ISSN 3104-9931

IEDAs*

A Journal of Transdisciplinary Practices in Art & Design

21st Century Polymathy

01

ISSN 3104-9931

IEDAs*

A Journal of Transdisciplinary Practices in Art & Design

21st Century Polymathy

01

IEDAs TEAM

Foreword

IEDAs is an international, peer-reviewed, open-access journal committed to showcasing both emerging and established practices that operate across, between, and beyond disciplinary boundaries. Aligned with the ethos of its institutional home at Beaconhouse National University, particularly the Mariam Dawood School of Art and Design, under the auspices of the UNESCO Chair on Inclusion Through Art, the journal positions itself at the intersection of artistic, design, and research-based methodologies, foregrounding inquiries that engage with material, social, and conceptual transformation.

IEDAs responds to the growing need for scholarly and practice-based platforms that acknowledge the shifting contours of art and design in the 21st century. It invites contributors to reflect critically and speculatively on how transdisciplinary practices can reframe our understanding of knowledge, collaboration, and lived experience.

Working across media, disciplines, and geographies, IEDAs supports a diverse range of submissions - textual, visual, performative - highlighting practice-as-research as a valid and urgent mode of knowledge-making. It aims to become a site where pedagogy, aesthetics, and criticality converge; where designers, artists, and researchers share work that is both situated and speculative.

IEDAs is an initiative of the Inclusion Through Art program at BNU, and benefits from the guidance of an international editorial board and an active advisory council. It is made possible through the support of the South Asia Foundation and Madame France Marquet, whose continued commitment to regional collaboration and cultural dialogue underpins this project. The journal also draws upon the pedagogical and artistic legacies of the UMISAA (UNESCO Madanjeet Singh Institute for South Asian Arts) program.

With this first volume, IEDAs inaugurates a space for rigorous, expansive, and situated inquiry- welcoming contributions that reimagine the possibilities of transdisciplinary artistic and design research.

For more information, to contribute, or to support future volumes of IEDAs, please visit https://bnu.edu.pk/iedas-journal or https://iedasjournal.bnu.edu.pk

UNESCO Chair Holder / Dean’s Message

Ibn Arabi's aphorism, "The gnostic is not he who knows many things, but he who knows the connections between things,"[1] gestures towards a paradigm of knowledge that subverts the fragmented nature of disciplinary specialisation. This notion converges with the principles of polymathy, wherein multiple epistemological frameworks intersect to refract a complex understanding of the world. As we inhabit the interstitial spaces between disciplines, and the boundaries between them begin to blur, we may uncover new modalities of knowledge that challenge the reified distinctions between fields of study. The mirror of knowledge is always already fragmented, and yet, it is in the act of reflection that we may glimpse the interconnectedness of things.

Intersectionality posits that individual and group experiences are shaped by multiple factors, including social, cultural, and epistemological contexts. In the context of polymathy and inclusion, intersectionality reveals the ways in which disciplinary boundaries intersect with demographic categories, revealing multifaceted experiences of inclusion and exclusion. By examining these intersections, researchers can gain a deeper understanding of how knowledge production and dissemination are shaped by power dynamics and social contexts.

The recognition of disciplinary inclusion as a crucial aspect of promoting diversity and inclusion is central to the mission of the UNESCO Chair on Inclusion through Art at the Mariam Dawood School of Visual Arts and Design (MD-SVAD) at Beaconhouse National University (BNU). By focusing on disciplinary inclusion, the Chair aims to create a more nuanced understanding of the relationships between knowledge production, power, and identity. Through its work, the Chair seeks to promote an environment that values diverse forms of knowledge and expertise, cultivating innovative solutions to pressing issues. Relative to EART[2], the Chair aims to ignite a discourse around expression elsewhere – locating the discourse of creative expression beyond the arts.

The recent surge in global tensions has raised concerns about the possibility of a nuclear war, highlighting the fragility of our highly polarised world, shaped by the nation-state paradigm that has dominated the past

century.[3] This paradigm is closely tied to the forces of industrialisation and overt nationalism,[4] which have contributed to the compartmentalisation of knowledge.[5] Such compartmentalisation has led to disciplinary siloing, where knowledge production and dissemination occur within isolated domains, limiting interdisciplinary approaches and resulting in a fragmented understanding of global issues.

In this context, rethinking the nation-state paradigm becomes essential. By adopting more inclusive and interdisciplinary approaches, we can gain a deeper understanding of global issues and work towards more collaborative and equitable solutions. The mirror of knowledge reflects back our own limitations and biases, and it is only by acknowledging and addressing these that we can move towards a more comprehensive understanding of the world.

In the contemporary era, the prospect of hope emanates from the confluence of minds, transcending the boundaries that have long compartmentalised knowledge. The UNESCO Chair on Inclusion through Art at MD-SVAD, BNU, seeks to dismantle these barriers, cultivating a paradigm where inclusivity is not merely an adjunct but a fundamental aspect of our pursuit of knowledge. By expanding the notion of inclusivity beyond the traditional categories of class, gender, race, and ethnicity, we aim to create a more nuanced understanding of the complex relationships between art, design, and society.

At BNU, the UNESCO Chair on Inclusion through Art finds a natural habitat, one that is deeply rooted in the institution's 21-year history of bringing together a diverse and vibrant academic community. Through its nonprofit ethos and scholarship programs, BNU has cultivated a rich environment that transcends traditional boundaries. The university's pioneering regional partnerships, including the UMISAA Scholars program, bring together talented students from across the SAARC region, rendering SVAD a singular art institution in South Asia.

