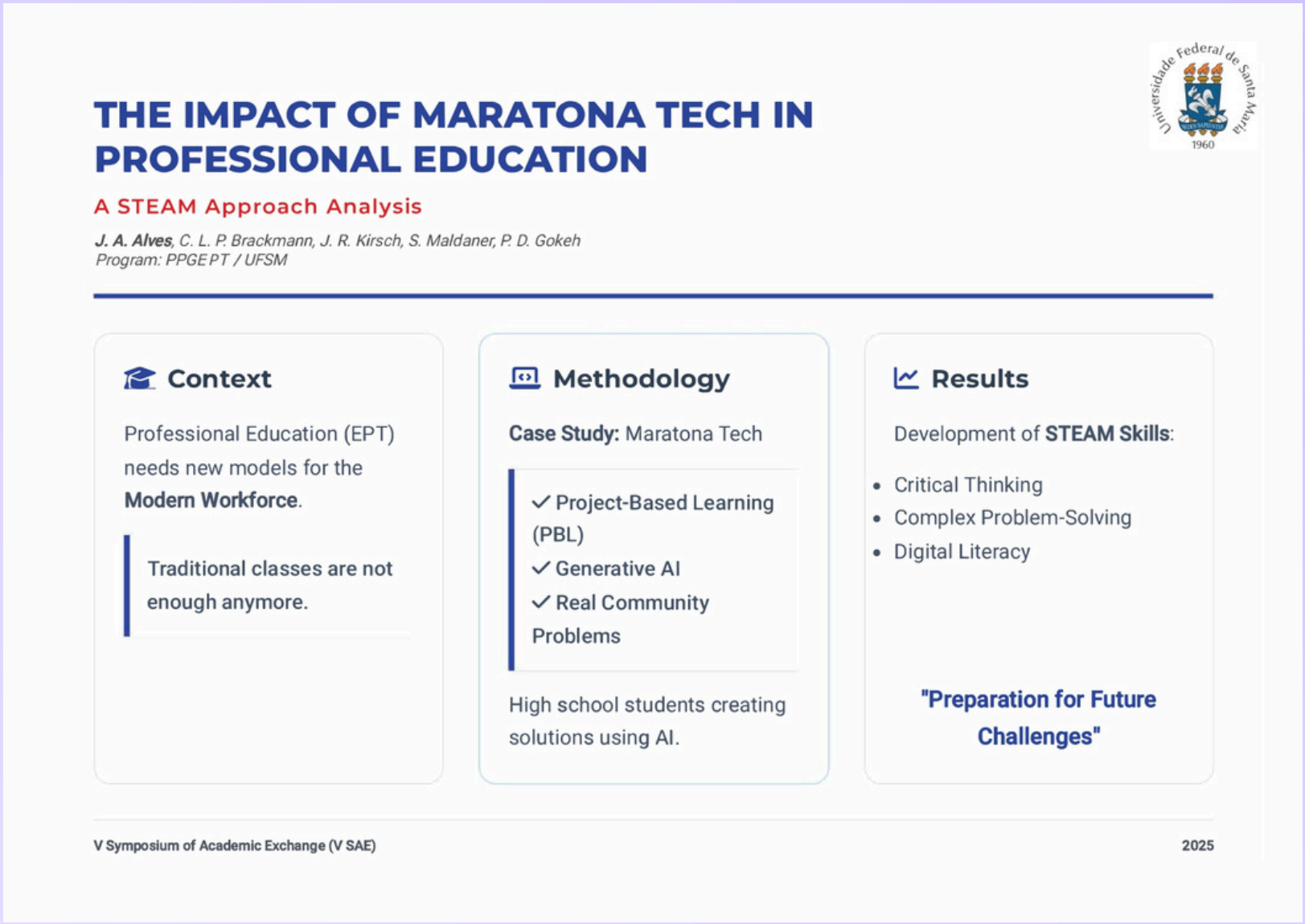
# SAE HIGHER EDUCATION

## THE IMPACT OF MARATONA TECH IN PROFESSIONAL EDUCATION: A STEAM APPROACH ANALYSIS



# EDUCATIONAL GAME: A PRACTICAL APPROACH TO TEACHING ELECTROSTATIC FORCE

Julyane de Rosso Kirsch[1], Juliana Asevedo Alves[2], Milena Martinez Albeche[3]
Silvana Maldaner[4], Prince Dennis Gokeh[5]

**Abstract:** This study presents the development of an educational game designed to facilitate the understanding of electric force through active and playful learning. Inspired by the traditional memory game, the activity was adapted to include physics content, allowing students to practice calculating electrostatic forces based on Coulomb's Law. The game components consist of pairs of blue acrylic cards representing electric charges, black acrylic cards indicating the calculated force results, and a metal stand with arrows to visually demonstrate the direction, sense, and distance of the forces. During the game, each participant identifies pairs of charges, calculates the resulting force, and compares it with the corresponding result card. Students are also required to organize the forces and distances in ascending order, reinforcing conceptual understanding. Preliminary classroom applications indicate that the game promotes engagement, fosters active learning, and enhances problem-solving skills. The proposed activity received positive validation as a teaching resource for abstract physics concepts, making them more appealing and accessible to higher education students.

**Keywords:** Physics. Educational game. Coulomb's Law. Electrostatics. Learning

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# SAE HIGHER EDUCATION

## EDUCATIONAL GAME: A PRACTICAL APPROACH TO TEACHING ELECTROSTATIC FORCE

### ELECTROPHYSICS

#### RATIONALE (WHY IT IS IMPORTANT ?)

This work began as a challenge proposed by our professor: to create an experiment about one of the classroom topics. From this challenge, we came up with the idea of developing a game that helps students better interpret electrostatic force.

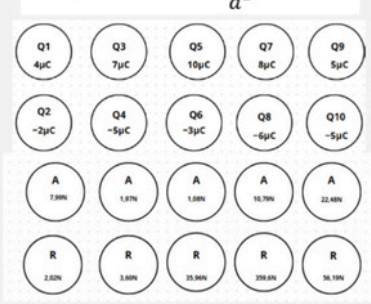
#### METHODOLOGY

The game is based on the traditional memory game.The blue cards represent electric charges,and each pair corresponds to a charge value. After the students find their pairs of cards, they must calculate the electric force between the charges using Coulomb's Law. The black cards show the results, indicating whether the interaction is attractive or repulsive. Additionally,we use a metal structure and arrows to represent both the distance between the charges and the direction of the force, clearly showing whether the charges attract or repel each other. This way, it is possible to visualize the practical application of the formula.

#### IMAGES OF THE GAME ELEMENTS

$$F = K \frac{|q1|.|q2|}{d^2}$$

FORMULA USED




BLUE CHIPS


BLACK CHIPS

INDICATION ARROW

SUPPORT FOR THE DEMONSTRATION

#### RESULTS

After building the game, we tested its practical application with my classmates. Even though there was some initial difficulty in understanding the rules, the challenge was overcome, allowing for an effective learning experience.

#### IMPLICATIONS (IMPACT ON THE COMMUNITY)

Although it has not been formally tested, the game sparked students' curiosity and made learning more engaging. Based on this experience alone, it already proves to be a valuable educational tool.

# ARCHAEOLOGICAL CONSERVATION PRACTICES IN SANTA MARIA: A CASE STUDY OF THE GAMA D'EÇA AND VICTOR BERSANI MUSEUM

Larissa Bondarenko[1], João Pedro Salgado Meinen[2], André Luis Ramos Soares[3], Aline Vargas de Vargas[4]

**Abstract:** The present project focuses on the safeguarding of archaeological artifacts excavated at the Gama d'Eça and Victor Bersani Museum sites in Santa Maria, Brazil. Since February 2025, a team of researchers has been carrying out procedures that include cleaning, cataloging, researching, and storing the recovered materials. The methodology follows preventive conservation principles: artifacts are first selected in the field, then transported to the laboratory, where they are cleaned and organized according to their material composition (such as bone, glass, ceramics, metal, and plastic). Each piece receives an identification number and detailed catalog entry before being stored in a protective storage area. Preliminary results include the stabilization of the collection and the creation of a structured database that supports future research. Beyond academic contributions to archaeology and museology, the project's broader impact lies in preserving cultural heritage for future generations and raising public awareness of the material history of Santa Maria's central region.

**Keywords:** Archaeology. Conservation. Cultural Heritage. Museology.

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# SAE HIGHER EDUCATION

## ARCHAEOLOGICAL CONSERVATION PRACTICES IN SANTA MARIA: A CASE STUDY OF THE GAMA D'EÇA AND VICTOR BERSANI MUSEUM

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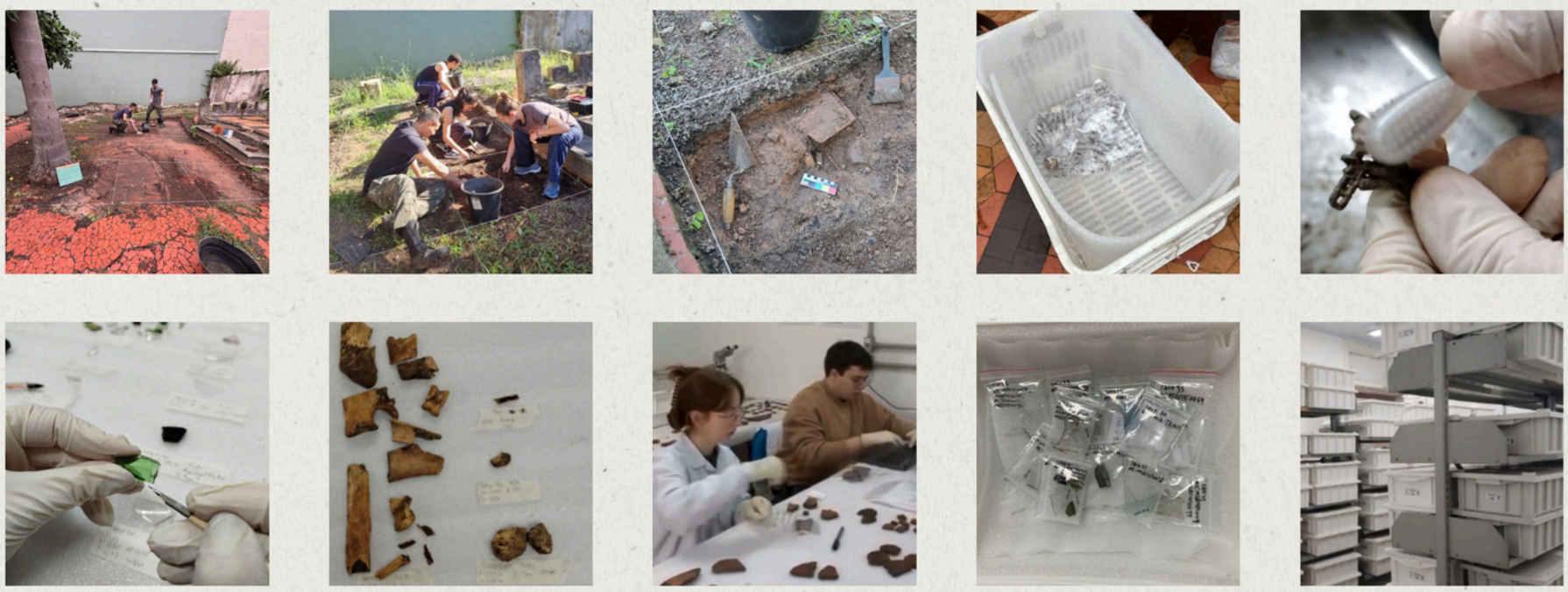
CENTER FOR SOCIAL SCIENCES AND HUMANITIES
LABORATORY OF ARCHAEOLOGY, SOCIETY AND CULTURE OF THE AMERICAS

Supervisors: André Luis Ramos Soares and Aline Vargas de Vargas

ARCHAEOLOGICAL CONSERVATION PRACTICES IN SANTA MARIA: A CASE STUDY OF THE GAMA D'EÇA AND VICTOR BERSANI MUSEUM



# THE SILENCE OF PROFESSIONAL GRIEF: NURSES' EXPERIENCES WITH DEATH IN INTENSIVE CARE UNITS

Luana Gularte Dias[1], Adaiane Amélia Baccin[2], Silvio José Lemos Vasconcellos[3]

**Abstract:** This study sought to understand how nurses experience and cope with the death of patients in intensive care units (ICUs) at a teaching hospital in Rio Grande do Sul. The research, which was exploratory-descriptive in nature and qualitative in approach, used the clinical-qualitative method proposed by Turato. Twenty nurses from the Adult, Pediatric, and Neonatal ICUs participated, selected for convenience, with the number defined by data saturation. Data collection took place between November 2023 and September 2024, using a sociodemographic questionnaire and semi-structured interviews, which were recorded and transcribed. The material was submitted to content analysis, according to Bardin. Three main axes emerged from the interpretation: coping strategies, which included emotional distancing, spirituality, optimism, and support among colleagues; valuing self-care and the provision of formal psychological support; and the need for more welcoming institutional environments, with training in palliative care and communicating bad news. The results show that nurses' grief often remains invisible, contributing to psychological distress. We conclude that there is an urgent need for institutional policies that expand emotional support and promote humanization in care, with positive repercussions for professionals, patients, and healthcare institutions.

**Keywords:** Nursing. Death. Hospitals. Mental Health. Grief.

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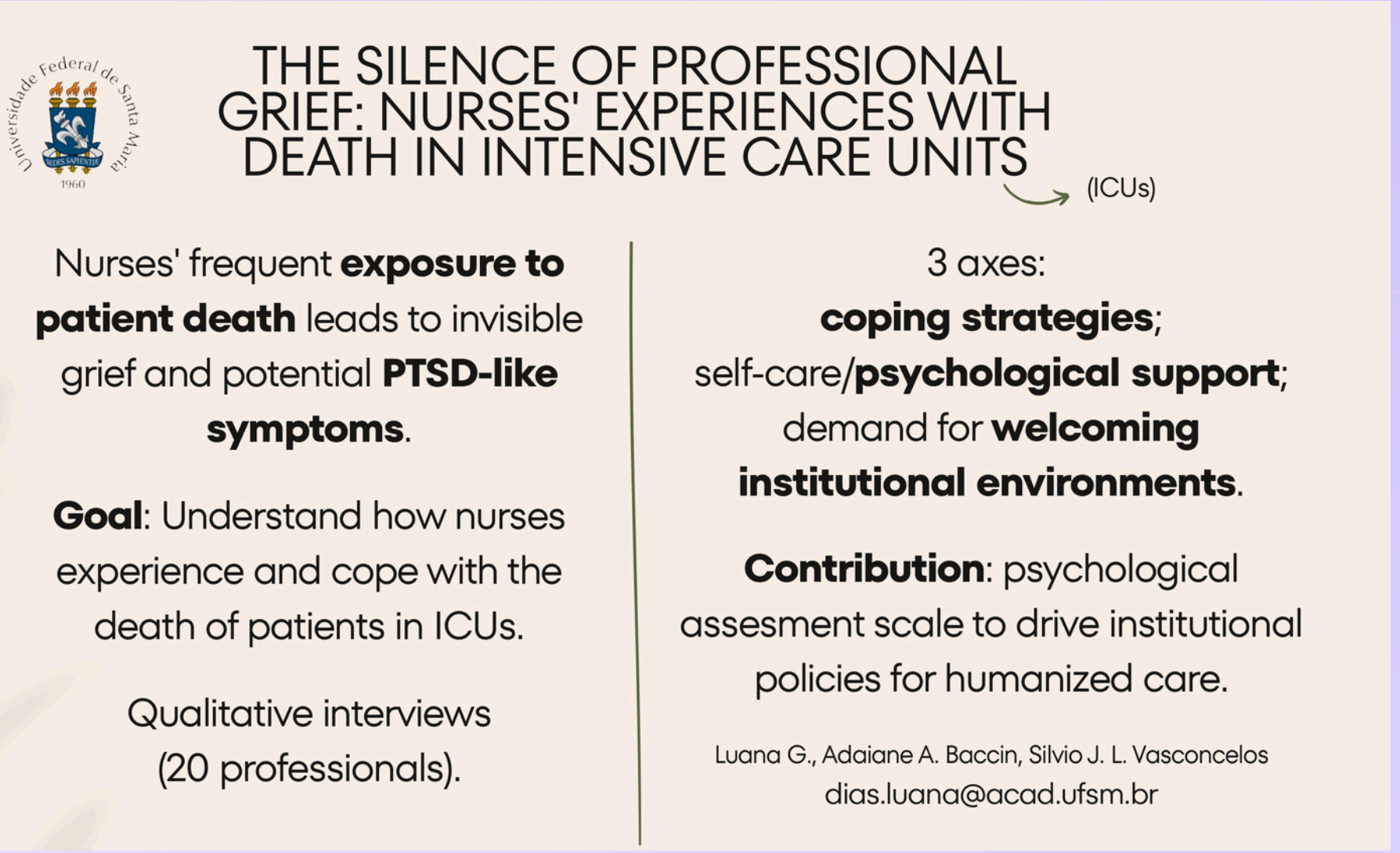
# SAE HIGHER EDUCATION

