Sound, Image and Motion: Teaching with an interdisciplinary approach

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'Sound, Image and Motion' (SIM) is a unique interdisciplinary programme in Brazilian higher education, blending visual arts, audiovisual and sound creation. We start with a brief historical overview of avant-garde traditions in Bahia and delve into the university's principles and guiding plan in order to situate SIM among art courses and its available resources. We explore its flexible curriculum in detail, considering the limitations posed by a new university with scarce resources, and describe the curricular structure to analyse experiences with teaching and constructing an interdisciplinary sound creation qualification within this programme.

1. INTRODUCTION

During the recent governments of the Workers' Party (Partido dos Trabalhadores, PT) in Brazil, from 2003 to 2016, the country witnessed the greatest expansion in higher education in its history (Vicente, Dias and Sano 2018). This led to multiple institutions being created, attuned to regional characteristics and broader public policies, and carrying innovative approaches to professional and academic education. Our analysis stems from one of the very few universities that tries to reshape and decolonise higher education with an interdisciplinary intercultural institutional model. As professors and students, agents of that change, we want to account for a new interdisciplinary model of professional training encompassing the fields of audiovisual, sound, visual arts, creation and production, which have emerged from this context. Our research interest lies in professional training in sound creation and production and how an interdisciplinary coherent course may be organised so as to favour the acquisition of fundamental and essential professional and social skills.

To analyse this new interdisciplinary model of professional training, we start by briefly presenting historical and local contexts. Then we describe the main characteristics of a degree in 'Sound Image and Motion', detailing the organisation of the curriculum that contributes to a Sound Creation qualification. Finally we draw brief conclusions and anticipate some contributions to the field in the Brazilian academic landscape.

2. HISTORICAL CONTEXT

The Federal University of Southern Bahia (UFSB, Universidade Federal do Sul da Bahia) is the third federal university recently created in the State of Bahia. Although most cultural and educational institutions are located in the southeast region of Brazil, around the economic axis between Rio de Janeiro and São Paulo (the two biggest and most well-known cities in Brazil), Bahia is a huge state of strong cultural avant-garde traditions, having Salvador, one of the oldest cities in the country, as its capital. Porto Seguro, the city where our campus is located, and its surrounding region is known as Costa do Descobrimento ('Discovery Coast'), the place where the Portuguese first arrived in 1500.

As pointed out by Antônio Risério (1995), of Bossa Nova, Cinema Novo and Tropicália, it is 'impossible to think about Brazilian culture without thinking of Bahia'. He notes that a progressive administration at the Federal University of Bahia (UFBA), led by Rector Edgard Santos in the 1950s, brought together a group of intellectuals and artists, including architect Lina Bo Bardi, directors Martim Gonçalves and Walter da Silveira, and musicians such as Ernst Widmer, Hans-Joachim Koellreutter and Walter Smetak, who were crucial in subsequent cultural developments in Brazil. UFBA was the first nationally funded university in Bahia, founded in 1808 as a school of medicine upon the arrival of the Portuguese royal family in Brazil (Costa 2012). According to Risério (1995), in the 1950s, Rector Santos appointed Koellreutter, an avant-garde German composer who fled Nazi persecution, to teach in the university's free music seminars. Koellreutter invited Swiss musician Walter Smetak to teach cello, and here, amidst the cultural effervescence of the time, Smetak came into contact with 'modern music' and began to explore building new musical instruments (Scarassatti 2008). He later became one of the most important experimental luthiers and advocates for musical improvisation, as well as for the use of new scales and musical temperaments. During his time as a professor at UFBA, Smetak developed over a hundred

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acoustic sculptural musical instruments using traditional local materials such as gourds, Brazilian wood or bamboo, with a focus on accessibility, aiming to create affordable instruments that anyone could reproduce. Despite dedicating a significant portion of his academic research to acoustic instruments, Smetak was also enthusiastic about electronic music and saw potential in the developing digital world.

Smetak's influence extended to various 'young artists and students interested in his experiments and teachings' (Scarassatti 2008: 63), including Gilberto Gil, Caetano Veloso and Rogério Duarte, among others, making him a kind of guru for a generation of Bahian musicians. Smetak was the first professor to hold the chair of 'Contemporary Improvisation' at UFBA and dedicated a significant part of his work to collective improvisation practices.

Bahia has a historical tradition in experimental and even digital art. It was also the place where Erthos Albino de Souza produced his digital poems in the 1970s, using a computer available at Petrobras, where he worked as an engineer (Stolfi, Schiavo, Scandurra, Kerhart and Reynaldo, 2019). His digital poems, developed in COBOL language, are considered precursors of global digital art. Even today, there are important research groups in computer music, mainly at UFBA and the Federal University of the Recôncavo of Bahia (UFRB), bringing together young researchers of international relevance such as Jarbas Jácome, Guilherme Soares and Cristiano Figueiró. The latter, for example, led a research group in 'mobile music' centred at UFBA, which since 2014 has been developing applications for experimental music production on mobile devices. Figueiró (2019) points out that 'experimentalism goes hand in hand with restlessness, invention, and a commitment to creative freedom', recognised as strong characteristics of cultural developments originating in the state.