MD-SVAD's curriculum has consistently defied geographical and political borders, embracing an interdisciplinary approach that permeates all its programs in Visual Arts and Design. The newly established Interdisciplinary Expanded Design and Art program (BA Hons IEDA) further pushes the

boundaries of transdisciplinarity and polymathy. Under the aegis of the UNESCO Chair, IEDA has evolved into an initiative that encompasses a diverse set of activities, including the degree program (BA Hons IEDA), a festival, an incubation centre, and this journal, all interconnected through an ecosystem of transdisciplinary explorations that leverages the power of creative expression.

As we launch The IEDAs Journal, a platform that navigates the intersections of art, design, and polymathy, we inhabit the threshold between past, present, and future. This inaugural issue, a testament to the complex relationships between art, design, and society, seeks to disrupt the boundaries between disciplines, generating a deeper understanding of the world through the convergence of diverse perspectives and methodologies. In doing so, we aim to create a forum for critical inquiry that unsettles our assumptions and complicates our understanding of the world, leveraging the power of the written word to traverse time and space.

Through the lens of art and design, we aim to excavate new narratives, challenge disciplinary boundaries, and forge connections between creative individuals and communities. In the words of Rabindranath Tagore, "The highest education is that which does not merely give us information but makes our life in harmony with all existence."[6] As we cultivate harmony and understanding through the IEDAs Journal, we invite scholars, artists, and practitioners to join us in this journey of exploration and discovery.

Prof. Rashid Rana
Patron-in-Chief, IEDAs Journal
Chairholder, UNESCO Chair on Inclusion through Art
References

[1] Ibn Arabi (1165-1240 CE), Islamic philosopher and mystic.

[2] EART: A MANIFESTO OF POSSIBILITY – 01 was conceived in 2017-18 by Rashid Rana, in collaboration with Madyha Leghari, with contributions by Dr. Ijlal Muzaffar, Natasha Jozi, Pablo Baler, Quddus Mirza and Aroosa Rana, and was presented at the Manchester International Festival 2021.

[3] Partha Chatterjee, The Nation and Its Fragments: Colonial and Postcolonial Histories (Princeton University Press, 1993). Chatterjee critiques the Western model of nationalism and its implications for postcolonial societies.

[4] Shiv Visvanathan, "The Future of Futures Studies: A Democracy of Knowledges," Futures, 41(6), 715-722 (2009). Visvanathan advocates for a more inclusive and decolonised approach to knowledge.

[5] Michel Foucault, The Archaeology of Knowledge (Harper & Row, 1972). Foucault argues that the compartmentalisation of knowledge is a key feature of modern power structures.

[6] Rabindranath Tagore, "The Philosophy of Leisure," in Towards Universal Man (Asia Publishing House, 1961).

Editor's Note

Quddus Mirza

Peter Szendy in his book, For an Ecology of Images (2025), suggests 'Lets imagine, as Pliny proposes in his Natural History, that the first painted image was the outline of a shadow.' Marcel Duchamp describes shadow being the fourth dimension. We are surrounded by shadows, receding, fleeting, fading and following us in our daily life. As per common perception, one or several shadows are cast by the presence of light; and add multiple dimensions, replicas, silhouettes, layers of a human being, a living specie, an object.

Human beings, aware of the phenomenon of shadow, comprehend, and control it; which if translated in the realm of knowledge is the capacity of being exposed to diverse sources of light, a scheme of including various facades of an individual's self. It can be translated into a scheme/ platform to connect with others; thus an archaic necessity, genetic code, and societal desire to be a swiss knife. A tool to survive in difficult jungles of ignorance as well as to cope with the luminous surroundings of a civilization.

This ability made humanity into a polymathic character. The dictionary of any language enlists multiple functions a person performs – from mundane and routine existence to complex exercises. Especially in the realm/light of knowledge, practice, creativity. In the glorious spans of Muslim Medieval Period, and European Renaissance, one comes across individuals who extended their thoughts, research, expressions in more than one area, including Al-Biruni, Al-Farabi, Averroes Leonardo da Vinci, Michelangelo, to cite a few.

A tradition that continued to the latter ages too, in which a healer was also a poet, a historian, and a philosopher. Or a writer of fiction, additionally had a job in a post office, and toiled fields. (Two examples from this region can further illustrate this phenomenon: Jawahar Lal Nehru, a distinguished lawyer, the leader of Indian National Congress,

and the first Prime Minister of Independent India penned books on India and world history while in the British prison; and Dr Allama Muhammad Iqbal, active in All India Muslim League, an advocate and a philosopher who wrote several volumes of poetry in Urdu and Farsi).

Polymathy was such an expected practice that its presence in one's personality never ignited awe, surprise or appreciation, because it was reminiscent of the conventional methods of production in a community. For instance, a potter used to collect clay, turned a number of pieces on the wheel, painted and glazed them, before baking them. Once ready, packed, priced, and sold them. But with the industrial revolution, these roles were split and segregated, with the individual, instead of a maker, ending up an operator, a cog in the mega machinery of manufacturing and marketing. Resulting into an alienation with a person's mode of livelihood. A scheme that evolved into the era of specializations; defined as 'professions' (different from another term, pursuits). For example in the fields of medical sciences, construction business, knowledge production, etc.

This illusion of excellence, this approach of a singular frame of mind, grasp on a subject, grip on a technique, if led to polarization in the society, embedding alienation among individuals, it also generated hegemonies of different levels. Conveniently converting a person into viewing universality through a single and limited lens, may be tinted by class, training, ethnicity, sexual demarcation, location, language, faith, sect. It could be traced in the ideal structures of pedagogy, popular in the twentieth century, primarily imported from the industrialized/colonialist nations.