## THE SILENCE OF PROFESSIONAL GRIEF: NURSES' EXPERIENCES WITH DEATH IN INTENSIVE CARE UNITS



# ADDITIVE MANUFACTURING FOR PROTOTYPING IN ACOUSTICS AND VIBRATION

Lucas Bogaz de Angelo[1], William D'Andrea Fonseca[2]

**Abstract:** Acoustics and vibration research depends on designing, testing, and refining experimental devices. Traditional prototyping, however, is often costly, slow, and requires specialized infrastructure, which can hinder experimental progress. Additive manufacturing (3D printing) presents itself as a highly effective alternative, offering a practical, rapid, and low-cost solution for creating functional prototypes and custom components. This work demonstrates the application of 3D printing across multiple research scenarios. These include fabricating enclosures for MEMS and electret microphones, custom housings for signal controllers and amplifiers, and complex supports for microphone arrays. A significant application was the construction of a scaled icosidodecahedral sound source for various acoustic measurements, including scattering coefficient. Using materials like PLA (polylatic acid) and PETG (polyethylene terephtalate glycol) allowed for the production of parts tailored to precise experimental requirements, dramatically reducing costs and accelerating the development cycle. Consequently, 3D printing proves to be an important tool for innovation in acoustics. By democratizing access to prototyping, it enables the rapid transformation of conceptual ideas into tangible experiments. That is, this technology promotes a more creative, agile, and dynamic research environment.

**Keywords:** 3D printing. Rapid prototyping. Experimental acoustics. Cost-effective solutions. Custom projects.

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# Additive manufacturing for prototyping in acoustics and vibration

## Problem

Slow, expensive, and complex traditional prototyping

## Solution

3D printing to create functional prototypes on demand

## Applications


Icosidodecahedral sound source

MEMS Microphones

Microphone Array

## Results

Greater creativity and agility in research

Reduced development costs and time

Custom and precise experimental components

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# SHUFFLING CARDS WITH THE TORUS SHUFFLE

Lucas de Bona Sartor[1], Vanessa Eduarda Neumann de Oliveira[2], Maria Eliza Castro da Silva[3], Rodrigo Marinho de Souza[4]

**Abstract:** We will present Wilson's method, which is used to determine the minimum time a Markov chain needs before it can be considered well mixed, using the Symmetric Rudvalis Shuffle as an example. This shuffle works by randomly choosing one of four moves with equal probability: move the top card to the bottom, move the bottom card to the top, swap the two top cards, or do nothing. More specifically, we will explain how Wilson proved that a specific number of shuffles are required for a deck to be well mixed. Furthermore, we intend to use Wilson's method to obtain a lower bound on the mixing time of the Torus Shuffle. In this shuffle, cards are arranged in a square grid, and at each step a row or a column is chosen at random and rotated by one unit in a random direction. In 1988, Diaconis conjectured the order of the mixing time of this card shuffle, and this remains unproven. We aim to establish a lower bound of that same order.

**Keywords:** Mixing times. Rudvalis shuffle. Torus shuffle. Wilson's method.

*M. Castro, R. Marinho and L. Sartor thank Fundação de Amparo à Pesquisa do Estado do Rio Grande do Sul (FAPERGS) for the financial support through the Programa Institucional de Bolsas de Iniciação Científica (PROBIC) and through the grant 25/2551-0000934-0 (ARC). V. Neumann thanks Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for the financial support through the Programa Institucional de Bolsas de Iniciação Científica (PIBIC), grant 159905/2025-7.*

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## Shuffling Cards with the Torus Shuffle

- The objective is to determine the minimum time required for the deck to become well mixed.
- Wilson's method allows us to obtain a lower bound for the symmetric Rudvalis shuffle.
- Wilson (2003) proved that for this example, the lower bound is $\Theta(n^3 log(n))$.
- Our goal is to adapt his strategy to prove Diaconis's (1988) conjecture for the Torus Shuffle.

Symmetric Rudvalis Shuffle:

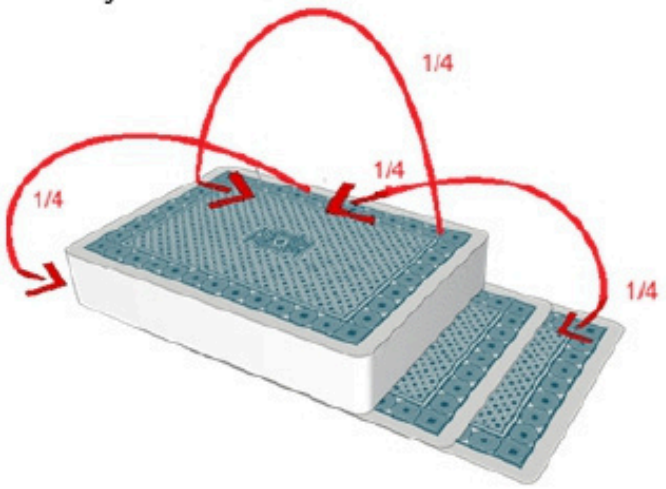


Figure adapted from Gonçalves et al. (2023).

M. Castro, R. Marinho and L. Sartor thank Fundação de Amparo à Pesquisa do Estado do Rio Grande do Sul (FAPERGS) for the financial support through the Programa Institucional de Bolsas de Iniciação Científica (PROBIC) and through the grant 25/2551-0000934-0 (ARC). V. Neumann thanks Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for the financial support through the Programa Institucional de Bolsas de Iniciação Científica (PIBIC), grant 159905/2025-7.

# SPOILAGE FUNGI IN INDUSTRIALIZED BREADS IN SOUTHERN BRAZIL

Luciane Vieira Borges Gós[1], Marina Venturini Copetti[2]

**Abstract:** The study investigated the main fungi responsible for the spoilage of industrialized bread in the three States in Southern Brazil. Bread is highly susceptible to fungal growth due to its composition and the temperatures at which it is stored. In addition, some species show tolerance to commonly used preservatives, which makes control more difficult. For this study, 60 bread samples from 12 different brands were collected and stored for up to 30 days after their expiration date to allow fungal growth. A total of 52 fungal colonies were isolated and identified from 46 spoiled samples of bread. Four brands showed spoilage in all collected samples, and in two of them, the problem occurred even before the expiration date. Hyphopichia burtonii was the most common species, occurring in four brands. Penicillium paneum, Penicillium roqueforti, and Aspergillus chevalieri were also detected, as well as cases of multiple species in a single loaf, with up to eight different types of spoilage fungi. These findings provide relevant data about the most common spoilage agents and could be useful to help the food industry understand and face the problem, reducing economic losses and extending the product shelf life.

**Keywords:** Hyphopichia burtonii. Penicillium paneum. Penicillium roqueforti. Aspergillus chevalieri.

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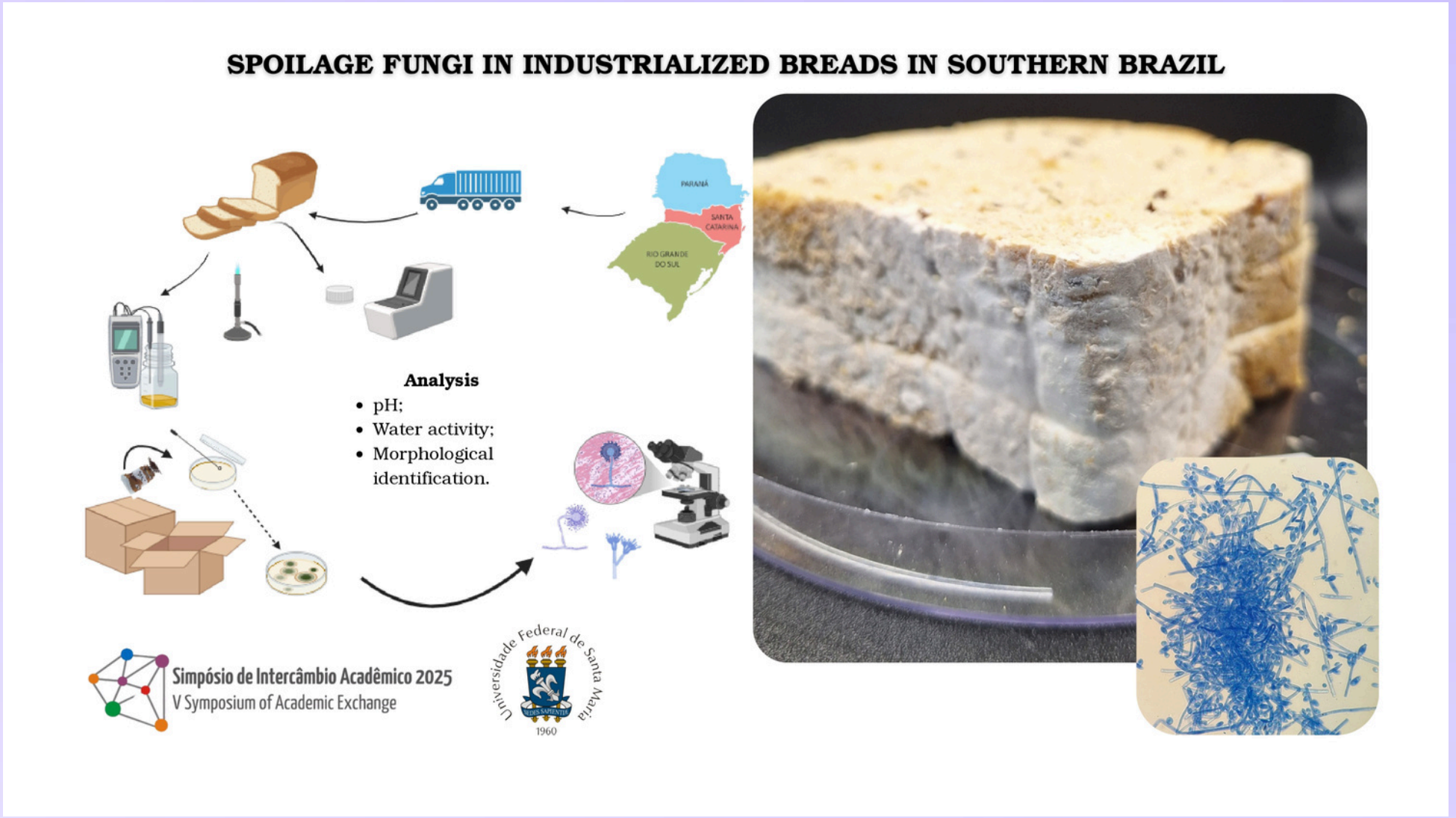
## SPOILAGE FUNGI IN INDUSTRIALIZED BREADS IN SOUTHERN BRAZIL



# EVOLUTION AND SPREAD OF RABIES VIRUS AMONG MULTIPLE HOSTS IN THE SOUTHERN REGION OF BRAZIL

Luíza Pacheco Pozzebon[1], Richard Steiner Salvato[2], Lizandra Jaqueline Robe[3], Gabriel da Luz Wallau[4]

**Abstract:** Rabies virus (RABV) is a zoonotic virus that infects many mammals, including bats, bovids, canids, and human beings. Untreated infections are lethal in almost all human cases, since they cause severe encephalitis. Thus, it is clear that RABV is relevant in the public health context and that is why it is important to maintain surveillance efforts and study its evolution. The objective of this research is to understand how the rabies virus evolves and spreads among different host species in the Southern region of Brazil, comprehending its dynamics. For that, 195 complete RABV genomes will be assembled and used to perform evolutionary inferences, through bioinformatics analyses. As expected results, we hope to find lineages grouping together based on the host, not necessarily the geographic distribution. Besides, we expect to find multiple independent bat-associated introductions to domestic animals, consisting of viral transmission/spillover from a primary host to a new one. These possible results bring important inferences to public health, since it allows the understanding of the spread, dissemination, genetics, and evolution of RABV. With this information, it is possible to identify transmission routes, detect potential host changes, define priority areas for vaccination, and support rabies control and prevention strategies.

**Keywords:** Full Genome. Rabies Virus. Evolution. Genomic Surveillance. Multiple Hosts.

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# EVOLUTION AND SPREAD OF RABIES VIRUS AMONG MULTIPLE HOSTS IN THE SOUTHERN REGION OF BRAZIL

## EVOLUTION AND SPREAD OF RABIES VIRUS AMONG MULTIPLE HOSTS IN THE SOUTHERN REGION OF BRAZIL

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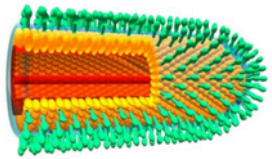
- Rabies virus (RABV) → **zoonotic** virus.



RABV infects many **mammals**.

Untreated infections are lethal in almost all human cases → **severe encephalitis**

**Brazil** → controled canine rabies, but active transmission from bats to domestic and farm animals

How the rabies virus **evolves** and **spreads** among different host species in Rio Grande do Sul?

- Infected animals = molecular protocols
- 195 complete RABV genomes
- Different hosts
- Bioinformatics Analyses

**Phylogenetics and phylogeography**

- Lineages grouping together based on the host, not necessarily the geographic distribution.
- Multiple independent bat-associated introductions to domestic and farm animals = **viral spillover**

Transmission routes;
Potential host changes;
Priority areas for vaccination;
Control and prevention strategies;
Monitoring of possible re-emergence cases.

**IMPACTS ON PUBLIC HEALTH!**

# CONNECTING PERCEPTION AND PATHWAY: FUNCTIONAL GAINS FROM MULTIMODAL AUDITORY STIMULATION

Marcelo Cezar de Mello Filho[1], Michele Vargas Garcia[2]

**Abstract:** The ability to comprehend and identify sounds, whether it is verbal or not, requires structural integrity and functionality of the central auditory pathway (CAP). The CAP conducts auditory information to the auditory brain through synaptic activity and its evaluation is performed by systems that record the synaptic activity. Purpose: Demonstrate that combined stimulation can improve structural integrity and functionality of the CAP. Methods: Procedures were carried out in the Speech Pathology and Auditory Electrophysiology Outpatient Service of a teaching hospital. The study was approved by the Research Ethics Committee, CAAE: 57700721.0.0000.5346. Longitudinal and quantitative design study. The caseload comprised four participants (two women; two men, mean age 22,25 years). Subjects were submitted to hearing history-taking and auditory screening. Individual complaints: difficulty to comprehend speech in a noisy environment and discomfort to loud sounds; three individuals reported the first and one reported both complaints, respectively. Procedures used to stimulate the CAP: electrical and auditory stimulation, mindfulness, and cognitive activities. Results: One subject enhanced structural integrity and four improved functionality, measured by systems that record synaptic actions. All improved their perception of their complaints. Conclusion: The CAP can improve structural integrity and functionality through combined stimulation.