Just as the establishment of UFBA was a catalyst for cultural transformation in the city of Salvador and the region, the establishment of UFSB in the southernmost part of Bahia also has the potential to generate significant impacts on the region's cultural landscape. In the municipality of Porto Seguro, which heavily relies on tourism, the creative economy plays a significant role. To the north, UFSB actively works with traditional groups long established in municipalities around Itabuna and Ilhéus. To the south, it has brought a new cultural life to recent urban areas such as Teixeira de Freitas.

3. UFSB, ARTS AND INFRASTRUCTURE

UFSB was founded in 2013 by President Dilma Rousseff,[1] and started its academic activities by the end of 2014, in a region historically devoted to cocoa plantations, with a major brown population, followed by white and Black people, and also a significant Indigenous population (Santos 1957: 48).

It was the result of a public policy for the expansion of higher education in Brazil that started in the late 1990s and had its peak of investment in the 2000s and 2010s, with governmental policies focused on the interiorisation of universities contributing to the development of less favoured regions. In these decades, 19 new federal universities were founded, which corresponds to an expansion of almost 50% in the number of nationally funded institutions (Niquito, Ribeiro and Portugal 2018). UFSB was the last university created in that context, arising from the inclusion of minorities and social classes historically excluded from higher education as a guideline.

In its 'Guiding Plan'[2] for implementation (UFSB 2014), UFSB relies on five major theoretical influences: 'Popular University', from Anísio Teixeira; 'Pedagogy of Autonomy' from Paulo Freire; 'New Geography' from Milton Santos; 'Ecology of Knowledges'[3] from Boaventura Sousa Santos; and notions around 'Collective Intelligence', developed by Pierre Lévy. Starting from Teixeira's idea of a popular university from the 1940s, the university wants to promote a democratic education, integrated with the public educational system on all levels. This places the university in a position of inducing humanistic, economic and technological development in the region. The concept of a pedagogy of autonomy, formulated by Paulo Freire in the 1950s, is based on the idea that education can be used both for domestication and for freedom. He proposes education that is not based on the transmission of knowledge, but rather on the creation of opportunities for the collective construction of knowledge (UFSB 2014). Freire (1996) points out that there is no teaching as such, but only a teaching–learning process where both dimensions are interdependent, and that the teacher is also learning when teaching, as the student teaches when learning. For him, democratic teachers have the duty to reinforce the curiosity, insubordination and critical capacities of their students. This leads to the idea that educational institutions should 'progressively lose their monopoly on the creation and transmission of knowledge. Public

[1]President Dilma Rousseff sanctioned law number 12.818 on 5 June 2013, creating the new university: www.planalto.gov.br/ccivil_03/_ato2011-2014/2013/lei/l12818.htm.

[2]'Plano Orientador' in Portuguese, the university's guiding plan: a document stating the theoretical basis for its structural, political and educational project, and source for planning its implementation (Executive Summary available in English): https://ufsb.edu.br/a-ufsb/apresentacao-ufsb (see end of the page).

[3]In Portuguese: Universidade Popular; Pedagogia da Autonomia; Geografia Nova; e Ecologia de Saberes.

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systems must take on the mission of guiding individual learning paths and contributing to the recognition of the sets of knowledge belonging to each person' (UFSB 2014: 26, our translation).

These guiding principles led to a very inclusive and innovative concept of university, as pointed out by Zitkoski, Genro and Arenhaldt (2019: 187):

> The emergence of this university is driven by the generation, dissemination, and sharing of knowledge and techniques in the fields of sciences, humanities, arts, and cultures, underpinned by critical-reflective thinking. The integration of different knowledge and practices aims for human development with ethics, sustainability, and justice. This vision signifies innovations in how the university thinks and operates, such as epistemological and political ruptures in the perspective of enhancing the human condition.

The university's educational plan is based on a system of cycles, with *flexible curricula*, where modularity operates interdisciplinarity by organising freedom of choice within obligatory, optional and freely chosen disciplines or curricular components for each course. The idea of 'curricular components' entered Brazilian legislation in the 1990s as a means to stimulate innovative curricula in practice: a curricular component may be a discipline, or a practice, laboratory, atelier or any other pedagogical activity. (These will be presented in more detail in section 4) The *First Cycle* provides a more general education and includes Interdisciplinary Bachelor's (IB) degrees and Teaching Licentiate programmes for basic education teacher training. The *Second Cycle* comprises various undergraduate programmes that offer more direct access to the job market, including fields such as law, medicine, psychology and environmental engineering, among others. The *Third Cycle* encompasses post-graduate programs such as Masters and Doctorates, as well as professional specialisations (Zitkoski et al. 2019). Initially, students were only allowed to enter Second Cycle courses after completing a First Cycle programme. However, from 2020, direct entry into Second Cycle courses was implemented.