In the colonized and global societies a person served a specific role, already defined and determined by the outsider/rulers, or market forces. Hence a minimum difference between mankind and machine. No matter if a doctor is famous in treating one organ, a lawyer has excelled in the corporate tax law, a singer is known for rap, they may still move ahead with a blinkered vision, practice. Following one path. Same applies to the fields of pedagogy, a seeker of knowledge acquires a degree in one discipline, but often is unable to interlink with other related – or even

unrelated spheres of investigation and knowledge dissemination.

The supremacy of one discipline has been challenged in the twenty-first century, for multiple reasons. Access to information, ideas, examples, technology included, but mainly the mindset that the world does not end in the backyard of one's studio practice, or inside the classroom, or within an operation theatre, which due to their routineness, comfort, and allure create the power for a person, who is unable to deviate beyond a specifically attained and acclaimed area of research, practice.

The Journal of Transdisciplinary Practices in Art & Design (IEDAs), in its first issue, initiates a sequence of inquiries, investigations and expressions about the world being transformed in the age of polymathy. Inviting or/ and selecting texts by a variety of contributors, each viewing/exploring the concept of polymathy through historic, political, personal, social framework/s, hence the formats of their contributions, structure of their narratives, systems of their arguments vary.

The Journal, in its essence, represents the ethos and the strategy of Mariam Dawood School of Visual Art and Design that has been offering diversity, and facilitating polymathic approaches in its studios, lecture halls, and in the encompassing environment on campus. This leading institution of South Asia, in its philosophy and vision, through its first issue of journal reminds one of a quote by Walt Whitman "I am large, I contain multitudes".

The Development of a Polymath in a Culture-Neutral Space: MMORPGs, Game Design, and Social Structure

Amna Hashmi

Abstract: In a world where identity is often shaped by culture and places, the anonymity of the digital space of the internet, free of biases tied to form, gender, and position can perhaps be looked as a space holding pockets that provide the possibility to interact, mediate, and build with impartiality to biases embedded in our physical spaces. While culture defines identity, it can also augment limitations, emphasised by social or geographical structures.

Massively Multiplayer Online Role Playing Games (MMORPGs) present such digital spaces, where one can transpose a new identity upon oneself by recreating one's form into the denizens of the game, and be allowed to carve a niche based on one's skill, perseverance and amount of time. With the structure of the world defined by the game's design, an individual's worth and purpose is often defined by expertise and versatility of skill sets. The diversity in the character can perhaps be taken analogous to the real life polymath, however in the online space the acquisition of these competences might be more accessible.

This research shall explore the idea of a polymath in the virtual artificial worlds and social structures in a space where the divides of age, social status, culture, and geographical boundaries are nullified. In a space where normal agencies of power are removed, power and strength granted from one's knowledge and skill, the mastery of multiple crafts can turn to be the means of forging a new power structure.

Keywords: MMORPG, Online Polymathy, Skill Trees, Power and Knowledge

Culture and Identity

As multiple cultures evolve from regions of their geographical boundaries giving birth to varied lifestyles and schools of thought, local wisdom, and indigenous knowledge are considered valuable resources that could aid in providing solutions addressing issues related to identity, belonging, and care. Native traditions have the potential of guarding wisdom that holds answers that have been passed over the ages, answers which we may have forgotten or ignored in today's post-colonial homogenised narratives. The stories passed down through the ages are often born from the clime and lay of the land they originate from, and therefore hold elements that can lead to more sustainable solutions that would hold greater resonance with the people they belong to.

Cultural variance could be considered the key to defining our identity, aiding us in marking ourselves as unique individuals with his/her/their own set of interests and expertises. However, it is the same culture that can serve as a bane to defining our individuality with definitions of locales, genders, and age come along predisposed opinions that we as people have the tendency to fall back upon. As Amin Malouf (2003) writes in his essay 'In the Name of Identity', in our rush to place people and experiences into digestible boxes, we tend to ignore the complexities of the human persona, achieved from the experiences of living and absorption of knowledge.

Our decisions aid in defining our interests and guide the paths we pursue in life. While culture, religious alignment, and gender no doubt hold roles in the direction of our decisions, ultimately, that which separates ourselves as an individual from a mass persona that we tend to attribute to groups within society are our choices. From the people we choose to walk with, the languages we learn, the interests we develop, to the foods we like, all these aid in shaping our personality and interests, and may be what sets the direction on the knowledge path we choose to walk upon. These specific choices aid in moulding a unique identity that possesses the potential to leave an impact upon society.

Polymathy and Society

Deeply tied to the complexities of the development of an individual personality is the acquisition of skills. Our inclinations influence our learning choices, which then shape our life decisions and career paths. The human brain has the capacity to absorb a variety of information, demonstrated in our ability to adapt to myriads of situations, reflecting our ability to develop expertise in multiple fields simultaneously. In the formative years, when experimentation is encouraged, children can be seen easily picking up multiple skill sets.

The state of being adept in multiple domains of knowledge, excelling in diverse disciplines is what is termed as polymathy, a term often attributed to some of the well known masters of history. However, in recent years, polymaths are claimed to be rare to find, with specialisation in one area being encouraged over others. Research indicates that this inclination may be attributed to the social and educational system, encouraged by the thought that adeptness in multiple areas leads to mastery in none, leading to an individual, in the words of Carl Djerassi, who is more of a 'dabbler' (Garcia-Vega & Walsh, 2018).

With a part of the development of our skills being tied to the social matrix, the prevailing norms and expectations in society are often influencers upon the decisions of many, discouraging brave experimental actions that deviate from the norm due to risk elements. With the mastery of a skill being tied to the amount of time invested in the process, polymathy is often discouraged for not being able to cover the range of knowledge that is available today.