**Keywords:** Synaptic potential. Auditory perception. Cognitive function. Language comprehension.

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## CONNECTING PERCEPTION AND PATHWAY: FUNCTIONAL GAINS FROM MULTIMODAL AUDITORY STIMULATION

# CRITICAL FIBER LENGTH IN ULTRA-HIGH PERFORMANCE CONCRETE

Marcelo Rocha de Almeida Laudano Sichonany[1], Erich David Rodríguez Martínez[2]

**Abstract:** Ultra-High Performance Concrete (UHPC) is an advanced cement-based material known for its exceptional compressive strength and durability. Adding steel fibers enhances its ductility, toughness, and tensile performance, which are critical for structural applications. This study investigates the minimum length of steel fibers required to maximize their reinforcing effect, known as the critical fiber length. Determining this parameter is essential because fibers must be long enough to anchor within the concrete matrix and efficiently transfer stresses, preventing cracking and tensile failure. To assess this, UHPC mixtures were cast into "dog-bone" shaped specimens. Fiber pull-out tests were performed using a universal testing machine at a loading rate of 2.67 kN/min. Carbon steel fibers with hooked ends, ranging from 15 to 30 mm in length, were evaluated. Results showed that fibers of 20 mm or longer failed primarily by rupture, while 15 mm fibers occasionally slipped from the matrix. These findings indicate that the critical length for effective reinforcement in UHPC is 15 mm providing practical guidance for designing safer, more durable, and cost-efficient concrete structures, benefiting both engineers and the broader community.

**Keywords:** Ultra-High Performance Concrete. Fiber Pull-Out. Critical Fiber Length.

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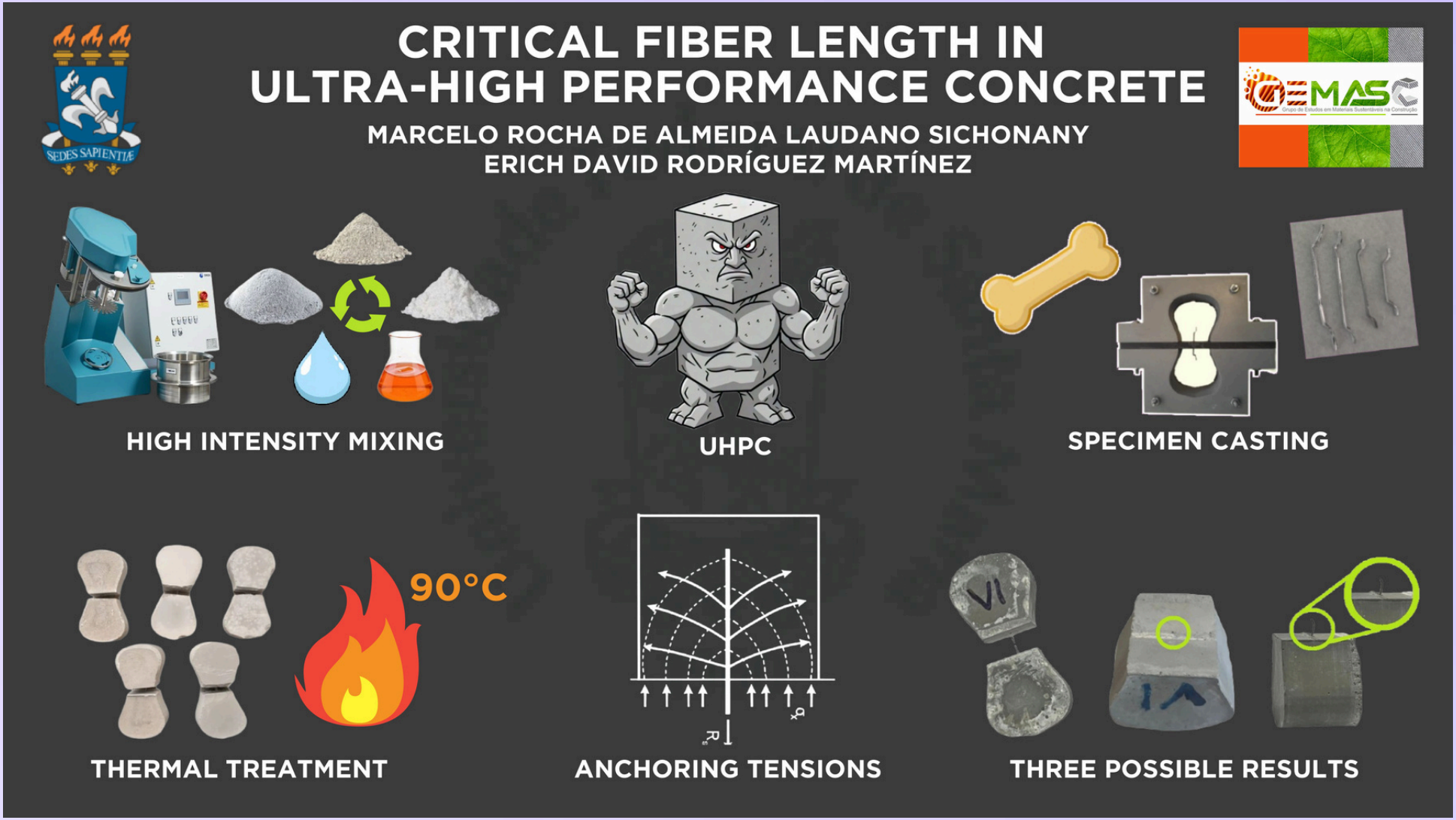
# CRITICAL FIBER LENGTH IN ULTRA-HIGH PERFORMANCE CONCRETE



# MUSCLE SIZE A SYNONYM FOR POWER? EVIDENCE IN SNATCH PRACTITIONERS

Marco Antônio Moreira Cattelan[1], Gustavo Ferreira Pedrosa[2]

**Abstract:** This study examined the individual and combined associations between the cross-sectional area (CSA) of the vastus lateralis (VL) and rectus femoris (RF) with jump height during the countermovement jump (CMJ) in snatch practitioners. Nineteen athletes (10 women and 9 men; age: 28.05 ± 3.59 years; training experience: 46.32 ± 21.08 months; body mass: 78.58 ± 13.54 kg) participated. Data collection occurred in two sessions: the first for CMJ familiarization and the second, seven days later, for ultrasound and the official CMJ test. CSA was measured via B-mode ultrasonography in the supine position, with two panoramic images captured per muscle. Muscle boundaries were manually delineated using HOROS software. During the CMJ, participants placed their hands on their hips, performed a countermovement to 90° of knee flexion, and executed three maximal jumps. Jump height was determined using the MyJump2 app. Statistical analyses were conducted in JASP using the Shapiro–Wilk and Pearson tests ($p \leq 0.05$). VL CSA correlated positively with CMJ height ($r = 0.64$; $p = 0.003$), as did the combined VL + RF CSA ($r = 0.66$; $p = 0.002$), whereas RF CSA showed no significant association ($r = 0.45$; $p = 0.054$).

**Keywords:** Counter Movement jump. Vastus lateralis. Rectus femoris. Snatch.

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2023
IS MUSCLE SIZE A SYNONYM FOR POWER? EVIDENCE IN SNATCH PRACTITIONERS
Marco Antônio Moreira Cattelan
Advisor: Gustavo Ferreira Pedrosa
Santa Maria, November 6th, 2025

# CONTRARCONTE LIBRARY: DEMOCRATIZING ACCESS TO KNOWLEDGE THROUGH A WARBURGIAN METHOD

Marcos Vinícius Vieira Lustosa[1], Thays Tonin[2], Cristina Ribas[3]

**Abstract:** This research investigates through the experience of organising a decentralized digital library and archive for and by the arts, developed within the Laboratório de Epistemologias e Estéticas Descentradas das Artes (LEEDA). Working within the condition of an "imposed connectivity" university, the proposed archive seeks to facilitate and democratize access to different kinds of knowledge, establishing correlations within a Warburgian matrix and adopting as its guiding principle Aby Warburg's Law of the Good Neighbor from the Kulturwissenschaftliche Bibliothek Warburg (KBW), which states that "the book one knows is, in most cases, not the book one needs" (Saxl, 1970, p. 327). The ContrArconte Library thus, aims to create a space that enables boundary-crossing experiences amongst different epistemologies, as it critically engages with Knowledge Organization Systems (KOSs), questioning how they embody cultural ways of seeing and classifying the world. In this sense, the project seeks to recreate — within a digital environment — the exploratory and associative experience of the KBW. At the same time, it uses independent digital platforms such as Tainacan and Obsidian.md, envisioning them as tools for epistemic decentralization and knowledge democratization.

**Keywords:** Aby Warburg. Archive. Knowledge Democratization. Obsidian. Tainacan

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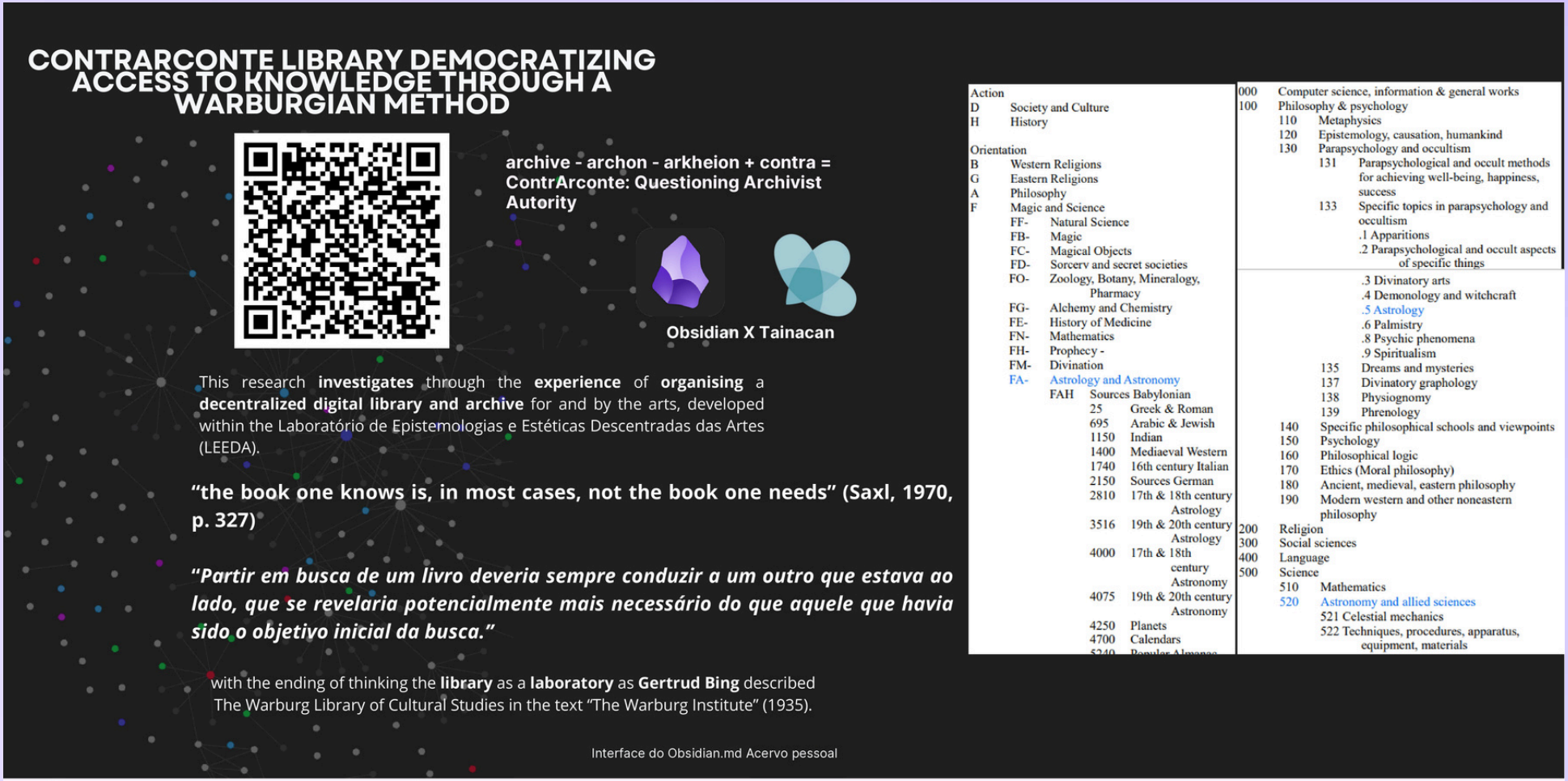
# CONTRARCONTE LIBRARY: DEMOCRATIZING ACCESS TO KNOWLEDGE THROUGH A WARBURGIAN METHOD



# DEVELOPMENT OF PEDIATRIC FOLINIC ACID ORAL SUSPENSIONS FOR THE TREATMENT OF CONGENITAL TOXOPLASMOSIS

Maria Antônia Schuch Gonçalves[1], Emanuele Saul Saraiva[2], Andréa Inês Horn Adams[3]

**Abstract:** Congenital toxoplasmosis, caused by the protozoan Toxoplasma gondii, is a disease that can lead to lasting sequelae in newborns. A major therapeutic challenge is the scarcity of pediatric-specific formulations, forcing healthcare professionals to manipulate adult dosages, which compromises safety and efficacy. Oral suspensions are an ideal dosage form for this population, as they facilitate the administration. These are liquid preparations composed by the active pharmaceutical ingredient, in this case, folinic acid (FA), a vehicle, a suspending agent (to prevent sedimentation and ensure dose uniformity), a sweetener, a flavoring agent, and a preservative, in this case, methylparaben (MP). This study aimed to develop a folinic acid suspension with homogeneous dosage by evaluating the performance of different suspending agents. Formulations with xanthan gum (0,3%), carboxymethylcellulose (0,5%), or hydroxypropyl methylcellulose - HPMC (05%) were prepared. Their homogeneity and drug content were analyzed over 15 days (at days 0, 7 and 15). Results showed that the HPMC-based formulation maintained a more consistent dosage over time in comparison to the other suspending agents, as its Relative Standard Deviation (RSD) was the lowest (<1.8%). This demonstrates its potential to ensure dose uniformity and improve the treatment adherence in pediatric patients.

**Keywords:** Pediatric Formulation. Oral Suspension. Suspending Agents. Folinic Acid. Congenital Toxoplasmosis.

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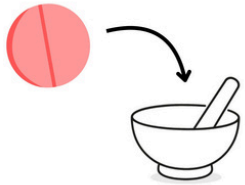
# DEVELOPMENT OF PEDIATRIC FOLINIC ACID ORAL SUSPENSIONS FOR THE TREATMENT OF CONGENITAL TOXOPLASMOSIS

## Building safer medicine for babies:

### Development of Pediatric Folinic Acid Oral Suspensions

**Before:** crushing adult pills



→ **Inaccurate doses** → **Imprecise treatment** →

**Results:** HPMC is the best suspending agent

→ **RSD > 1.8%** → Safe and standerdized therapy →

# THE COUPON COLLECTOR WITH MANY COLLECTIONS

Maria Eliza Castro da Silva[1], Vanessa Eduarda Neumann de Oliveira[2], Lucas de Bona Sartor[3], Rodrigo Marinho de Souza[4]

**Abstract:** We will explain a strategy to try to solve an open problem in the field of probability, posed by mathematicians Erdős and Rényi in 1961. It concerns finding the distribution of the time required for a coupon collector to complete many collections of coupons, without exchanging them with other collectors. Erdős and Rényi solved this problem only in the case where the number of coupons grows while the number of collections remains fixed. We intend to analyze the regime where the number of collections also inscreases. Our approach, which is substantially different, relies on the Yau's relative entropy method, which enables us to approximate the distribution of the dynamics by a simpler one, provided the relative entropy between them is sufficiently small. In essence, we are studying how long it takes for this collection process to reach its unavoidable end, a perspective that has not been explored before. If we solve this problem, the possibilities for technology and the exact sciences broaden.