Until 2023, the university functioned in three quarters per year, with activities lasting around 10–14 classes each period, due to pandemics and other contingencies. In 2021, the university decided to adopt the semester, aligning with the structure commonly used by many educational institutions across the country. This choice aimed to enhance performance in curricula and streamline internal procedures, partnerships and integration with other educational systems. As a result, we are currently in the process of reviewing and reforming our curricula, reconsidering the structure of the courses in semesters. For this paper we have focused on analysing the original course planned in quarters due to our experience.

3.1. Centre for Arts and Communication

The Centre for Arts and Communication (CFAC, Centro de Formação em Artes e Comunicação) is located at the Sosígenes Costa Campus in the municipality of Porto Seguro (Figures 1 and 2). Its mission is to 'become a reference centre for teaching, extension and research in the field of Arts and Communication, working with communities, artists and communicators in southern Bahia and international research networks, with competencies in scientific, artistic and technological production and dissemination'.[4] Currently, it offers four undergraduate courses: 'Interdisciplinary Bachelor in Arts', 'Performing Arts', 'Journalism' and 'Sound, Image and Motion'. Additionally, it provides two specialisations in 'Pedagogy of the Arts: Artistic Languages and Cultural Action' as well as 'Expanded Dramaturgies of the Body and Popular Knowledges', which will be merged in our first Master in Arts programme in 2024.

In 2022, the CFAC had a total of 327 enrolled students, with 55% having joined through affirmative policies related to race or social conditions and 52% being women. Although roughly 40% did not disclose their racial background, 28% of the students identified themselves as people of colour, 19% as Black, and only around 10% as white.[5] These data underscore a notably diverse and inclusive student body, consistent with UFSB's diversity guidelines. A significant characteristic of our course relies on the fact that UFSB is within a region that is home to Indigenous people whose cultures and traditions have resisted colonisation to this day. As they have become our students, together with students from the Black community in Porto Seguro and surroundings, our environment is enriched with diverse listenings, soundings and instruments that carry an ancestral African and Indigenous heritage encompassing profound and diverse musical traditions, with a wealth of technical, musical as well as historical materials.

3.2. Campus infrastructure

Porto Seguro is a coastal city with privileged geography of white sand beaches and coloured cliffs, among the most desired tourist destinations in Brazil. The campus is located far from the city, on a pre-existent group of buildings devoted to the Convention Center that celebrated Brazil's fifth centenary in 2000. Although our architectural adaptation project foresees performance rooms, sound studios, spaces for

[4]Our translation from CFAC's website (August 2023): https://ufsb.edu.br/cfartes.

[5]From CFAC Management Report 2022: https://ufsb.edu.br/cfartes/images/arquivos/RELATORIO_GESTAO_2022.pdf.

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Figure 1. Location of Bahia State in Brazil, with the location of the capital, Salvador and the three cities with UFSB campi: Itabuna, Porto Seguro and Teixeira de Freitas. Map by the authors based on IBGE data (IBGE 2023).

Figure 2. Monument to diversity at the entrance of Sosígenes Costa Campus, with classroom pavilion in the background. Photo: Malu Carvalho (ASCOM/UFSB).

multimedia, art gallery and laboratories, the construction depends on future investments and our current infrastructure is very scarce.

From its outset, UFSB has aimed to be highly reliant on technological resources and it proudly stands as the sole federal university in the country

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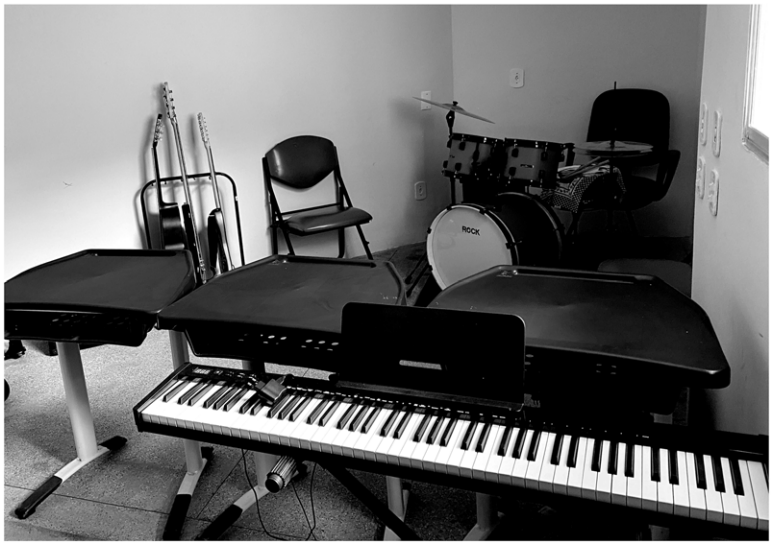

Figure 3. Instruments room for practical music activities. Photo: Deivison Chioke.