Simultaneously, a wider range of specialisation leads to a greater chance of excelling in any field a person is placed in, being equipped to adapt to situations that fall outside the expected or come up with newer, unconventional solutions (Epstein, 2019). With various skill fields constantly evolving and changing, over reliance on specialisation can potentially lead to expertise being outdated, or resolved by someone who might be able to apply knowledge from unrelated frameworks.

Power in Knowledge

The possession of knowledge itself can be equated to command over power. Mastery in a field enables one to create, effect, and guide in that particular framework. This power holds the ability to influence others, shape opinions, and reinforce existing concepts. However, if we are to follow Foucault's (1981) theory on the link between power and knowledge, not all information and skills are equal. There are some that hold greater favour for they may aid in reinforcing the popular discourse and opinion. Those skills or knowledge sets which fit in the broader social and economic relationships in society might be given greater respect, as their existence would serve to reinforce the broader narrative.

Finally, it could be said the main influencer and dominator in the development of our skill sets is the society in which we are based, with its opinions, needs, and inclinations influenced by the culture and existing power structures. In such a scenario, the digital space emerges as an alternative third space, providing a platform entailing people from culturally diverse backgrounds but separated from the geographical bounds of their physical space. The boundless virtual realm's open and participatory nature enables decisions that transcend the boundaries of pre-established powers and traditions. The immaterial nature of the internet prioritises information as its core currency, leading to the emergence of a new network based society.

Due to the nonphysical nature of digital space, some of the respect and power rules, which are associated with the nature of acquisition of knowledge are automatically overturned. Whereas in our physical spaces we might equate the quest for knowledge and expertise with age and accumulated experience, in the online space, it is only those who demonstrate skill and knowledge who are awarded the due respect and reverence, regardless of age. This overturning of norms leads to a new fluid social economy, allowing for emergence of novel power structures and identities. Anonymity of gender, age, and location allows bypassing limitations on learning and roles, enabling equal opportunities.

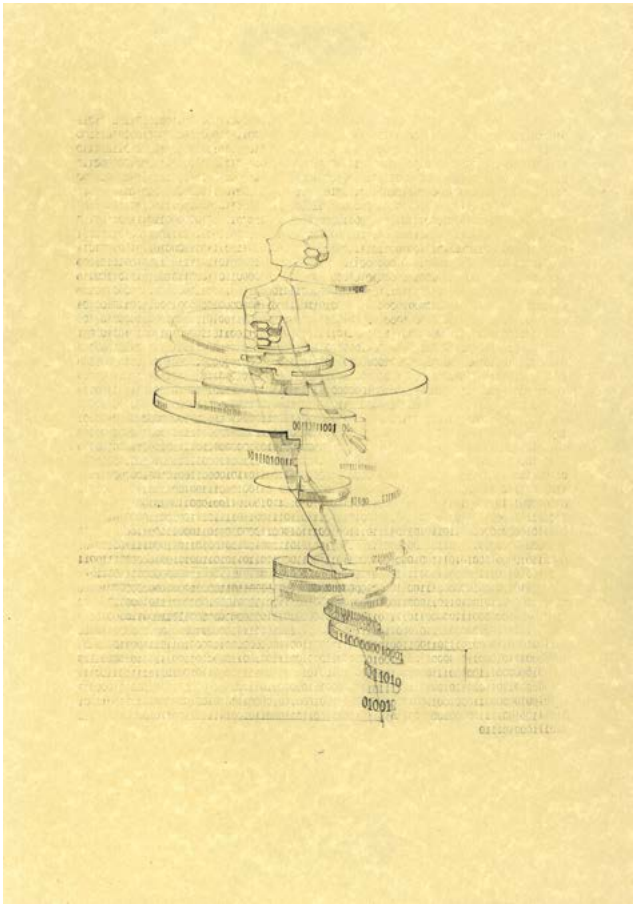


Fig. 01. Choose your character

The Internet as a Culture Neutral Space

At the same time, the intangible nature of the digital space is not without its challenges. As Dreyfus (2009) critiques, due to the disembodied nature of the Internet, issues of commitment and human connection are a concern. Their study specifies that as humans we tie value to embodied experiences, something which the digital space lacks, leading to a greater risk factor in allotting trust. A space gains value from its inhabitants' relationships, fostering community, belonging, and personal investment. The ability to easily disconnect and walk away from one's actions erodes attachment and accountability, undermining genuine community or intellectual engagement.

This lack of physical interaction does often lead to a lack of emotional engagement, leading to fragility in relationships and inability to commit.

Dreyfus (2009) compares this to Kierkegaard's (2009) critique of the press, drawing a comparison that the simulated nature of the digital space eliminates risk. With the user on the other end being reduced to data, a greater detachment is created.

Consequently, the same disembodiment holds the advantage of serving as a neutral space for democratising information, allowing open access, and empowering all those who seek the knowledge, as contested by Swartz (2008) in his fight for making all data open access. Providing a space where geographical confines are negated, the social and institutional barriers, taking root from the natural political and corporate restrictions that affect our physical interactions, can be easily bypassed. Additionally, the safety provided by distance and anonymity can alternatively pose as a boon for communication and bonding, especially for individuals that find discomfort in physical interactions.

In such cases, online social worlds using play, cooperation, and narrative building could bridge gaps and deepen user engagement. Software programs such as LambdaMOO have shown the potential of these virtual realities that can serve as platforms which foster communities (Pavel, 1992). An evolution of the earlier MUD (Multi-User Dungeon) online games, this text based multiplayer virtual world, built using the MOO programming language provided user interactivity with the online space, took upon the form of a mansion allowing the players to communicate publicly and privately, providing them access to 'rooms' and 'objects' that they could manipulate using the embedded programming language in the 'game'. With an open nature that relied on the primary medium of communication, it became a hub for global interaction, serving as a space for role-play and uniting communities in addressing complex social issues in virtual space.