**Keywords:** Absorbing Markov chains. Absorption times. Coupon collector. Relative entropy.

*M. Castro, R. Marinho and L. Sartor thank Fundação de Amparo à Pesquisa do Estado do Rio Grande do Sul (FAPERGS) for the financial support through the Programa Institucional de Bolsas de Iniciação Científica (PROBIC) and through the grant 25/2551-0000934-0 (ARC). V. Neumann thanks Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for the financial support through the Programa Institucional de Bolsas de Iniciação Científica (PIBIC), grant 159905/2025-7.*

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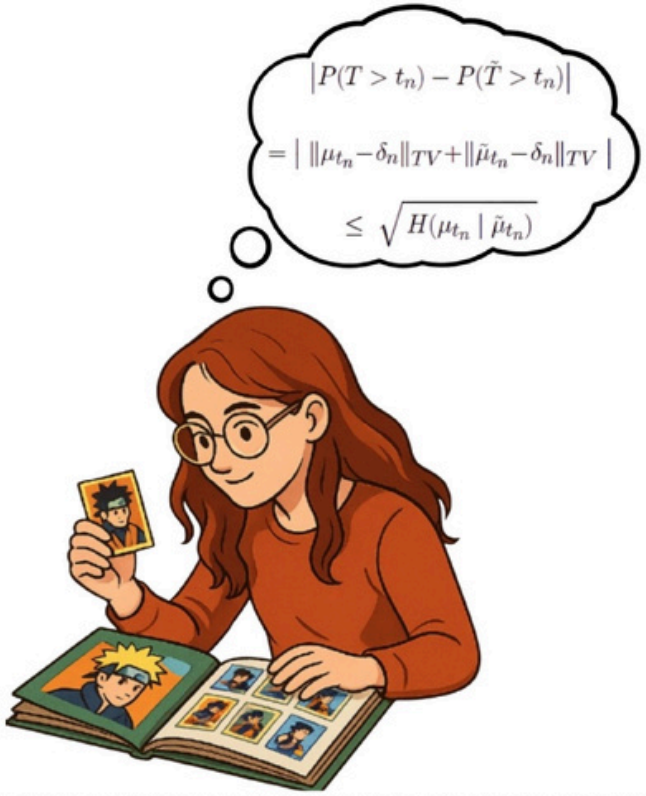
# THE COUPON COLLECTOR WITH MANY COLLECTIONS

## The Coupon Collector with Many Collections

- It seeks to solve an open problem from 1961, posed by Erdős and Rényi.
- The focus is on finding the distribution of the **time** required to complete **many collections** of coupons.
- We use Yau's Relative Entropy method to simplify the dynamics of the distribution.
- We are studying how long it takes for the process to reach its **end** (that is, when all collections are complete).




**Acknowledgments:** M. Castro, R. Marinho, and L. Sartor thank the Rio Grande do Sul Research Support Foundation for financial support through the Institutional Scientific Initiation Scholarship Program and through grant 25/2551-0000934-0 (ARC). V. Neumann thanks the National Council for Scientific and Technological Development for financial support through the Institutional Scientific Initiation Scholarship Program, grant 159905/2025-7.

# FEASIBILITY OF COLORIMETRIC DETERMINATION OF METHANOL FOR ASSESSING CONTAMINATION ON ALCOHOLIC BEVERAGES

Mariana da Silva Alves[1], Paola de Azevedo Mello[2]

**Abstract:** Methanol contamination in food-grade ethanol represents a serious public health issue because of economic pressures to reduce the production cost. This contamination stems from two primary sources: deliberate adulteration for illicit profit and improper distillation practices. Methanol is a common, naturally occurring byproduct of the fermentation and distillation process and must be meticulously separated and discarded through a technique known as fractionation. The toxicity arises from the methanol metabolites, formaldehyde and formic acid, which are highly damaging to cellular tissues, capable of causing blindness and renal failure even when ingested in small quantities. Current standard quality control for verifying methanol content requires sophisticated and costly instrumentation, primarily gas chromatography. Given that more than 30% of distilled beverages are reportedly tampered with or illegally commercialized in Brazil, the high cost of this testing creates a significant financial and logistical drawback to ensure product safety to consumers. To mitigate this threat, a more accessible, economical, and rapid detection method is needed. This research therefore proposes and investigates the feasibility of an alternative method based on colorimetric reactions monitored with digital images processed through chemometrics. This approach seeks to identify methanol in alcoholic beverages by utilizing a colorimetric reaction in a simple apparatus.

**Keywords:** Colorimetric methods. Distillates. Food-grade ethanol. Quality control.

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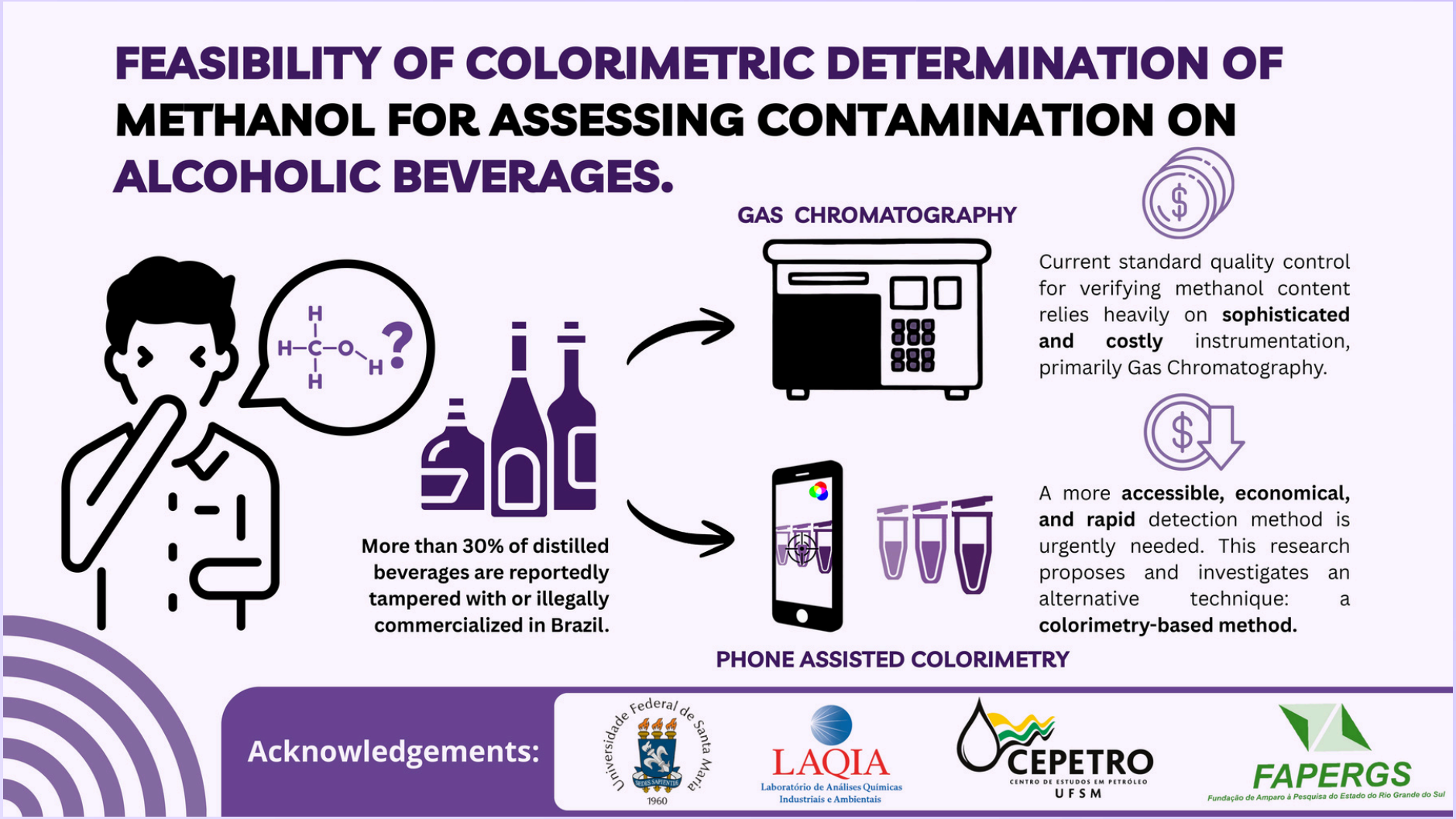
# FEASIBILITY OF COLORIMETRIC DETERMINATION OF METHANOL FOR ASSESSING CONTAMINATION ON ALCOHOLIC BEVERAGES



# AUDIENCE PERCEPTION OF CLOWNS WITH APHASIA

Mariana Demboski[1], Lenisa Brandão[2]

**Abstract:** This study is part of the interdisciplinary project Exploring the power of active clowning in aphasia intervention, conducted at the Department of Speech, Language and Hearing Sciences, Federal University of Santa Maria, and the Department of Social Psychology, Federal University of Rio Grande do Sul, Brazil. The project implemented a five-month clown therapy program for people with aphasia, culminating in two live theatrical performances in theaters—one in Santa Maria and another in Porto Alegre. The study explored how audiences perceived the communicative abilities of people with aphasia and the potential of clowning as a socially inclusive approach. About 100 audience members (50 per site) completed a post-performance survey. Quantitative data were analyzed descriptively, and qualitative responses underwent inductive thematic analysis by two authors. Preliminary findings suggest that the performances evoked empathy, positive emotions, and new insights into the communicative competence of people with aphasia, highlighting the value of arts-based strategies for stigma reduction and social inclusion. The clown performances appeared to evoke empathy, positive emotions, and new insights into the communicative competence of people living with aphasia, underscoring the value of creative and arts-based approaches for stigma reduction and social inclusion.

**Keywords:** Aphasia. Clown Therapy. Inclusion. Stigma. Social awareness.

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# SAE HIGHER EDUCATION

## AUDIENCE PERCEPTION OF CLOWNS WITH APHASIA

# MEMORY AND ATTENTION: A METAPHYSICAL STUDY THROUGH CONCEPTUAL ANALYSIS

Mártin Cerezer Kolberg[1], César Schirmer dos Santos[2]

**Abstract:** This work belongs to the field of metaphysics and employs conceptual analysis as its main methodological tool. In the same way that a chemist can use chemical analysis to reduce water to $H_2O$, a metaphysician can use conceptual analysis to reduce attention to cognitive unison, which is a specific manner of occurrence of tasks, and memory to the retention of past mental states through a causal process involving memory traces, such that present remembering is appropriately derived from a past representation. The methodological commitment to conceptual analysis allows us to distinguish memory from other mental states, and to explain attention without positing a particular process or family of processes to be called "attentional". The results suggest a unified metaphysical picture that has broader implications for epistemology and cognitive science: by clarifying the conceptual foundations of these phenomena, we provide a framework for understanding their role in many domains, such as philosophy of mind and epistemology.

**Keywords:** Philosophy of Memory. Cognitive Unison. Metaphysics. Conceptual Analysis.

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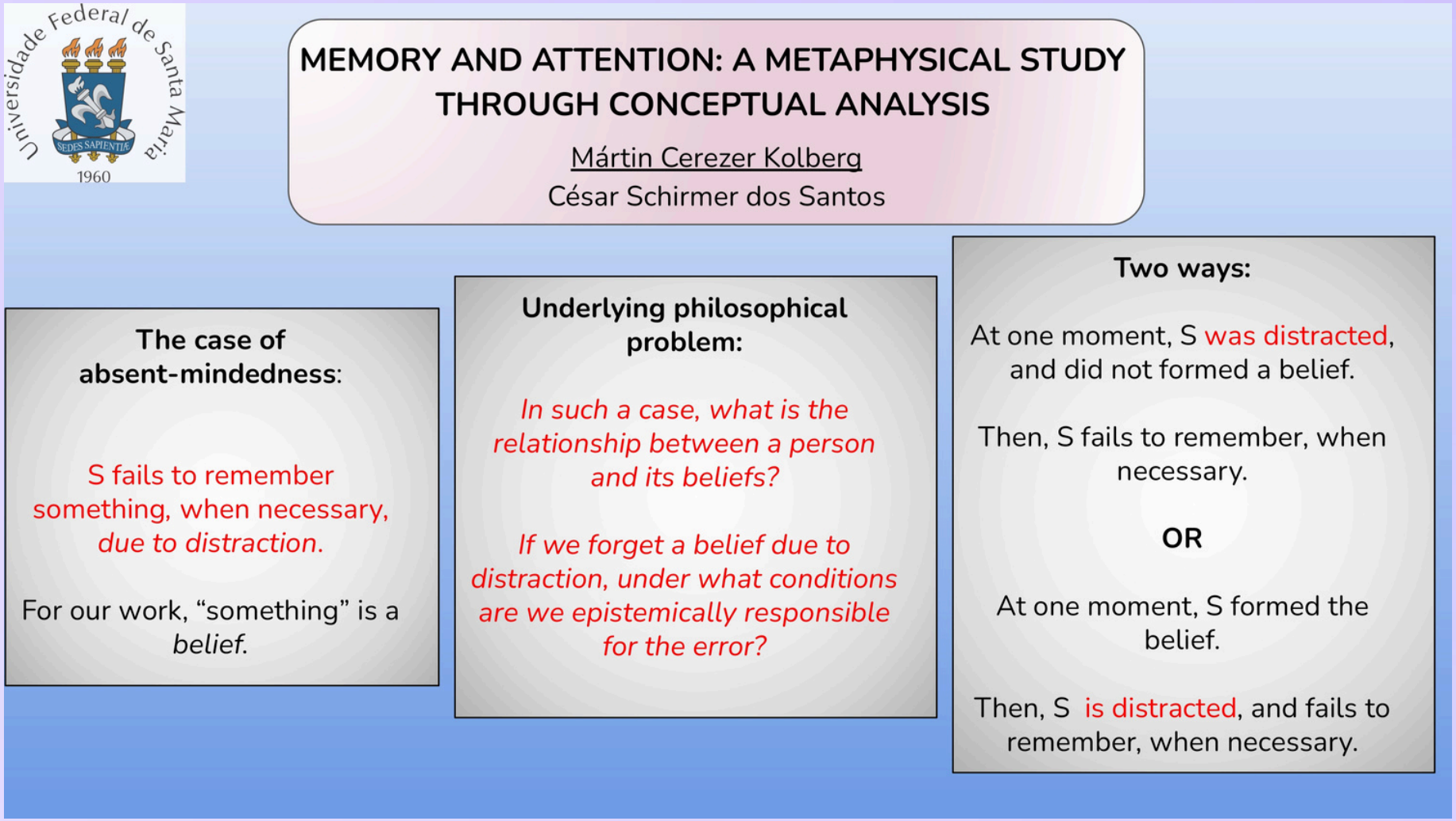
# MEMORY AND ATTENTION: A METAPHYSICAL STUDY THROUGH CONCEPTUAL ANALYSIS



# ACOUSTICS EDUCATION AND OUTREACH IN SANTA MARIA: AN OVERVIEW

Matheus Minuzzi da Silva Moraes[1], Giovanna Pisicchio Zanoni[2]

**Abstract:** This study presents an overview and brief analysis of the first year of the Project "Acústicas do Futuro" conducted in 2024. The Project aims to introduce high school students to introductory concepts of Acoustics and Vibration. The project team conducted lessons to two different classes in one high school in Santa Maria, Brazil, one in each semester, with the inclusion of practical activities (experiments and exercises) and home-based tasks designed to reinforce the concepts introduced. These tasks were then evaluated to measure the performance of students and determine if taught concepts were understood. For example, one task was about sound pressure levels (measured in decibel) during daily activities. Throughout the first semester class, the first and the last home-based tasks had greater adherence than the second and third tasks. Since the third task was the least turned in, it went through adaptation to a simpler version, which led to an increase in students participation in the second semester. The second activity remained with low participation, so for 2025 there were new adaptations in order to increase student participation. In general, the concepts were understood by most students, reinforcing and contextualizing contents studied in high school.