boasting a 100% digital connection across all its physical spaces. However, in the wake of President Dilma's impeachment in 2016, investments were significantly slashed. Consequently, minimal resources were allocated for construction, equipment and hiring professionals for all departments, impeding the university's full implementation, with a particular impact on the CFAC. In addition to regular classrooms equipped with projectors, desks, tables and a computer for the teachers, we have one informatics laboratory with 20 computers shared among all courses. Specifically for visual arts, audiovisual and sound production, there are currently only two interdisciplinary laboratories in the CFAC. With limited resources and infrastructure, both labs demand pedagogical strategies that balance hands-on experimental attitude and theoretical approaches, rather than relying solely on acquired equipment. The interdisciplinary collaboration helps in this regard by ensuring that different materials can be shared, including with courses outside the arts (e.g., microcontrollers' kits with computer sciences), and that institutional requests are collective.

The Sound, Image and Motion laboratory (LabSIM), administered by our course in a tiny space, is equipped with one TV plus five computers used for sound design, visual art and video editing. It is also where music studies, rehearsals and recording sessions take place. Only one computer has proper hardware configuration for professional video and sound editing. In the basement of LabSIM there is a small room with musical instruments, such as drums, acoustic and electric guitars, keyboard, electric bass, percussion in addition to small wind instruments (some of them made by students), where sound creation activities take place (Figure 3). This room is also largely used for student's projects and meetings.

As a pluri-epistemic institution, UFSB has developed an innovative classroom project deeply rooted in the regional context of Indigenous peoples. Using a native architectural structure known as *Kijéme* – meaning 'hollow' in the Indigenous Pataxó language, without a middle pillar – the OcaLab (Figure 4), equipped with a large table, television, computer and sound system, caters to the practices of visual arts, expositions and regular classes. Despite offering ample space for larger groups, it lacks sufficient materials for creative use.

4. SOUND IMAGE AND MOTION (SIM)

In this context, by offering interdisciplinary Bachelor's degrees in arts, the university has introduced a fresh and bold perspective to the field in the country. 'Sound, Image and Motion' (SIM) is a unique interdisciplinary programme in Brazilian higher education, blending visual arts, audiovisual and sound creation. The SIM Bachelor's degree was approved in late 2017, its activities began in 2018, and the course has had graduates since 2021.

As a Second Cycle course (see section 3), SIM was initially thought to be started after the 'IB in Arts' (First Cycle), still leading to five years in the acquisition of two diplomas (Bachelor). Since 2020, a smaller but solid interdisciplinary basis in arts has been part of SIM (in collaboration) for those that enter directly in the Second Cycle, and the whole degree can be completed in three and a half years (without IB). The course can be seen as comprising four blocks of curricular components: General Education, Obligatory Components, Optional Components and Free Components.

The course's pedagogical project is based on the interdisciplinarity between artistic practices in sound,

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Figure 4. The *Kijémes*, with the visual arts' laboratory, OcaLab, in the background. Photo: Deivison Chioke.

image and moving image, and revolves around the profound transformations in media over the last century. It has a focus on professional education in the field of arts, with strong interfaces with sound, image, audiovisual and media technologies, while maintaining a robust foundation in sociopolitical education. One of the core concepts is the notion of 'media art', as advocated by Arlindo Machado (2004: 6): a heavily technology-mediated art that must 'search for an ethic and aesthetics for the electronic era'. SIM's interdisciplinary approach aims at encouraging individual choices and supporting art students towards diverse technical, artistic and poetic pathways, depending not only on conventional skills but also on adequate problem-solving skills and adaptive strategies.

Students can choose within a mandatory structure of obligatory, optional and freely chosen curricular components. In addition to that, they must dedicate complementary hours through participation in several activities and a mandatory internship. And they are expected to present a final project, which typically spans at least two terms until its presentation and evaluation. They can choose between a more general 'SIM – Sound Image and Motion' diploma, with fewer obligatory components, or one of three *qualifications* – 'Visual Arts', 'Audiovisual' or 'Sound Creation' – which can be achieved through a series of specific curricular choices. As an operational strategy, with scarce resources, aiming at integration, SIM is designed to work in a sort of carousel: core obligatory components are offered in a two-year cycle and others follow a three-year cycle, always listening to and planning with students and staff.

As our research interest in this article lies in interdisciplinary professional training in sound creation and production, we will, from now on, focus on curricular choices that lead to the qualification in *Sound Creation*. SIM stands out as a unique course in Brazilian higher education by being among the very few that offer training in sound creation and production, within a landscape of music courses. Most Bachelor's degree programmes in the field tend to focus heavily on traditional music curricula, often overlooking the profound influence of technology on our historical and cultural musical experiences. SIM focuses on sound (not music), using an interdisciplinary approach to offer learning experiences that consider the diverse students' cultural and social backgrounds, with attention to contemporary art, sound art and music production around the globe.