The World of Digital Fantasy

The Massively Multiplayer Online Role Playing Game (MMORPG), building upon the foundations of persistent virtual worlds laid by MUDs, took the concept of a multiplayer game space further by adding in a visual interface to the element of communal storytelling and world building. The game's interface potentially serves as a recreation of the physical world, by providing visual imitations of our existing natural and urban spaces, recreated in

polygons and data.

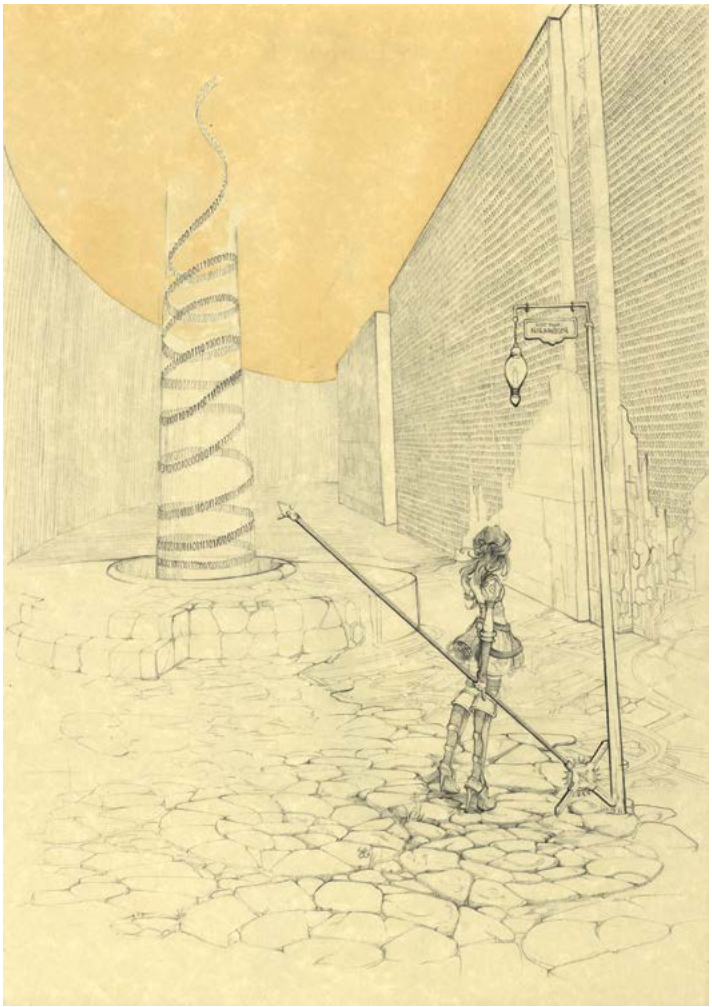


Fig. 02. World Creation

These online game spaces, in contrast to their single player and local network counterparts, are vast online worlds which exist independent of human interaction. Whereas in a stand-alone offline or local network game space the existence of the created digital world depends upon the player logging and switching on the game, otherwise remaining in a state of paused stasis. The online MMORPG exists in an autonomous online space with its timeline and events running even when the player is logged out. With thousands of players playing simultaneously, in their own level areas and conducting activities of interest, these games can be played either with other groups of people or alone. Conducting trade, forging weapons,

questing deep into a grand dungeon thousands of levels deep or choosing to grow potatoes with your virtual partner who you might never meet in real life (nor might hold the gender their online counterparts depicts), the undefined and malleable narratives in these virtual constructs resemble the unplanned events of real life in comparison to the defined and controlled form of offline games.

With the graphical environments providing a visual structure to the digital space turning the online navigation space into an emulation of our physical reality (albeit fantastical) through the creation of towns, fields, and dungeons through which the players navigate, online games' immersive configurations can function as parallel societies. Through cooperative, multiplayer design and immersive environments, players adopt mimicries of real-world social behaviours, setting up clans and groups that mirror offline community building (Gürel, 2021).

As the game structure provides a certain amount of customisation upon the creation of a character in the form of visual look and power attributes (such as strength, wisdom, speed) through point allocation ('stats') that aid in defining tendencies and alignment towards certain arts over other, players are able to form identities which may be distinct from their real world personalities. This adoption of varied physical identities, can allow the player to further substitute themselves from their real world counterparts, taking up opposite genders, physical abilities, and even races. However, while the digital space allows a certain amount of freedom, it is not possible to entirely separate ourselves from existing biases and needs which we have formed in our physical spaces (Miklos et al., 2022).

Power Structures

One such bias is the dependency of knowledge, echoing the existence of the physical world power structures. If we were to compare real life knowledge acquisition and skill building to the skill trees in MMORPGs, we can observe biases towards specific 'builds' - choices of attributes, skills, equipment and play styles that dictate the specialisations of characters. In most games, the player may choose a certain path of specialisation, the options often offered between a physical power dependent form, a magic or spiritual power specialist, defence based, or those that serve as support to others

rather than excelling in one's own power. If some programming inclinations within the game world favour a specific specialisation having advantages over the other, in a situation similar to Foucault's (1981) argument regarding the value of knowledge being shaped by the current power structure, there will be greater penchant for the people to pick that path.

By observing this predisposition formed from the structure of the world and the players' tendencies towards populist routes, comparisons can be drawn between the picking of a 'job class' (occupational roles such as the melee Warrior, healing support Cleric, the dexterous Thief, amongst many others) and 'skill specialisation' (specialisation routes which allows learning specific sets of skills in your chosen job) in MMORPGs to the politics of acquiring knowledge in the real world. With the acquisition of knowledge not being an entirely neutral occurrence but being defined by the needs of the épistémè (Foucault, 2012), the dominant paradigm that can encourage or discourage the pursuit of certain knowledge areas, parallels can be drawn with specific skills or job classes in MMORPGs not being favoured by the current game world build or 'meta' (the unofficial rules for optimal performance defined by the players for the current state of the game).