**Keywords:** Acoustics. Vibration. Education in Acoustics. High school students. .

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# ACOUSTICS EDUCATION AND OUTREACH IN SANTA MARIA: AN OVERVIEW

## Acoustics education and outreach in Santa Maria: an overview

### Problem

Noise Pollution

Lack of knowledge in Acoustics and Vibration

### Experiments

ACÚSTICAS DO FUTURO

### Implications

- Empower young people with scientific knowledge
- Raise awareness of auditory health
- Model for effective and adaptive outreach

### Educational Outreach Program

### Activities

### Results

- Solid understanding
- Improved participation
- Adaptive approach
- Positive feedback

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Moraes, M. M.; Zanoni, G.; (EAC)

V Symposium of Academic Exchange (SAE)

# A 'LITTLE WOMEN' BOOKCAST: LITERATURE BEYOND ACADEMIA

Milena Cargnin Cielo[1], João Pedro Wizniewsky Amaral[2]

**Abstract:** Free access to multiple forms of technology facilitates the consumption and popularization of different kinds of art, such as literature (Campião, 2018). In this perspective, the extension project 'Palavra Falada' arose with the aim of enabling students to analyze literary works and promote critical discussions on Anglophone literature to the community. As part of the English Language and Literature course, we researched 19th-century North American literary works, in the first semester of 2025. We had the objective of conducting qualitative research on Louisa May Alcott's Little Women, focusing on the four main characters, and synthesizing the results in the collaborative production of a bookcast episode. Therefore, the process was divided into two parts: first, the analytical research, based on literary theory; and, second, the action research, the production of the bookcast. We used the following methodological procedures: a) conducting a contextual study of the novel; b) analyzing the four main characters; c) discussing the results; d) organizing the data; e) writing the script; f) recording; g) promotion of the episode. The final product, available on YouTube, had positive results for us and the community, by taking literature and literary theory beyond the classroom in a more inclusive and dynamic way.

**Keywords:** Anglophone Literature. Little Women. Bookcast. Popularizing.

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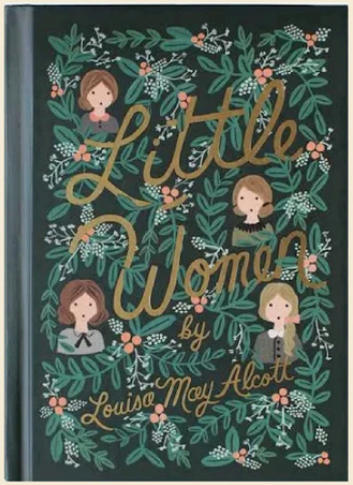
# A ‘LITTLE WOMEN’ BOOKCAST: LITERATURE BEYOND ACADEMIA




Source: Amazon.com.br (2025)

Source: Author (2025)


Source: Youtube (2025)

Academic: Milena Cargnin Cielo
Supervising Professor: João Pedro Wizniewsky Amaral

# DEVELOPMENT OF THE FUTSE AERONAUTICAL ENGINE: INNOVATION IN DESIGN AND EFFICIENCY

Nátali Schmidt G. da Conceição[1], Mario Eduardo Santos Martins[2], Roberto Begnis Hausen[3]

**Abstract:** The development of the FUTSE Aeronautical Engine introduces an innovative two-stroke engine design aimed at enhancing propulsion efficiency for experimental aviation. This engine incorporates a unique uniflow scavenging system, flathead valve arrangement, and spark ignition, all designed to optimize fuel consumption and increase power density. The design methodology is divided into three phases: conceptual design, prototype manufacturing, and experimental validation. In the conceptual design phase, 1D (simulating the system's behavior) and 3D (Computational Fluid Dynamics (CFD)) simulations were utilized to predict performance outcomes, targeting a power output of 23 kW at 3000 rpm and an efficiency of approximately 31%. The prototype testing phase revealed a power output of 10.5 kW at 1600 rpm, though challenges were noted with cylinder scavenging at higher rotational speeds. The experimental results indicate that optimizing valve timing (opening and closing) and intake port design will be crucial for optimizing scavenging efficiency. Thus, improving these aspects will enhance engine performance. This study contributes to the advancement of internal combustion engine technology for light aircraft, offering new insights into efficient engine designs for the experimental aviation sector.

**Keywords:** Engine. Aircraft. Two stroke. FUTSE. Development.

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# SAE HIGHER EDUCATION

## DEVELOPMENT OF THE FUTSE AERONAUTICAL ENGINE: INNOVATION IN DESIGN AND EFFICIENCY

DEVELOPMENT OF THE FUTSE AERONAUTICAL ENGINE: INNOVATION IN DESIGN AND EFFICIENCY

### Orientation

- Objective: develop an innovate light aeronautical engine
- Focus on improved power-to-weight ratio (<50kW class)
- Context: Experimental aviation has new engine models, but most are heavy, adapted or not optimized for low-RPM direct-drive use.

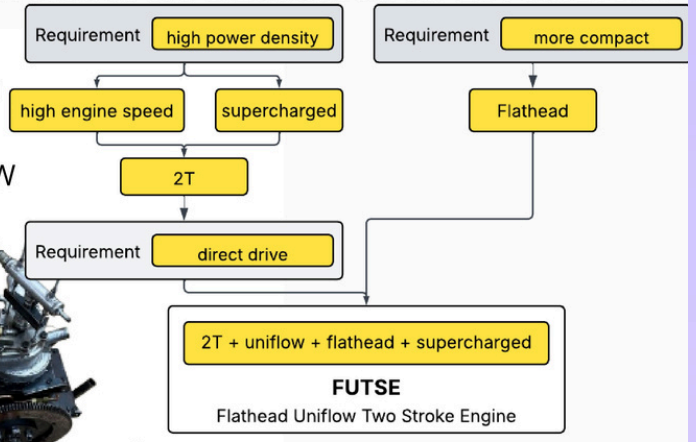
### Justification

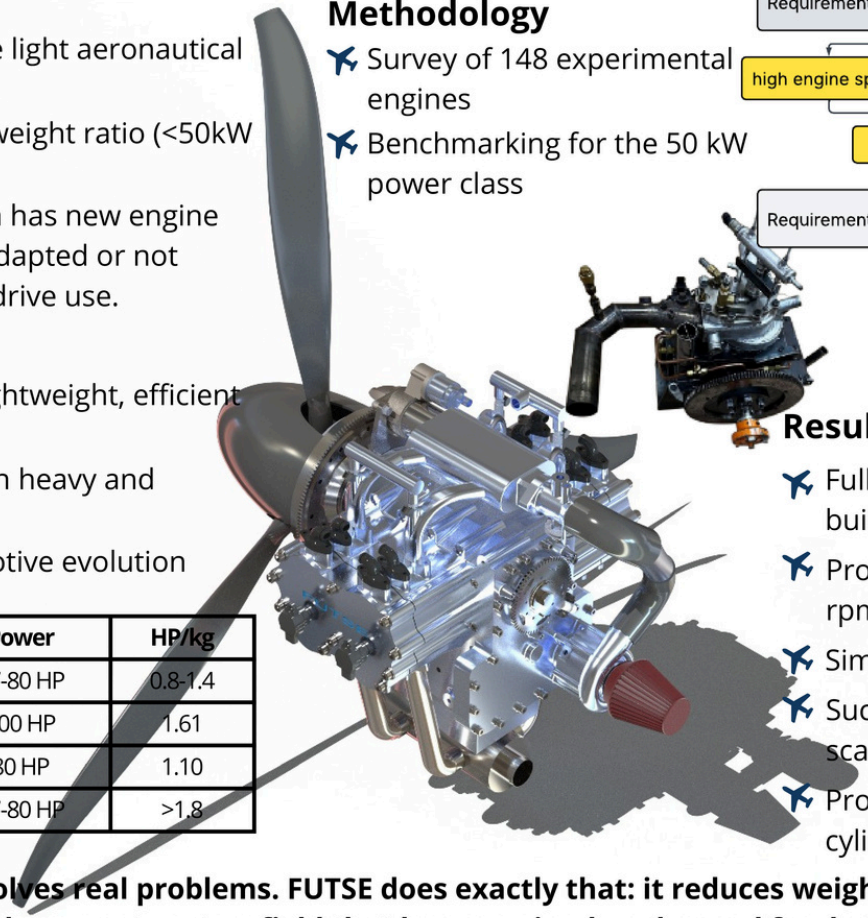
- Light aviation lacks modern, lightweight, efficient engines
- Existing aircraft engines remain heavy and outdated
- Large innovation gap x automotive evolution

| Engine | Weight | Power | HP/kg |
|---|---|---|---|
| Class avarage | 60-85 kg | 67-80 HP | 0.8-1.4 |
| Rotax 912 ULS | 62.1 kg | 100 HP | 1.61 |
| AeroVee 2.1 | 72.6 kg | 80 HP | 1.10 |
| FUTSE (target) | <40 kg | 67-80 HP | >1.8 |

### Methodology

- Survey of 148 experimental engines
- Benchmarking for the 50 kW power class



### Results

- Full functional single-cylinder prototype built and tested
- Prototype performance: 10.5 kW @1600 rpm, 63 N.m torque
- Simulations predict 23kW @3000rpm
- Succesful validation of uniflow scavenging, lubrification and combustion
- Provides foundation for the complete multi-cylinder FUTSE engine

**"Innovation matters when it solves real problems. FUTSE does exactly that: it reduces weight, increases efficiency and brings fresh technological momentum to a field that has remained unchanged for decades — showing how public universities can generate real technological advances for society."**

GPMOT

# DETERMINATION OF THE REFERENCE INTERVALS OF CYSTATIN C FOR A PEDIATRIC POPULATION IN BRAZIL

Natália Flores Jacobi[1], Profº. Drº. Jose Antonio Mainardi de Carvalho[2], Profº. Drº Clóvis Paniz[2]

**Abstract:** Cystatin C (CysC) is a substance used to assess kidney function. It is produced by all nucleated cells of the human body and is freely filtered by the functional units of the kidneys, the glomeruli. The concentration of CysC increases rapidly in the presence of kidney injury; therefore, establishing a reference interval (RI) for CysC is essential for its clinical application. RIs may vary according to geographic, ethnic, and demographic factors. This study aimed to determine the RI for CysC in healthy children from public schools in Santa Maria, Brazil. A total of 134 children, aged 5 to 11, were included. Blood samples were first collected, and CysC was subsequently measured. The RI was determined using values between the 2.5th and 97.5th percentiles, excluding outliers. Accordingly, the RI for serum CysC ranged from 0.59 to 1.10 mg/L. When analyzed by sex, values for females ranged from 0.53 to 1.10 mg/L, while values for males ranged from 0.61 to 1.10 mg/L. Given the scarcity of pediatric data, these findings provide relevant insights for clinical decision-making and emphasize the need for further studies to validate and refine its applicability.

**Keywords:** Children. Renal biomarker. Cystatin C. Reference intervals.

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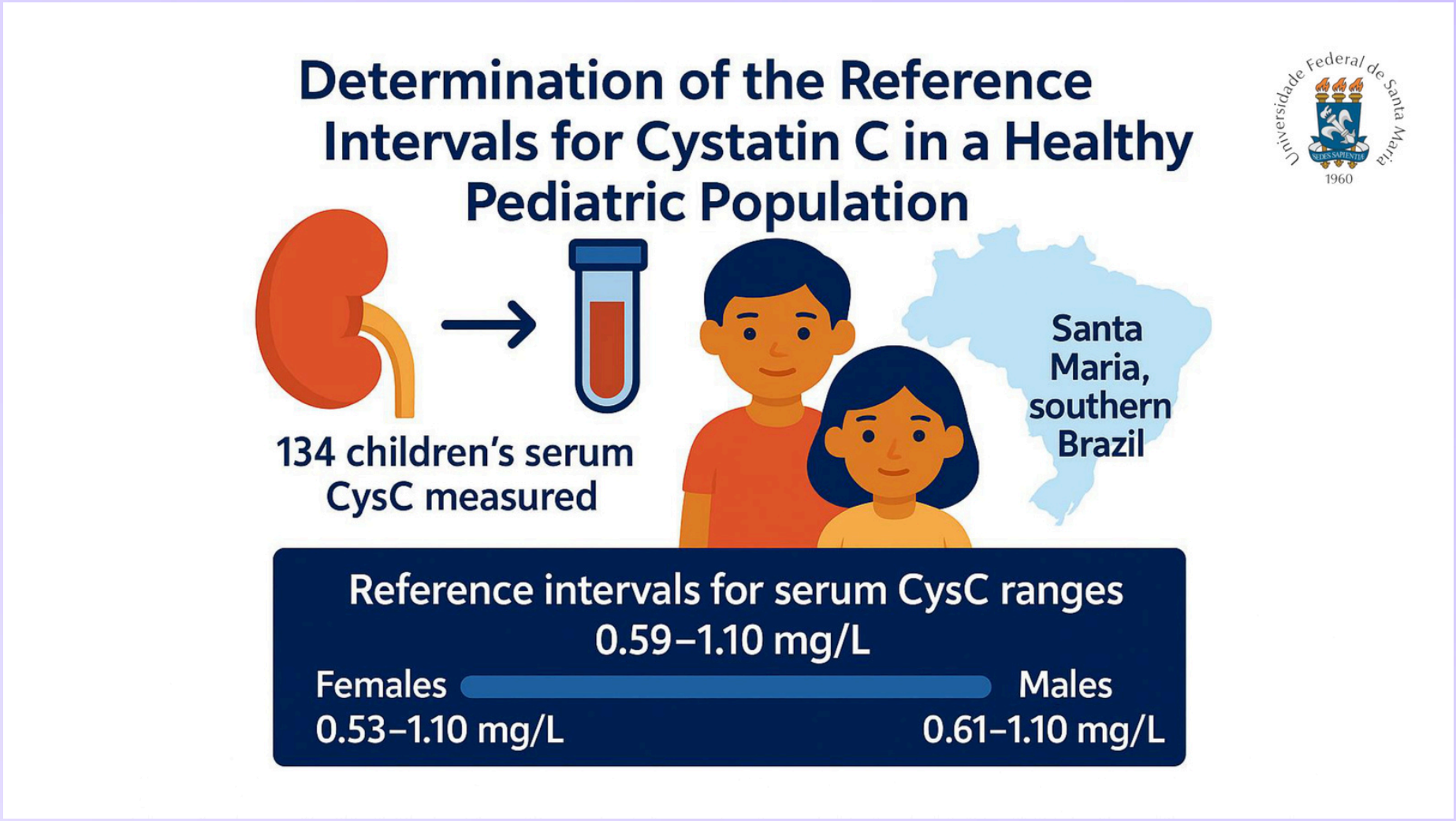
# DETERMINATION OF THE REFERENCE INTERVALS OF CYSTATIN C FOR A PEDIATRIC POPULATION IN BRAZIL



# AUDIOVISUAL AND COMMUNITY COMMUNICATION: MEMORY NARRATIVES IN THE DOCUMENTARY "CIDADES DE LONA"

Nathalia Pitol[1], Maria Ivete Trevisan Fossá[2]

**Abstract:** This study investigates audiovisual media as a community communication strategy by analyzing the discursive and narrative elements present in the documentary Cidades de Lona (2022), produced by TV OVO, an audiovisual collective based in Santa Maria/RS, Brasil. The film portrays the history of the urban occupation of the Nova Santa Marta neighborhood, constructing a narrative that articulates representation, identities, and community memories. The research is grounded in the perspective of community communication (Peruzzo, 2017, 2023) and engages with the notions of collective memory (Halbwachs, 1968) and media of memory (Assmann, 2011), understanding documentary as an instrument for memory preservation. The analysis will utilize a qualitative approach, based on discursive analysis and audiovisual narrative, observing the production of meaning (Verón, 2004) and media discursive practices (Fausto Neto, 2012), in order to understand how the audiovisual narrative generates meanings about memory and belonging. It is expected that this work will contribute to reflections on the role of community audiovisual production in valuing collective memory.

**Keywords:** Community communication. Documentary. Collective memory.

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# AUDIOVISUAL AND COMMUNITY COMMUNICATION: MEMORY NARRATIVES IN THE DOCUMENTARY “CIDADES DE LONA”

## AUDIOVISUAL AND COMMUNITY COMMUNICATION: MEMORY NARRATIVES IN THE DOCUMENTARY “CIDADES DE LONA” (2022)

Author: Nathalia Pitol | Advisor: Maria Ivete Trevisan Fossá

### Introduction

This study investigates audiovisual media as a community communication strategy by analyzing the discursive and narrative elements present in the documentary Cidades de Lona (2022)

### Research question

How does this documentary produce meanings that help preserve the memory of the Nova Santa Marta occupation?