The qualification in Sound Creation within SIM resonates with what other countries term 'Music Technology' courses (Ferreira 2007; Carola 2007; UNAM 2015), which usually explore recording and processing, with a particular emphasis on digital sound processing and interface technology, or courses in audio and sound production within the realms of film, television, theatre, or interactive media programs (Klein and Lewandowski-Cox, 2019). This shows that SIM, much like other programs, is evolving to meet the demands of contemporary society, aligning with trajectories in numerous other Bachelor's degree programmes.

4.1. General education

One of the fundamental principles of the Federal University of Southern Bahia is General Education (*Formação Geral*), an integral part of the academic journey for all incoming undergraduate students. This model provides students with an initial phase to explore various fields within higher education,

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Figure 5. "I am Brazil", a film-letter, 2022. Screenshot from www.youtube.com/watch?v=RQqYhfO1BaA.

fostering the development of critical and interdisciplinary thinking, social awareness, artistic expression and humanistic perspectives.

As UFSB intends to be a university for the people, the General Education stage (Almeida Filho, Benicá and Coutinho 2017) seeks to enable real inclusion for segments of the population who have been historically excluded from higher education in Brazil, enabling students to start from a common basis of fundamental knowledge, and providing a general basis about university life. But most importantly, it introduces interdisciplinary thinking and practice, preparing students for their choices in a flexible curriculum. In a country where social inequalities are reflected in education, this stage is fundamental. Currently, the General Education components are divided into five axes that every student will attend: Arts and Humanities, Sciences, Foreign Languages, Maths and Computing, and Writing Production. All General Education components are offered every year, so that incoming students always have a choice.

4.2. Obligatory components

The current course structure includes several obligatory components necessary for graduation. However, owing to the ongoing transformation of the course, the list is undergoing changes. Until now, there have been two sets of obligatory components: one shared with the first cycle courses, the 'IB in Arts', and 'Teaching Licentiate (TL) in Arts', and another comprising obligatory SIM components.

Based on the idea of economy of resources and on the modularity and interdisciplinarity of the university guiding plan, there are several components that are shared among different courses. SIM allows students to attend components offered in other courses, such as 'Art and Technology', 'Cultural Production and Art Curation', 'Cinema, Creation and Audiovisual Education', 'Listenings and Sound Creation', 'Arts and Communication in Contemporary Societies', 'Art, History and Historicities in the Americas' and 'Alterity and Cinema in the Americas'. In these components, students have the opportunity to develop projects in collaboration with students from the IB, TL and other students. These projects include artistic works, such as 'film-letters', short fiction or documentary films. Figure 5 shows a frame from a short 'film-letter' created by Deivison Chioke for the component 'Cinema, Creation and Audiovisual Education', based on film analysis in addition to activities experienced in the component, taught by professors Augustin de Tugny and Aline Nunes. Another important example, in the 'Cultural Production and Art Curation' component, coordinated by Professor Juliana Gontijo, the online exhibition 'Na Rede' (2020) reunited projects developed by students for different components in a curated website (Figure 6).

The obligatory components for all SIM students include theoretical components covering three main areas: 'Sound Theories', 'Image Theories' and 'Moving Image Theories'. What distinguishes SIM students from others in audiovisual, sound production, or visual arts is the common theoretical foundation they share across these three fields. This collaborative approach fosters the development of versatile students who are aware of the potential interconnections between these areas. In addition to these three, 'Authorship, Copyright, and Legislation' and 'Curatorship, Memory, and Archiving' encompass these three main areas, providing a foundation for legal matters and documentation. But most importantly, Project Laboratories – where students are required to develop a special art project, individual

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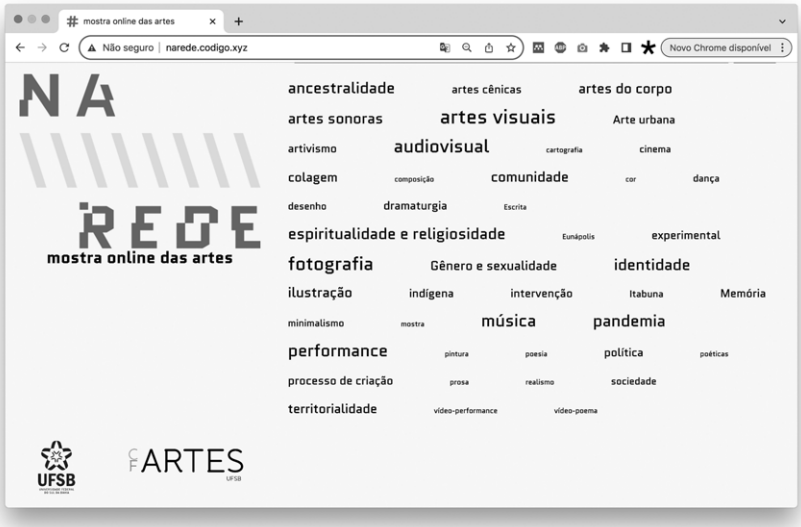

Figure 6. Na Rede website. Screenshot from http://narede.codigo.xyz/.