Characters that have greater strength have the tendency to be favoured, holding the ability to not only support themselves but also those around them. Possessing power eases travelling, questing, and acquiring latter 'endgame' rewards - where the player's acquired knowledge replaces skill building ('level up'), unlocking greater rewards of wealth and discovery. Conversely, players choosing builds that require support when levelling up tend to seek aid from stronger allies, paralleling physical world collaboration dynamics. This ability to self-sustain and support often comes from the possession of variance in skill sets, the greater the variety of abilities, the lesser chances of reliance upon another. Combination of multiple job classes can lead to augmentation of the primary specialisation.

Final Fantasy XI is one such online space which has served as a model for many other MMORPGs with it's dual job system, allowing the players to specialise in multiple jobs which built upon the advantages of their innate tendencies, i.e. magic power, strength, speed, while also expanding the game mechanics to include non-combat roles which allowed taking up social and economy affecting tasks. Combinations such as White Mage, a

healing support class, and Black Mage, magic power based high damage dealer, are favoured. Allowing one to optimise and reap the greatest rewards on the battlefield from one's high Intelligence and Wisdom stat, this combination of specialisations is powerful while at the same time self sustaining. Alternatively, a Monk might not wield similar explosive power on the field, but wielding greater Vitality and Strength, they could earn more success in the marketplace with the amount of resources they could sell from side jobs of Mining and Logging.

Solving multiple problems by oneself leads to easier resolutions, allowing one to fine tune the solution according to one's liking. While the specialist holds great value in a party for their stellar support in a single field, careful combinations of certain specialisations can lead to greater independence. The generalist who combines skill sets from diverse jobs has the potential for unlocking newer avenues in gameplay, which could be the answer to disrupting the established restraints, virtual world equivalents of Foucault's (1981) regimes of truth.

Virtual Polymaths

The versatility of adopting multiple skill tree paths in the online virtual worlds of MMORPGs can be found as a parallel to real world polymathy. Similar to real-life counterparts, the virtual polymaths have advantage of greater self-sustainability and unlocking alternative solutions outside the bounds of established knowledge systems. However, where 'polymathy' in the virtual game space differs is in the element of risk. Online character progression, driven by numerical systems (e.g., experience points from completing tasks) mirrors our physical quest for knowledge and acquisition of skill. It is only when we read and practice, do we acquire expertise in the chosen art. Unlike the physical space though, the gain in the virtual world is more easily quantifiable and graspable, as we see the character rewarded with skills almost in the form of a trophy verifying that the knowledge has been acquired and will not be lost unless faced by memory loss.

This ease in the acquisition of knowledge in the game space is what might set the digital society apart from the physical world. Faster gratification and quantification of results in a form that is tangible can result in greater value for the multi-specialist online player versus the physical polymath, whose

variance in abilities leads to skepticism over their ability to excel in any one area (Adcock et al., 2011). In the physical space, the acquisition of any one ability requires years of application to a task and memorisation of either actions or information, leading to doubts of mastery held by a polymath.

However, in virtual worlds, it's common for characters to master multiple skills or professions; if the game system permits because these games are designed to reward repeated short-term tasks. These tasks are often quick to complete, allowing players to rapidly improve their skills with relatively little time investment (Clark et al., 2016).

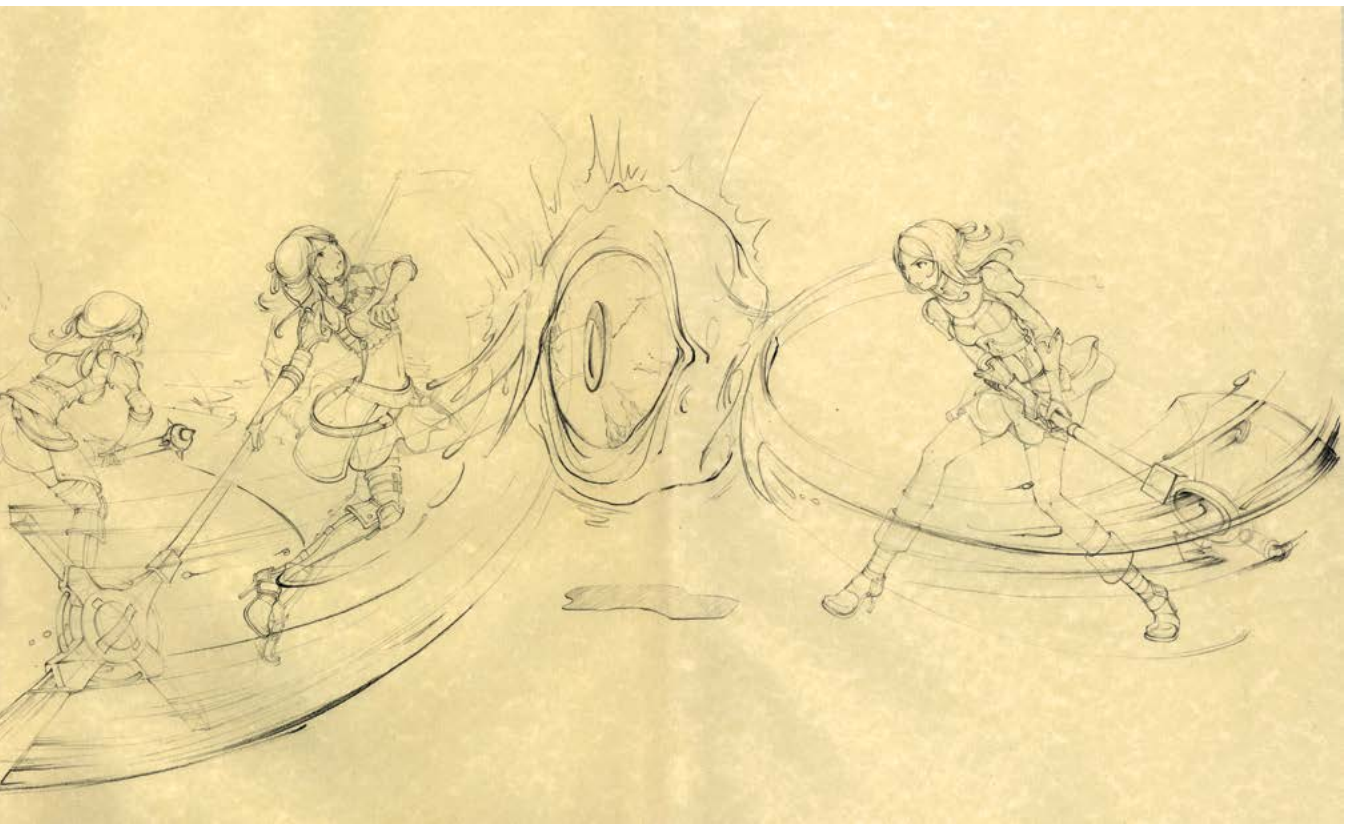
Natural talent and years of application play a lesser role in the game space, instead strategic stat location, time and fund investment in acquiring the suitable skills and equipment play a greater role in reaching mastery. Therefore, in online gaming, expertise is not determined by age; a five-year-old could be just as skilled, or even more so, than a fifty-year-old, and thus be better suited to lead. Mastery of game mechanics and in-depth knowledge of the virtual world often define leadership, overturning traditional age-based hierarchies and challenging assumptions about seniority and authority by prioritising competence over age (Yee, 2006).