### Methodology

The study uses a qualitative and discursive approach, analyzing the narrative structure, visual strategies, selection of voices, and the ways the film organizes memory.

### Expected results

It is expected that this work will contribute to reflections on the role of community audiovisual production in valuing collective memory.

UFSM

# SHOCKED BUT NOT DESPAIR: AN EXPLORATION OF CHALLENGES AND ADJUSTMENT STRATEGIES OF INTERNATIONAL STUDENTS AT THE FEDERAL UNIVERSITY OF SANTA MARIA (UFSM)

Oluwatimilehin Emmanuel Fabeku[1], Rosane Carneiro Sarturi[2]

**Abstract:** The expansion and access to education that occurred in Brazil has also been extended to international students from different countries of the world. Inspite of this opportunity, there is a fundamental concern about the expectations of international students and their experiences. This study through a phenomenological qualitative approach tends to identify the challenges faced by international students at Universidade Federal de Santa Maria (UFSM) and understand the adjustment strategies employed by international students at UFSM. The data collection was through an in-depth semi-structured interview from thirteen (13) international students purposively selected among the international students living inside the university environment and the surrounding community. For the data analysis, the data obtained will be subjected to coding and thematic, analyzed through discourse analysis techniques. The findings from the study are expected to provide insight into the challenges faced by international students at UFSM, and an insight to the possible solutions to be employed in addressing the challenges by the future international students, International Student Support Office and the University community at large.

**Keywords:** International students' challenges. Transition challenges. Transition adjustment. Students' coping strategies.

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# SHOCKED BUT NOT DESPAIR: AN EXPLORATION OF CHALLENGES AND ADJUSTMENT STRATEGIES OF INTERNATIONAL STUDENTS AT THE FEDERAL UNIVERSITY OF SANTA MARIA (UFSM)

# COMPARISON OF CULTURE MEDIA FOR DETECTION OF FUNGI IN DOCUMENTS AFTER CLIMATE EMERGENCY BY FLOODING

Pâmela Oliveira Soares[1], Prof. Dr. Marina Venturini Copetti[2]

**Abstract:** The analysis of fungi in various environments, including hospitals, industries, and air samples, is common, often using specific culture media such as dichloran agar with 18% glycerol. However, when dealing with papers damaged by floods, the situation becomes more complex. These materials may harbor both fungi that prefer dry conditions (xerophilic) and those that thrive in moist environments (hydrophilic). Thus, the aim of this study was to compare two culture media: DG18 and dichloran agar (DA), which does not contain glycerol, an anionic solute used to reduce the media water activity. The analysis was carried out on documents affected by the 2024 flood in Rio Grande do Sul. The results showed that, in quantity, fungal growth was similar in both media; however, the differences appeared in the visual aspect, since in DA, the colonies were larger, more colorful, and easier to identify, while in DG18, they were smaller and less visible, which made counting more difficult. In conclusion, this study emphasizes that the choice of culture medium is crucial for accurately quantifying fungi from documents deteriorated after climatic events, thereby avoiding underreporting and misleading interpretations regarding the absence of spoilage agents. Better results are achieved when using DG medium.

**Keywords:** Flood. Fungi. Culture medium.

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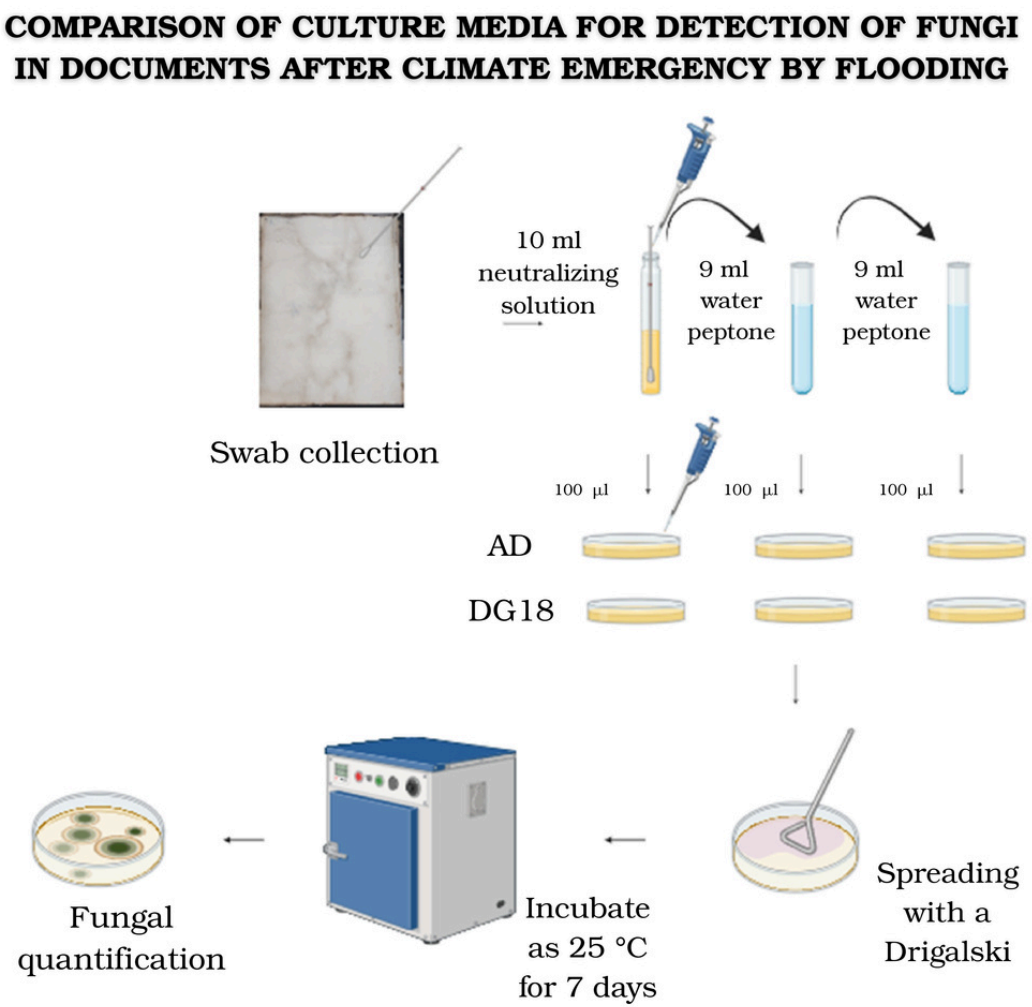
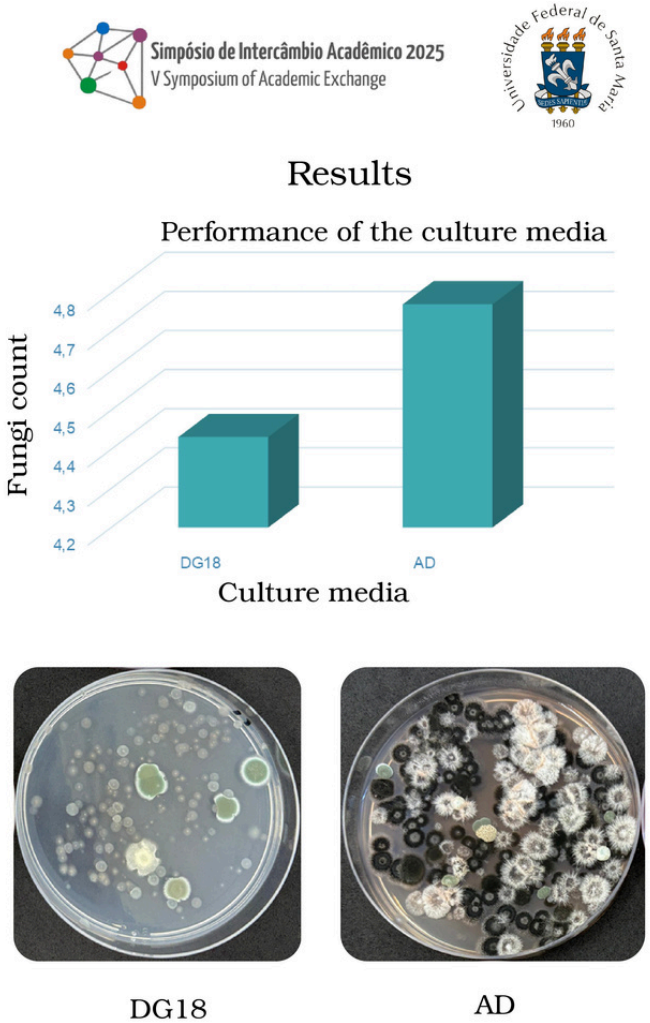
# COMPARISON OF CULTURE MEDIA FOR DETECTION OF FUNGI IN DOCUMENTS AFTER CLIMATE EMERGENCY BY FLOODING



# THE FOREIGN LOOK IN THE CREATIVE PROCESS: AN ARTISTIC COLLABORATION AT AACHEN UNIVERSITY

Paula Aschidamini Pereira[1], Talita Gabriela Robles Esquivel[2], Leocir Noronha Castilho[3]

**Abstract:** Professor Dr. Talita Esquivel carried out her postdoctoral research project at the Department of Visual Arts, RWTH Aachen University, in Germany. The project proposed an artistic investigation into the concept of “The Foreign Look.” Part of this project involved a collaboration between students from RWTH, local artists and students from the Visual Arts program at UFSM, members of the CNPQ research group Poéticas da Cor (LABCOR). The main concept of “the foreigner” was grounded in Julia Kristeva's book Étrangers à nous-mêmes (1988). The central aim of the research was to understand how the concept of the foreigner could function as a stimulus for artistic expression and intercultural dialogue. To achieve this, the method combined a theoretical approach, with critical study and group discussions on the concept of foreign, and a collaborative artistic practice. The final result of the project was an exhibition titled The Foreign Look / O Olhar Estrangeiro, which took place from July 6 to 10, 2024, at Atelierhaus, in Aachen, Germany, with all 15 participants. The initiative promoted the international circulation of artistic productions from LABCOR and CAL-UFSM and opened new opportunities for collaboration, impacting both student training and the global visibility of the arts.

**Keywords:** Visual Arts. Creative Process. Foreigner. Exhibition. Interculturality.

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# SAE HIGHER EDUCATION

## THE FOREIGN LOOK IN THE CREATIVE PROCESS: AN ARTISTIC COLLABORATION AT AACHEN UNIVERSITY


- Postdoctoral research by Professor Dr. Talita Esquivel at the Department of Visual Arts, RWTH Aachen University, Germany.
- Central theme: an artistic investigation into "The Foreign Look", based on Julia Kristeva's book Étrangers à nous-mêmes (1988).
- Participants included students from RWTH Aachen, local artists, and students from UFSM (Brazil)
- The Exhibition: "The Foreign Look / O Olhar Estrangeiro", Held July 6–10, 2024 at Atelierhaus, Aachen, Germany.

LABCOR · CAL Centro de Artes e Letras UFSM · UFSM


# THE MYSTERIES OF THE HIGH-TECH LANGUAGE – REFLECTIONS ON THE USE AND ABUSE OF ENGLISH TERMS IN TECHNOLOGY

Prince Dennis Gokeh[1], Carina Petry Lima Brackmann[2]

**Abstract:** Although major computer inventions were born in Europe and Asia, English has become the universal language of technology. Many terms such as download or business intelligence are untranslatable and widely used worldwide. Based on this, the action "Practice English Speaking", part of the project "Cyberculture – Reaffirming Concepts" from CTISM/UFSM, was created. Its goal was to promote the correct and natural use of common English terms in management and Information Technology (IT), helping participants communicate more professionally. The project also aimed to demystify the presence of English in technological contexts and encourage local internationalization among students and professionals in these fields. Discussions included slang and new words rooted in the high-tech world, such as logar (to log in) and printar (to screenshot). Examples like IBM, known by its abbreviation rather than its full name, were also explored. The methodology involved discussion circles where participants practiced pronunciation and meaning of English terms used daily in technology. The experience proved enriching and valuable to share in this event.

**Keywords:** High tech. Terms. Meanings. Internationalization. Management.

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# THE MYSTERIES OF THE HIGH-TECH LANGUAGE – REFLECTIONS ON THE USE AND ABUSE OF ENGLISH TERMS IN TECHNOLOGY

# TESTING BIDIRECTIONAL ASSOCIATIONS BETWEEN SCREEN TIME AND INATTENTION/HYPERACTIVITY SYMPTOMS FROM CHILDHOOD TO ADULTHOOD IN A BRAZILIAN COHORT

Ricardo Kaciava Bombardelli[1], Maurício Scopel Hoffmann[2]

**Abstract:** Background: There might be a relationship between screen time (on devices like computers, TV, and video games) and inattention/hyperactivity symptoms in youth. However, most studies fail to indicate whether an individual's change in screen time affects their symptoms (within-person effect), instead showing correlations between having higher average screen time symptoms (between-person effect). This study investigates these relationships from childhood to early adulthood. Methods: We analyzed data from the Brazilian High-Risk Cohort for Mental Health Conditions, following 2,511 children (average age 10.2 at baseline) across three assessments over approximately eight years. Daily screen time (parent-report) and symptoms of inattention/hyperactivity (Strengths and Difficulties Questionnaire) were modeled using random intercept cross-lagged panel models. Our analysis also adjusted for sample representativeness, attrition, and demographic covariates. Findings and Implications: Increasing screen time over one's average was not associated with a later increase in inattention/hyperactivity symptoms from childhood to early adulthood. While a link existed between having high average screen time and high symptoms overall, history of primary caregiver's psychiatric diagnoses accounted for these correlations. Therefore, reported associations of screen time and inattention/hyperactivity might be confounded by caregiver's characteristics.

**Keywords:** Inattention. Hyperactivity. Screen Time. Children. LMIC.

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# TESTING BIDIRECTIONAL ASSOCIATIONS BETWEEN SCREEN TIME AND INATTENTION/HYPERACTIVITY SYMPTOMS FROM CHILDHOOD TO ADULTHOOD IN A BRAZILIAN COHORT

## Testing Bidirectional Associations Between Screen Time and Inattention/Hyperactivity Symptoms from Childhood to Adulthood in a Brazilian Cohort

Presented by Ricardo Kaciava Bombardelli
Advised by by Dr. Mauricio Scopel Hoffmann

Brazilian High-Risk Cohort for Mental Health Conditions (BHRC)

MENTAL HEALTH EPIDEMIOLOGY GROUP
UNIVERSIDADE FEDERAL DE SANTA MARIA

CCS

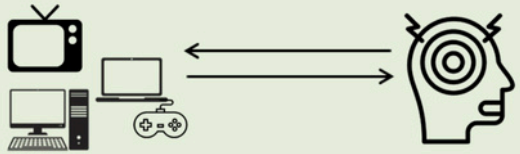
Universidade Federal de Santa Maria 1960

**BHRC** 2010-2018

- Baseline
  - 2.512 children
  - Aged 6-12y
- W1
  - Aged 9-18y
- W2
  - Aged 12-21y

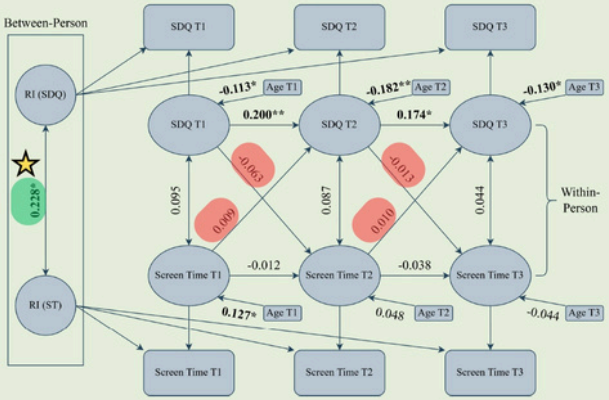
**Screen time:**
Hours in TV, Computer or Videogame