Figure 7. Frame from *Digital Democracy*, 2022. Screenshot from www.youtube.com/watch?v=22qcaRmsb5s.

or collective – bring all three areas together in practice, with students' diverse interests, with inputs from all other components that they are enrolled in, and enriching their portfolio with new production, by functioning as a transversal creative space.

The short film *Digital Democracy* (Figure 7), directed by Deivison Chioke and written by Julio Lem, was created for the 'Project Laboratory in Technopolitics' under Professor Alemar Rena. The fictional work was produced in Porto Seguro neighbourhoods, with the participation of local residents, exploring how technology can bring positive changes to political and social demands. On the 'Project Laboratory in Corporalities', with professors Bernard Belisário, Marcelo Wasem and Éder Rodrigues, the same student produced a video performance based on debates in the classroom about the book *The Genocide of Black Brazilian* by Abdias Nascimento (1978) (Figure 8).

In the new pedagogical programme scheduled to be implemented next year, the laboratories will no longer follow specific themes to be better aligned with the group of components offered to students that semester. Students will need to complete four semesters of laboratories, and the projects they work on may span more than one semester. The laboratories are the core

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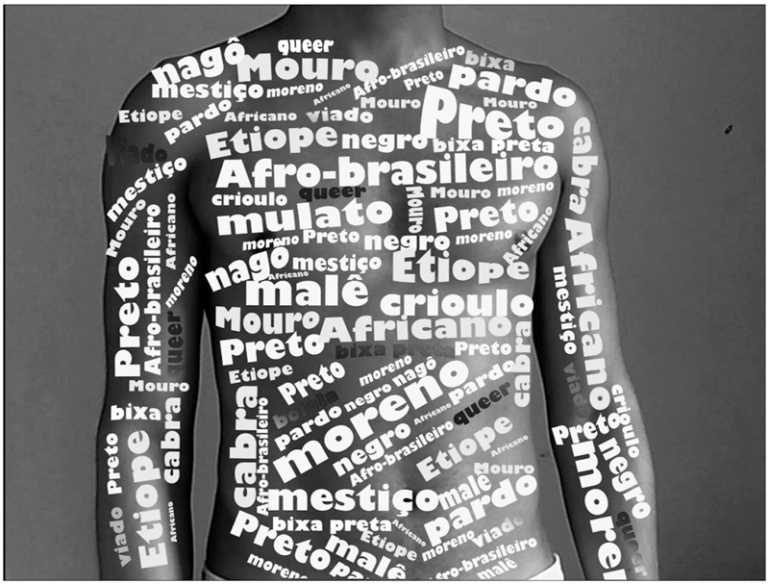

Figure 8. Frame from a video performance by Deivison Chioke for the Project Laboratory: Corporalities. Screenshot by the authors.

practical axis of the course, serving as a space for interdisciplinary and collective collaboration across the different areas in SIM.

4.3. Optional components

In addition to the obligatory ones, there is a minimum in credits and a list of optional components that students must choose from to complete their graduation. As the course is thought to be flexible and interdisciplinary, they deepen specific themes and areas of expertise or practices in order to develop certain skills in contact and dialogue with the project laboratories and other obligatory components. They may also be taken by students from other courses such as Journalism and Performing Arts, and from IB and TL courses. By selecting various optional components, students can attain different qualifications that interest them as artists and professionals, beyond those that are foreseen, actively shaping their technical, artistic and poetic journey based on individual preferences. Table 1 displays SIM's optional components list and indicates which of the three qualifications they are assigned to.

4.3.1. Sound creation

In addition to obligatory curricular components common to all qualifications in SIM, students who wish to have a qualification in Sound Creation need to attend a list of optional components, meaning that some of them will become obligatory. We consider four of them as fundamental and structural for students' education:

- 'Digital Audio Recording and Editing', where students comes into contact with audio recording technologies, such as microphone types, polar patterns, mono, stereo and multichannel recording, and basic digital audio editing techniques. This component is important for sound production students, and also for audiovisual and journalism.
- 'Sound Creation and Composition', where students learn to process operational concepts related to the organisation of sound components for their productions, creating sounds, soundscapes, sound effects, rhythms and musical compositions, developing harmonic and melodic structures. The teacher allows students to find their own paths, and thus use and create resources to produce and capture sounds and then process them in different effects, softwares and DAWs.
- 'Soundtrack and Sound Design', where the students come into contact with synthesis and processing techniques. Spectromorphology (Smalley 1997), sound objects and solfége (Schaeffer and Reibel 2007) and intersemiotic translation (Plaza 2010) come into play. As a final assignment, students are invited to develop a soundtrack for videos produced in other components, or create a soundscape or audiovisual piece to be released.
- 'Mixing and Mastering' is a hands-on course that deals with basic history and techniques in the studio, all the steps in mixing, and the different types of effects and digital processing, including equalisation and compression and how to apply them. The leap to mastering is done by considering concrete problems in familiar circumstances and how they may be solved, as well as stressing the