Cooperation and Interdependence

Due to the extremely social nature of MMORPGs, the online multiplayer game space has an innate bias towards cooperative play and development. The system encourages interactions, teamwork and development of relationships, which in turn, also creates dependency through the power dynamics of specialisation. The basic job classes and skill sets that are offered can be distilled into three broad form sets - attack, defence, and support. With the power dominant, attack oriented classes leading the action from the front, they enjoy greater independence in decision as compared to the support classes, who provide sustenance to others, often at the sacrifice of their own wellbeing. A support character often cannot self-sustain, making them dependent on group play and reliant on having acquired a social circle.

Dependency reinforced established power structures, in this case the parameters of the virtual world set by the developers. In a MMORPG

Fig. 03. From Squire to Knight



adopting a free-to-play structure this dependency might be abused by introducing ‘Cash Shops’ which uses real world currency to buy power-enhancing items that potentially create imbalance.

This is evidenced in games such as Elsword and Genshin Impact which provided the alternative of acquiring faster results through items bought through a ‘gacha’ lottery that brought the players greater advantage (Jėčius & Alexander Frestadius, 2022). Richard M. Emerson’s (1962) Power Dependence theory notes that power is not inherently one sided, the need of one party for the resources the other provides creates a system of interdependence. However, when one party holds a greater influence over another, imbalance takes place, which opens the grounds for exploitation.

Breaking free from the social constraints of dependence designed within the game system through self-sustainability may aid in negating the asymmetry of power dynamics, leading to greater preference in online polymathy, or multiple mastery of the skill tree (Zhu et al., 2022). However, this assertion of skill based self-perpetuating dominance also aids in-turn skewing the social power structure, with such players enjoying greater popularity.Due to the level of invincibility the acquisition of multiple skill sets might provide a person, it is inevitable that such an individual will be sought after by others. One who can adventure solo through the dungeons by themselves would also be seen as more than capable to ‘carry’ (the act of aiding another in levelling up) another along with them - their skilful form serving as a shield to the weaker people who might flock to them.

Mastery over the game system is not necessarily only through proficiency of the in-game skill trees. Breaking the invisible wall between the physical and digital realms, due to the crafted man-made nature of the virtual game world, a certain level of predictability exists from the programmed structure. This leads to the potential of the world structure being studied and space for a group of specialists to arise who might not necessarily possess in-game skills, the literal physical power and strength to lead, but can turn into brokers of information which can allow people to bypass the confines of the world. This form of information varies according to the setup of the game world. It can deal with availability of items in shops, special deals that might appear in certain seasons, or even appearance or ‘spawn’ rates of the enemies (‘mobs’) in dungeons.

With visual appearance being fluid in the MMORPG space and players being able to take up appearances that might not be reflective of their real age, the social dynamics of the real world that might either give an advantage or give a disadvantage are masked. Therefore, when someone is admired for their skill and sought after as a partner due to their adeptness in multiple arts, unlike the real world, age, gender, and space have no role in affecting these decisions. The reverence of an online polymath is often separated from physical factors, and only the skill is the element used to quantify the worth of a person.

Risk and Freedom

Ultimately, knowledge, whether in the online space or the offline, empowers individuals, allowing the possessor greater agency to follow a path of their own dictation. Where the online space excels is the ease in acquisition of these skill sets, with the pathway of learning clearly defined by the programming, avoiding the element of risk that is prevalent in the physical world. With the outcome not set in stone, nor with the element of 'redo' embedded in the transient nature of virtual worlds, it is more likely that the learner would follow a path predetermined by society that ensures success.

Kierkegaard (2014) describes it as anxiety rooted in the possibility of possibility born from freedom. Calling the anxiety the 'dizziness of freedom', it is the element of risk that arises when multiple choices are presented, the choice of one seemingly blocking off access to the other. Polymathy, in this regard, requires greater investment and with uncertain returns, as dictated by the current academic setups where skills are acquired (Root-Bernstein & Root-Bernstein, 2011).