**Innatention/Hyperactivity:**
SDQ subscale ranging 0-10

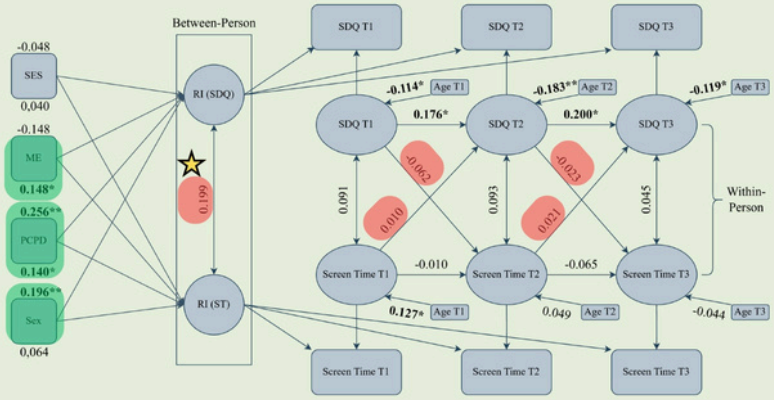


**Does increasing screen time worsen symptoms of innatention and hyperactivity or vice-versa?**

Random Intercept Cross-Lagged Panel Model




Adjusted Random Intercept Cross-Lagged Panel Model




Significant | Not significant | ☆ After covariate adjustment, no longer significant

Note. SE - Socioeconomic class; ME - Maternal education level; PCPD- Primary caregiver history of psychiatric diagnosis; Sex (female as reference); SDQ - Strength and Difficulties Questionnaire; ST - Screen Time; RI - Random Intercept.
*p value <0.05; ** p value <0.001. Both models were adjusted for Attrition and Sample Representativity

PREPRINT MHEG

# EPIDEMIOLOGICAL PROFILE OF MALIGNANT ESOPHAGEAL NEOPLASIA IN RIO GRANDE DO SUL BETWEEN 2019 AND 2024

Rodolpho Gabriel Barbosa da Silva[1], Juliana Da Rosa Wendt[2]

**Abstract:** Malignant esophageal neoplasia is a highly lethal cancer and a leading cause of death in Brazil. Late diagnosis and complex treatment pose major public health challenges. This study aimed to describe the epidemiological profile of malignant esophageal neoplasia in Rio Grande do Sul, between 2019 and 2024. A quantitative, descriptive study was conducted using data from the Unified Health System Hospital Information System (SIH-SUS) via TABNET/DATASUS. Variables analyzed included hospitalizations, deaths, age, sex, race, length of stay, and type of care. During the study period, 106,040 hospitalizations were recorded, with an average stay of 6.1 days and 17,006 deaths. In 2024, 17,847 hospitalizations occurred (77.07% men; 49.65% mixed-race), mainly in the 60–69 age group, which had the highest cumulative prevalence (34.63%). The results indicate higher incidence among mixed-race men aged 60–69 years, peaking in 2019 and slightly declining afterward, highlighting the need for strengthened prevention and surveillance measures. Epidemiological studies like this are crucial to guide public health policies and disease prevention strategies.

**Keywords:** Esophageal cancer. Epidemiology. Rio Grande do Sul. Hospitalizations. Public health.

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# EPIDEMIOLOGICAL PROFILE OF MALIGNANT ESOPHAGEAL NEOPLASIA IN RIO GRANDE DO SUL BETWEEN 2019 AND 2024

## MALIGNANT ESOPHAGEAL NEOPLASIA IN RIO GRANDE DO SUL 2019-2024

Presenter: Rodolpho Gabriel Barbosa da Silva
Advisor: Juliana Da Rosa Wendt

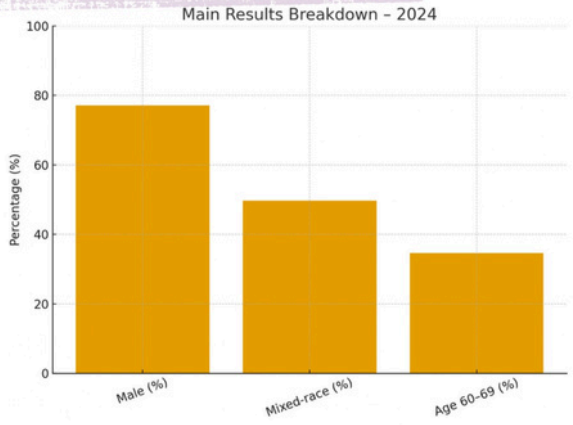
### Objective

To describe the epidemiological profile of malignant esophageal neoplasia in Rio Grande do Sul between 2019-2024

### Methods

- Quantitative, descriptive study
- Data source from SIH-SUS / TABNET-DATASUS
- Variables: hospitalizations, deaths, age, sex, race, lenght of stay and type of care

### Main Results




### Conclusion

Mixed-race, men aged 60-69 are the most affected group.

The findings highlight the need for strengthened prevention, early detection, and targeted public health strategies.

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# GREEN FAÇADES: A NATURAL WAY TO REDUCE TEMPERATURE IN SANTA MARIA

Rodrigo Xavier Cabeda[1], Rutineia Tassi[2]

**Abstract:** Nowadays, most of the population lives in urban centers, where there are no green areas. This directly affects the microclimate, contributing to climate change, especially increasing temperatures. In this context, nature-based solutions (NBS), such as green façades, are a way to regulate the microclimate. Green façades are vertical gardens on house walls that reduces indoor temperature. In Santa Maria, a city where 83.3% of houses are located on tree-lined streets, hotter summers are recorded every year. To change this reality and to propose thermal comfort for the residents of a social house at UFSM, this study analyzed temperature data recorded on two different summer days, from the house's internal walls under the influence of a green façade with automatic sensors. The results showed that this NBS reduced the indoor temperature by more than 0.5 °C and reduced the temperature range on both days, even with the green façade retaining heat during some hours of the night. To sum up, by conducting these analyses, it was possible to conclude that NBS, especially green façades, are efficient ways to reduce temperature and the use of electrical energy, by avoiding air-conditioning units, in alignment with smart city guidelines.

**Keywords:** Temperature reduction. Nature-based solutions. Climate change.

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# GREEN FAÇADES: A NATURAL WAY TO REDUCE TEMPERATURE IN SANTA MARIA

# ANTI-RACIST EDUCATION: PROMOTING CULTURAL DIVERSITY IN BASIC EDUCATION SCHOOLS

Sthephany de Farias Callegaro[1], Mari Cleise Sandalowski[2]

**Abstract:** This research was developed along an extension project during 2024 at the Federal University of Santa Maria, with the Sociological Research Laboratory, intending to strengthen the anti-racist education in the basic school system. The methodology involved planning lessons, seminars, and creative tasks by the research group to be presented at the selected schools. The classes were adapted to the needs of each community, using drawings, games, debates, music, and slides to address the Afro-Brazilian and Indigenous cultures. During the research, four schools were impacted, demonstrating how younger students showed excitement while debating and associating the social subjects, such as racism, homophobia, and women´s rights, even if they were outside their curriculum. The teenagers were less thrilled to engage during the tasks, but were interested in quoting personal life examples or internet posts that influenced their opinions. The biggest problem reported by teachers was the lack of resources to effectively teach racial issues. This project contributed to promoting diversity in educational practices and offered Social Sciences students the experience of teaching. By reinforcing knowledge on Afro-Brazilian and Indigenous cultures, this research showed how the basic schools were receptive to this kind of education, when proper resources were applied.

**Keywords:** Anti-Racist. Cultures. Basic Schools. Diversity. Social Sciences.

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# ANTI-RACIST EDUCATION: PROMOTING CULTURAL DIVERSITY IN BASIC EDUCATION SCHOOLS

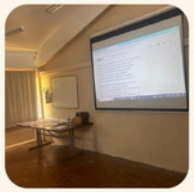
Sthephany Callegaro
Majoring with a Teaching Degree in Social Sciences

## ANTI-RACIST EDUCATION: PROMOTING CULTURAL DIVERSITY IN BASIC EDUCATION SCHOOLS.

LabIS

This research was developed through an extension project inside the Sociological Research Laboratory, at the Federal University of Santa Maria, during the end of the year 2024. The intent was to bring anti-racist education into basic schools, by teaching students about the diversity in Afro-Brazilian and Indigenous cultures.






Four public schools in the city of Santa Maria were impacted by this project, where the research group presented creative lessons, including debates, drawings, games, music videos and slides to address the Afro-Brazilian and Indigenous cultures.


Observations: younger students, from 3rd to 5th grade, were excited to participate in the creative tasks and debates, while high school students were not as thrilled to engage in those activities, but were interested in quoting personal life examples and internet posts that shaped their opinions. The biggest challenge reported by teachers was the lack of resourses to properly teach about racial issues.

This project contributed to promoting diversity in educational practices and offered Social Sciences students the experience of teaching. By reinforcing knowledge on Afro-Brazilian and Indigenous cultures, this research showed how the basic schools were receptive to this kind of education, when proper resources were applied.

# SUSTAINABLE BIODIESEL PRODUCTION FROM RICE BRAN IN AN INTEGRATED SYSTEM

Suelly Ribeiro Hollas[1], Fernanda de Castilhos[2], Ederson Rossi Abaide[3]

**Abstract:** The integration of processes and the transformation of agricultural residues into value-added products are crucial for advancing sustainable biorefineries. In this context, the conversion of non-food biomass into biofuels has gained increasing attention. Rice bran, a byproduct generated during white rice polishing, is rich in saponifiable lipids and represents a promising feedstock for biodiesel production. This work investigates biodiesel synthesis from rice bran through an integrated process combining oil extraction and transesterification using pressurized ethanol (EtOH) in continuous mode. Pressurized liquid extraction (PLE) was conducted at 120 and 150 °C, 100 bar, and 8 mL $min^{-1}$. The subsequent reaction was evaluated at 250 and 300 °C and residence times of 35–240 s. The optimal extraction condition (120 °C, 60 min) yielded 16.4 wt% of rice bran oil (RBO) with 94.4 wt% of saponifiable compounds. The highest ester content and yield reached 75.6 ± 1.6 wt% and 80.0 ± 1.7 wt%, respectively, at 300 °C and 10 min. These results demonstrate that integrating extraction and reaction stages in a single continuous system offers an efficient and sustainable route for biodiesel production, supporting cleaner technologies and better use of agroindustrial byproducts.

**Keywords:** Rice residue. Integrated Process. Green Solvents. Pressurized solvent.

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# SAE HIGHER EDUCATION

## SUSTAINABLE BIODIESEL PRODUCTION FROM RICE BRAN IN AN INTEGRATED SYSTEM

Simpósio de Intercâmbio Acadêmico 2025
V Symposium of Academic Exchange

### Sustainable Biodiesel Production from Rice Bran in an Integrated System

Suelly Ribeiro Hollas, Fernanda de Castilhos, Ederson Rossi Abaide

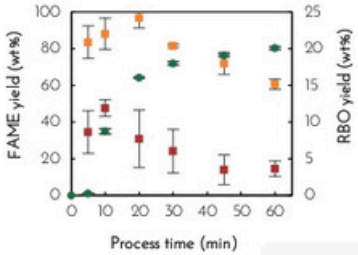
**The Problem**

Climate changes


**Methodology**

- Extraction and reaction
- Ethanol
- Continuous system
- No catalyst

**Main Results**




FAME yield: 80,0 wt% (300°C)

FAME content: 88,5 wt%

60 min

**Relevance of this study**

- No oil pretreatment
- ↓ production costs
- + value to rice by-products
- Sustainable process

PPGEQ UFSM · prhanp 52/UFSM

# CAN WE EMPATHIZE WITH A PSYCHIATRIC PATIENT?

Talia Giacomini Tomazi[1], Róbson Ramos dos Reis[2]

**Abstract:** Empathy is an important philosophical concept that describes an affective state involving specific cognitive processes for understanding other people's experiences. In the context of psychiatry, patients suffering from severe depression and schizophrenia, for example, frequently complain that other people cannot understand what is happening to them, pointing to a limitation of empathy. In this case, a common-sense interpretation of empathy as "empathy as putting yourself in someone else's shoes" or even philosophical conceptions based on the argument of analogy, which those who empathize rely on their own experiences, fail to understand radically different experiences. With a phenomenological basis, we will analyze the concept of empathy, as well as the possibility of empathizing with some experiences lived by psychiatric patients. As an expected result, we will analyze definitions of empathy that recognize the phenomenological difference between belonging and inhabiting the world, which can enrich the understanding of other people's experiences. Therefore, the possibility of empathizing with anomalous experiences, such as those experienced in some psychiatric disorders, is connected to empathy as an affective state that emphasizes belonging to a world shared between the person who empathizes and the person empathized with as an achievement of the process of understanding interpersonal difference.

**Keywords:** Phenomenology. Empathy. Psychiatry Patient. Difference.

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# can we empathize

## WITH A PSYCHIATRIC PATIENT?

Talia Giacomini, PhD candidate
Advisor: Róbson Ramos dos Reis, PhD

Silent Shout by Eva Charkiewicz

# OPTIMIZATION ALGORITHMS AND INFORMATION THEORY

Vanessa Eduarda Neumann de Oliveira[1], Maria Eliza Castro da Silva[2], Lucas de Bona Sartor[3], Rodrigo Marinho de Souza[4]

**Abstract:** The study of optimization algorithms has proven to be fundamental for solving hard combinatorial problems, standing out in comparison with deterministic methods, in which each step is predefined and never influenced by chance. In this work, we aim to explore efficient tools for identifying the peaks and valleys of highly complex problems, with the proposed methodological approach consisting of analyzing optimization algorithms based on Markov chains. In this framework, problems are seen as processes that eventually settle into a stable long-term behavior — what we call a stationary distribution. Under the right conditions, this stable behavior points us toward global solutions. We intend to highlight the Metropolis algorithm and Simulated Annealing as our main approaches and briefly discuss the connection between optimization performance and principles of Information Theory. This work illustrates how probabilistic methods can serve as a solid foundation for optimization algorithms applied across different fields of knowledge, such as computer science, logistics, engineering, and, in particular, search and information problems.

**Keywords:** Information theory. Markov chains. Metropolis algorithm. Simulated annealing.

*M. Castro, R. Marinho and L. Sartor thank Fundação de Amparo à Pesquisa do Estado do Rio Grande do Sul (FAPERGS) for the financial support through the Programa Institucional de Bolsas de Iniciação Científica (PROBIC) and through the grant 25/2551-0000934-0 (ARC). V. Neumann thanks Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for the financial support through the Programa Institucional de Bolsas de Iniciação Científica (PIBIC), grant 159905/2025-7.*

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# OPTIMIZATION ALGORITHMS AND INFORMATION THEORY

Vanessa Neumann[1] (IC), Maria Eliza Castro[1] (IC), Lucas Sartor[1] (IC), Rodrigo Marinho[2] (O)
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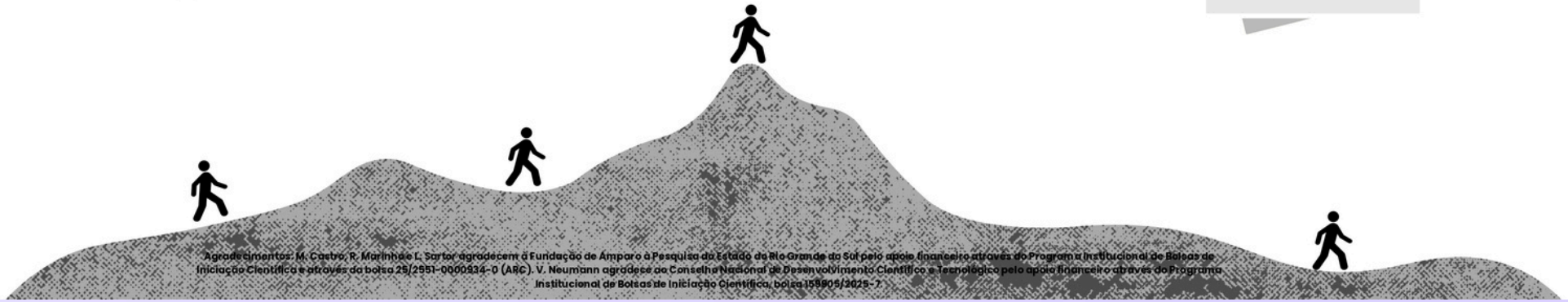
[2]Department of Statistics, Federal University of Santa Maria

- Aim to identify the peaks and valleys of highly complex problems
- Analyzes optimization algorithms based on **Markov chains**
- Problems are seen as processes that eventually settle into a stable long-term behavior which points us toward global solutions
- The **Metropolis algorithm** and **Simulated Annealing** are our main approaches



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# MINIMALLY INVASIVE SURGERY IN COMPANION ANIMALS

Vida Basso Russo[1], Maurício Veloso Brun[2], Vinicius da Silva Cadiñanos[3], Amanda Oliveira Paraguassú[4]

**Abstract:** Minimally invasive surgery in small animals has advanced considerably over the last few decades. Initially developed in humans, videosurgery laparoscopy began to be applied in veterinary medicine by the end of the 1990s and is currently commonly performed in companion animals. This method is employed in procedures ranging from routine castrations and biopsies to more complex surgeries involving the abdomen and the thoracic cavity, for example. Among the main benefits are a decreased chance of contamination and complications, reduced post-procedure pain, and, consequently, a significantly faster recovery for patients. At the University Veterinary Hospital in 2024, an intrahepatic shunt, an abnormal vascular communication that prevents proper hepatic metabolism, was resolved by videosurgery. Eleven months later, during an elective laparoscopic castration, a new liver evaluation was made in the patient. On this occasion, adhesions between the liver and diaphragm as well as fibrin deposits were observed, findings consistent with previous surgical manipulation. The dog remained asymptomatic with a favorable clinical outcome. This case highlights two key advantages: the effectiveness of laparoscopy in elective surgeries and its utility as a tool for monitoring internal diseases, thereby contributing to enhanced surgical safety and improved quality of life in animals.