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Table 1. SIM optional components and a list of the qualifications they are assigned to: Audiovisual (ADV), Sound Creation (SOC) and Visual Arts (VAR)

Component Name	Qualifications
Publication, Exhibition and Distribution	[ADV] [SOC] [VAR]
Direction and Creation	[ADV] [SOC] [VAR]
Project and Production	[ADV] [SOC] [VAR]
Music Video: Image for Sound	[ADV] [SOC] [VAR]
Script and Narratives in Image, Sound, and Hypermedia	[ADV] [SOC] [VAR]
Recording, Capture, and Digital Video Editing	[ADV] [SOC] [VAR]
Art and Accessibility: Audio Description, Audiobooks, and Dubbing	[ADV] [SOC] [VAR]
Art, Documentation, and Creative Processes	[ADV] [SOC] [VAR]
AudioVideo, Physical Interfaces, and Installation	[ADV] [SOC] [VAR]
Capture and Digital Audio Editing	[ADV] [SOC]
Archaeology of Sound	[ADV] [SOC]
Acoustics	[ADV] [SOC]
Mixing and Mastering	[ADV] [SOC]
Workshop: Practices in Sound Creation	[ADV] [SOC]
Final Art in Sound	[ADV] [SOC]
Sound Creation and Composition	[ADV] [SOC]
Soundtrack and Sound Design	[ADV] [SOC]
Archaeology of Image and Moving Image	[ADV] [VAR]
Colour, Form, Image	[ADV] [VAR]
Workshop: Practices in Photography and Video	[ADV] [VAR]
Photographic Image	[ADV] [VAR]
Final Art in Video	[ADV] [VAR]
Assembly and Editing	[ADV] [VAR]
Light and Space	[ADV] [VAR]
Animation Techniques	[ADV] [VAR]
Drawing Practices [LAB]	[VAR]
Illustration [LAB]	[VAR]
Graphic Arts: Materials, Supports, and Technical Resources [LAB]	[VAR]
Final Art in Graphic Arts [LAB]	[VAR]
Typography [LAB]	[VAR]
Editorial Creation [LAB]	[VAR]
Workshop: Practices in Graphic Arts [LAB]	[VAR]
Sounds and Materialities [LAB]	[SOC]
Literature and Cinema: Intersemiotic Translation and Scriptwriting Studies	[ADV]

importance of finding significant artistic references.

In addition to these four fundamental curricular components that should be taken over the course of two years, there is a range of optional components where students can delve more deeply into practical and theoretical aspects related to sound creation. Following the university's pedagogical project, where project-based learning is a central proposition, we always strive to apply the teachings in practical assignments. These assignments can also serve as a basis for the student's portfolio development. For example, in 2019, students of the 'Mixing and Mastering' component, run by Professor Alemar Rena, produced a collection of tracks, *Coleção Sonida*, released on Bandcamp.[6] In 2023, students in 'Soundtrack and Sound Design', run by Professor Ariane Stolfi, developed the interactive work *Tarde de Sol*[7] (Figure 9). Students made soundtracks for small video loops, previously developed in the component 'Workshop in Photography and Video', and these were transformed into an interactive audiovisual piece.

In 'Sound Archeology', students delve into the origins of musical instruments, technologies, forms and genres, and their roles in past and contemporary societies, and examine their use in religious, political, communicative and entertainment contexts. With Ariane Stolfi and Marcelo Wasem, students were tasked with creating a brief radio programme based on their research into a specific sound theme, such as religious or game music. With Daniel Puig, they presented theoretical and practical results of research themes from the construction of microphones to the origins of specific Brazilian instruments.

Another key component for practical experiments is 'Sound and Materialities', the space for working with

[6]*Coleção Sonida*: https://sonida.bandcamp.com/album/cole-o-sonida-vol-1.

[7]*Tarde de Sol* is available online at https://oficina.codigo.xyz/vjloop/tardedesol.html.

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Figure 9. *Tarde de Sol*, 2023. Part of interactive audiovisual piece developed in curricular components 'Soundtrack and Sound Design' and 'Workshop: Practices in Photography and Video'. Screenshot by the authors: https://oficina.codigo.xyz/vjloop/tardedesol.html.

sound experiments and experimental luthiery. It has the broadest syllabus among the course components and may cover subjects from analogue sound production devices to hardware hacking and basic electronics, transduction and electricity, digitisation and materialities, modes of vibration in solids, gases and liquids, physical and mathematical models, sound parameters, descriptors, measurements, and other topics. The first time it was taught, by Professor Ariane Stolfi, the students explored the manufacturing of small synthesisers using a protoboard, and finally each one developed an electronic or analogue instrument from recycled materials. The second time, during the Covid-19 pandemic, it was offered online and students developed small interactive experiments in HTML 5 or JavaScript (P5.js). With Daniel Puig, students explored different workstations that allowed them to build sounding devices with different materials and approaches, and finally develop them into more structured projects.