**Keywords:** Video-surgery. Small animals. UFSM Veterinary Hospital.

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MINIMALLY INVASIVE SURGERY IN COMPANION ANIMALS

# A Portrait of the Present in Veterinary Video Surgery

Minimally Invasive Solutions Group

**1990s**

↓

**NOWDAYS**

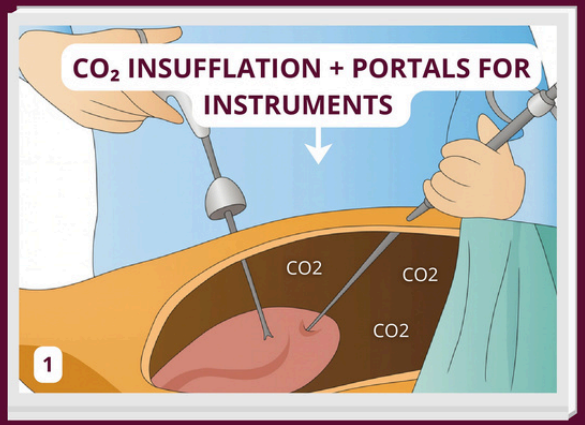
- Biopsies
- **Abdominal surgeries**
- Thoracic surgeries

=

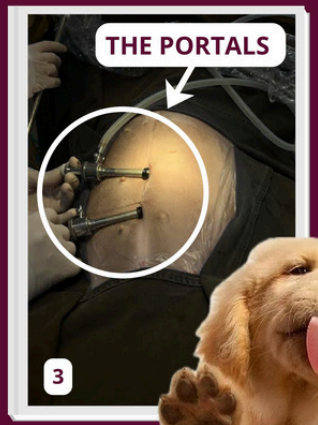
- ✓ **Lower contamination**
- ✓ **Fewer complications**
- ✓ **faster recovery**
- ✓ **Less pain** *and many other benefits*

→ **Castration** (HVU, 2025 - FEMALE GOLDEN RETRIVER)

🧐 **HOW DOES IT WORK?**








# DUARTE BARBOSA'S ACCOUNT AND THE REPRESENTATION OF INDIAN PRACTICES IN THE EARLY 16TH CENTURY

Vitória Lindner[1], Adriano Diniz Comissoli[2]

**Abstract:** This project investigates the Sati ritual through the lens of Portuguese travelers in the early modern period, aiming to deconstruct biased European interpretations. Using Duarte Barbosa's account, the study analyzes how the practice was simplified and distorted by the colonial view. The core goal is to show how the 16th-century Portuguese worldview redefined Sati as a symbol of "Indian inferiority", neglecting its complex social, religious, and honor-related motivations. The research explores "Catholic Orientalism", linking Eastern knowledge production to domination and evangelization. Barbosa's non-missionary text is analyzed to reveal how this catholic view already shaped descriptions. The methodology critically contrasts Barbosa's account (from "A description of the coasts of East Africa and Malabar", originally written in 1514, but published in English in 1866) with Sati's theoretical complexity. Partial results indicate Barbosa's description of Sati as a choice to "honor her husband" is a superficial acceptance. His worldview failed to grasp crucial underlying factors like social pressure and family honor. This "cultural recoding" simplified a multifaceted practice into a stereotype justifying colonial domination, a perspective common to the Portuguese era, not just missionaries. In conclusion, Barbosa's analysis exposes European perceptual limits and deepens understanding of Sati's true complexity.

**Keywords:** Orientalism. Portuguese Literature. India.

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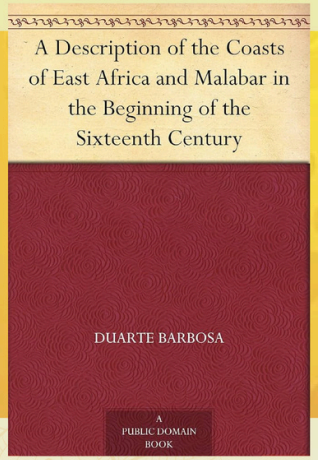
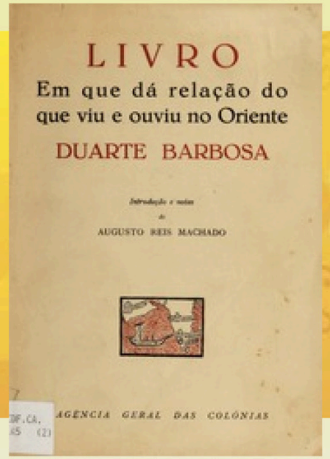
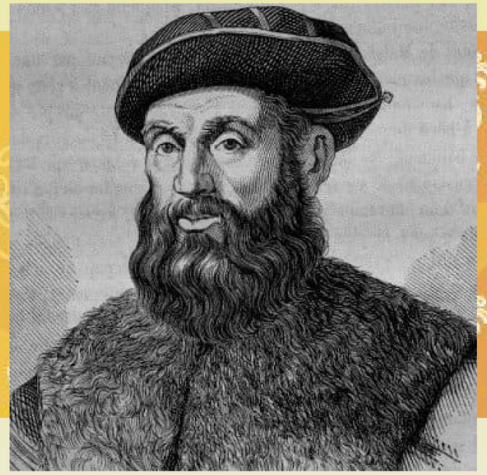
# DUARTE BARBOSA' S ACCOUNT AND THE REPRESENTATION OF INDIAN PRACTICES IN THE EARLY 16TH CENTURY

DUARTE BARBOSA' S ACCOUNT AND THE REPRESENTATION OF INDIAN PRACTICES IN THE EARLY 16TH CENTURY



Vitória Lindner

# THE TEACHING OF SPANISH AS A FOREIGN LANGUAGE: PRACTICES AT ENTRELÍNGUAS LABORATORY AT UFSM

Yenireth Chirinos[1], Maísa Brum[2]

**Abstract:** Entrelínguas laboratory is a center for studies on linguistic and cultural practices, located in the Federal University of Santa Maria (UFSM). The laboratory aims to teach Portuguese and Spanish as foreign languages. In this study, the focus is specifically on a Spanish language course for native speakers of Portuguese. The target audience are students, professors, and technical staff of the institution. This course is offered in modules, promoting teaching at different levels. In the course, besides learning grammatical aspects, the literary use of the Spanish language is being promoted based on the poems of Gabriel García Márquez. Every semester, the Entrelínguas laboratory welcomes new foreign students. During the first semester of 2025, it was noticed that English-speaking students tend to have more difficulty than Portuguese-speaking students in learning the Spanish language. At the end of the courses, students receive certificates validated by the university. It is hoped that this practice of working with literary texts validates the context and the reflective process of the students. Furthermore, it is expected that students improve in the target foreign language and become more acquainted with the Hispanic cultural context.

**Keywords:** Linguistic and cultural practices. Language Course. Language Learning. Gabriel García Márquez.

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# THE TEACHING OF SPANISH AS A FOREIGN LANGUAGE: PRACTICES AT ENTRELÍNGUAS LABORATORY AT UFSM

## THE TEACHING OF SPANISH AS A FOREIGN LANGUAGE

### PRACTICES AT ENTRELÍNGUAS LABORATORY AT UFSM

**Objective**

TEACHING THE SPANISH LANGUAGE TO NATIVE SPEAKERS OF PORTUGUESE

**Target Audience**

STUDENTS
PROFESSORS
EMPLOYEES

**Methodology**

LEARNING GRAMMATICAL ASPECTS BASED ON HISPANIC LITERATURE

**Results**

THE STUDENTS WILL BE ACQUAINTED WITH THE HISPANIC CULTURAL CONTEXT

LABORATÓRIO ENTRELÍNGUAS
Centro de estudos sobre práticas linguísticas e culturais - UFSM

Universidade Federal de Santa Maria
SEDES SAPIENTIÆ
1960

# ASSOCIATION BETWEEN SCREEN TIME AND DEPRESSIVE SYMPTOMS AMONG UNIVERSITY STUDENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Ygor Gustavo Franklin de Oliveira[1], Julia Amaral Teixeira[2], Eduarda Bitencourt dos Santos[3], Maria Eduarda Adornes Guimarães[4], Felipe Barreto Schuch[5]

**Abstract:** University students often spend many hours on screens, both for study and entertainment. This behavior may affect mental health and increase the risk of depressive symptoms, yet research on this topic remains limited. This study aimed to summarize evidence on the relationship between screen time and depressive symptoms in university students. A search was carried out in October 2024 in PubMed, Embase, LILACS, SPORTDiscus, and Web of Science, including cross-sectional studies with university students that investigated screen use beyond only smartphones. Six studies met the inclusion criteria and were combined using a random-effects meta-analysis in RStudio. The overall sample included 23,273 students (42.1% women). Findings showed that students with higher screen time had a 71% higher chance of presenting depressive symptoms compared to those with lower exposure (OR = 1.71; 95% CI: 1.59–1.84; $p < 0.0001$). Neither heterogeneity nor publication bias were observed. These results suggest that screen habits among university students are associated with heightened depressive symptoms.

**Keywords:** Screen time. Depressive symptoms. University students.

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# SAE HIGHER EDUCATION

# ASSOCIATION BETWEEN SCREEN TIME AND DEPRESSIVE SYMPTOMS AMONG UNIVERSITY STUDENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

V SYMPOSIUM OF ACADEMIC EXCHANGE

## ASSOCIATION BETWEEN SCREEN TIME AND DEPRESSIVE SYMPTOMS AMONG UNIVERSITY STUDENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Ygor Gustavo Franklin de Oliveira; Júlia Amaral Teixeira; Eduarda Bitencourt dos Santos; Maria Eduarda Adornes Guimarães; Felipe Barreto Schuch

### INTRODUCTION

University students often spend many hours on screens due to academic and non-academic related activities.

This behavior may be a risk factor for depressive symptoms occurrence, which are already common among these students.

### OBJECTIVE

We **aimed to summarize evidence on the relationship between screen time and depressive symptoms in university students**, once research on this topic is limited.

### METHODS

October 2024

### INCLUSION CRITERIA

| | | |
|---|---|---|
| Cross-sectional studies | Studies with university students | Investigation of screen time beyond only smartphones |

### RESULTS

After exclusion of duplicates and screening, 6 studies were selected to be combined using a random-effects meta-analysis in RStudio ⟶ n = 23.273

**OR = 1.71 | 95% CI = 1.59–1.84 | p < 0.0001 | $I^2$ = 0 | no publication bias observed**

### CONCLUSION

These results suggest that increased screen time habits among university students are associated with a **71% higher chance of depressive symptoms occurrence**.

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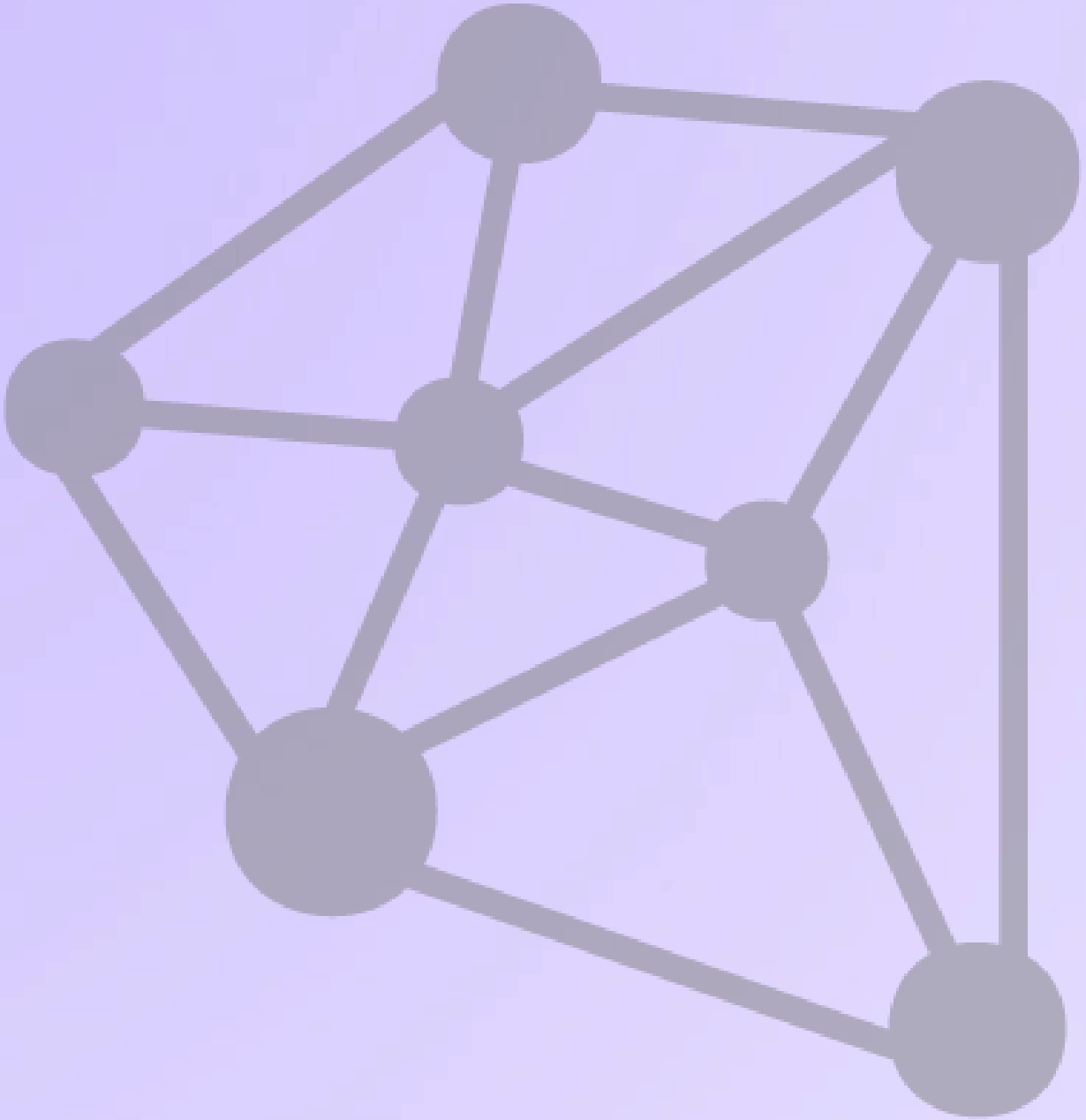
# interRSummit

## Internationalization Research Summit



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