Workshops are another fundamental part of SIM among optional components. In the upcoming curriculum, three additional workshops, one for each of the three qualifications in SIM, are aimed at university outreach and building bridges with the external community and local context. In the workshops for sound creation, students are introduced to musical improvisation practices, which are unfamiliar to the majority of them. Well-known scores such as Pauline Oliveros's 'Teach Yourself to Fly' from *Sonic Meditations* (Oliveros 1974), or Cornelius Cardew's 'Treatise', scores by Jocy de Oliveira and other Brazilian composers, or photos, performances and films used as 'scores', as well many other such devices are commonly used. Developed as a libertarian practice from the work of John Cage, Christian Wolff and others, as an opposition to musical formalism and based on the renunciation of the 'ego-creator', free improvisation in Western music, as an exercise of individual freedom in music, is very consistent with the pedagogical project of this university. This workshop in sound creation led to 'Reverbera!', an extensionist project that we will describe next.

5. REVERBERA!

The 'Reverbera!' Project began in 2018 as an activity related to the workshop in sound creation, and is an extension project coordinated by Professor Ariane Stolfi that aims to produce live soundtracks for silent and/or experimental films. This project was carried out at UFSB from 2018 to 2020, but interrupted due to the COVID-19 pandemic, and was described in a chapter published in the book *Imagina! Cinema, Territory and Education* (Stolfi 2023). This year the project was resumed with a group of seven students from SIM, IB and TL in arts courses, and includes a scholarship for a student to collaborate with common tasks.

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Figure 10. Above: participating team at the second presentation of the project, at the I F.EST.A – Student Audiovisual Festival, at CIEPS in Porto Seguro, in December 2018. Below: participating team at the presentation in 2022 at UFSB. Photos: Cristiane Lima.

Reverbera! is above all a space for free improvisation practices. Different from a traditional musical performance process, the practice of free improvisation allows an exercise of individual and interactive creative freedom. It depends on the practice of a type of listening that follows the ideas of Paulo Freire (1996), who points to listening as 'the permanent availability on the part of the subject who listens to be open to the speech of the other, to the gestures, and to the differences of the other', without diminishing the ability to position oneself, to oppose and disagree, during the sound creation process.

Working with films as scores for improvisational practices can be considered as a comprovisational practice (Aliel, Keller and Costa 2015), as they are not totally free, and also as a practical exercise of intersemiotic translation, for the participants are stimulated to translate into sound, actions and emotions in the films (Plaza 2010). We usually work with old silent movies, specially the ones that are free from copyright, to avoid legal issues, such as *The Cameraman's Revenge* (dir. Starewicz 1912), *Trip to the Moon* (dir. Georges Méliès 1902) and *Un Perro Andaluz* (dir. Buñuel and Dalí 1929).

As an extensionist practice, the main objective for the project is to expand the university activities in the territory by performing experimental music in public spaces. This is especially important, as in southern Bahia there is no strong movement or tradition around experimental music, and we are also contributing towards having public support for different contemporary cultural expressions. We usually perform with the cinema festival and circuit 'Imagina!', specially in the students festival (F.EST.A[8]) and at different events in the university (UFSB 2022; Figure 10).

6. CONCLUSIONS

A course of this interdisciplinary nature presents many challenges as well as numerous opportunities for invention and creation. In general, we have applied the principles from the university's guiding plan by seeking problem-based learning, with practical assignments serving as the central focus of student productions. Whenever possible, we try to integrate

[8]Information about F.EST.A can be found at www.imaginacircuito.com/festa.

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the various areas of knowledge covered in the course into these exercises.

We believe that we are shaping highly versatile individuals, capable of transit between these different areas. They might be filmmakers with a keen sense of sound or music producers with a strong aesthetic sensibility. These are professionals who, in a way, reflect the profile of today's market, where a single artist often has to manage all aspects, from project development to fundraising and final production.

The modular approach to education allows flexibility in the curriculum and allows space for students' interests. However, it also presents challenges. We noticed that we have always had to revisit basic concepts in physics, psychoacoustics and digital audio fundamentals, because every time there were students that had not had the chance to learn them yet, according to their specific curricular choices. To address this issue, we proposed that the obligatory component 'Sound Theories' should be part of the first year and cover fundamental concepts that are essential for students' development.

The lack of infrastructure is another sensitive aspect of our course. Students often come from challenging socioeconomic backgrounds and rely on university computers and equipment to complete their work. We hope that government investments in universities will grow so that we can acquire the necessary resources and have adequate practice, recording and sound production facilities. In the meantime, we emphasise the creative work itself over technological excellence, even if it means a lower level of refinement.

Despite these challenges, our region boasts a rich artistic life and cultural involvement, including local traditional communities. We have witnessed some of our graduates actively contributing to the local creative economy. Transitioning from a traditional, bureaucratic concept of higher education towards a more contemporary, postmodern approach, UFSB is progressively offering courses that address current issues in local realities and meet modern global demands. This shift reflects a commitment to inspire innovation and strives to offer relevant educational opportunities.

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