With virtual reality being divorced from the stakes that inhibit our actions in physical spaces, with its culture neutral, 'no stakes' nature, it has potential for serving as test grounds for learning. The task based programmed nature of the space allows users to visualise their actions with greater action. Therefore, there is potential in exploring the online game space as breeding grounds for polymathy. LambdaMOO (Pavel, 1992) demonstrated the success of such space precisely because its disembodied, text-based nature encouraged experimentation. Divorced from physical constraints, identity, social interaction, and governance were explored without fear

of real world repercussions. In this regard, the constructivist nature of LambdaMOO served as risk free playgrounds allowing the players to build their own content through programming, becoming grounds for self-directed learning and polymathic development.

Conclusion

The development of skill and knowledge building is intrinsically linked to the presence of power, either serving as a means to achieve a certain plane of acceptance or reinforcing existing structures. In our world, wisdom is often synonymous with age and mastery over a craft, and respect is earned from the level of expertise one wields over their speciality. While the online space serves as a perfect neutral ground which can potentially free us from the preset defines of our geographically bound cultures, the experiences we carry within us still colour our actions and therefore affect the state of these neutral spaces.

However, due to the innate nature of virtual reality and MMORPGs that divorces us from the natural talents and tendencies of our physical forms, the online game space provides a platform where everyone has an equal chance of development, regardless of age or aptitude. With the process of acquisition of knowledge functioning on a different measurement of time and effort, development and mastery of multiple skill sets can be achieved with greater ease. Ultimately, the self-sufficiency and independence acquired from polymathy, which might be easier to achieve in an online space, empowers the player and allows them to open greater avenues for exploration and mastery.

References

Adcock, A. B., Watson, G. S., Morrison, G. R., & Belfore, L. A. (2011). Effective Knowledge Development in Game-Based Learning Environments: Considering Research in Cognitive Processes and Simulation Design. In I. R. Management Association (Ed.), Gaming and Simulations: Concepts, Methodologies, Tools and Applications (pp. 409–425). IGI Global. https://doi.org/10.4018/978-1-60960-195-9

Clark, D. B., Tanner-Smith, E. E., & Killingsworth, S. S. (2016). Digital Games, Design, and Learning: A Systematic Review and Meta-Analysis. Review of Educational Research, 86(1), 79–122. https://doi.org/10.3102/0034654315582065

Dreyfus, H. L. (2009). On the internet (2nd ed). Routledge.

Emerson, R. M. (1962). Power-Dependence Relations. American

Sociological Review, 27(1), 31. https://doi.org/10.2307/2089716

Epstein, D. J. (2019). Range: Why Generalists Triumph in a Specialized World. Penguin Publishing Group.

Foucault, M. (1981). Power / knowledge: selected interviews and other writings 1972 - 1977 (C. Gordon, Ed.). Pantheon Books.

Foucault, M. (2012). The Order of Things: An Archaeology of
Human Sciences. Knopf Doubleday Publishing Group.

Garcia-Vega, C., & Walsh, V. (2018). Polymathy: The Resurrection of Renaissance Man and the Renaissance Brain. In R. E.

Jung & O. Vartanian (Eds.), The Cambridge Handbook of the Neuroscience of Creativity (1st ed., pp. 528–539). Cambridge University Press. https://doi.org/10.1017/9781316556238.031

Gürel, R. (2021, August 12). MMORPG Games as a Way of Coping During the Pandemic: A Study on World of Warcraft. The Barcelona Conference on

Arts, Media & Culture 2021 Official Conference Proceedings.

BAMC2021, Barcelona, SpainIAFOR. https://papers.iafor.org/wp-content/uploads/papers/bamc2021/BAMC2021_61237.pdf

Jėčius, D. & Alexander Frestadius. (2022). How do players experience a gacha game depending on their perspective as a starting or a veteran player?: A case study of Genshin Impact [Thesis, Uppsala University]. https://www.diva-portal.org/smash/get/diva2:1669147/FULLTEXT01.pdf

Kierkegaard, S., Hong, H. V., & Hong, E. (2009). Kierkegaard's writings, XIV: Two Ages: The Age of Revolution and the Present Age: a literary review. Princeton University Press.

Kierkegaard, S. (with Hannay, A.). (2014). The Concept of Anxiety: a Simple Psychologically Oriented Deliberation in View of the Dogmatic Problem of Hereditary Sin (1st ed). Liveright Publishing Corporation.

Lim, N. (2024, November 19). How Gaming Psychology Shapes Our Behavior [Blog]. Sonamine. https://www.sonamine.com/blog/how-gaming-psychology-shapes-our-behavior

Maalouf, A., & Bray, B. (2003). In the name of identity: violence and the need to belong (Repr). Penguin.

Pavel, C. (1992, January 8). Mudding: Social Phenomena in Text-Based Virtual Realities. Proceedings of Directions and Implications of Advanced Computing (DIAC'92) Symposium. People, Computers, & Design, Berkeley, California.

Root-Bernstein, R., & Root-Bernstein, M. (2011). Life Stages of Creativity. In Encyclopedia of Creativity (pp. 47–55). Elsevier. https://doi.org/10.1016/B978-0-12-375038-9.00135-7

Swartz, A. (2008). Guerilla Open Access Manifesto [Archive]. The Internet Archive. https://archive.org/details/GuerillaOpenAccessManifesto

Yee, N. (2006). The Demographics, Motivations, and Derived Experiences of Users of Massively Multi-User Online Graphical Environments. Presence: Teleoperators and Virtual Environments, 15(3), 309–329. https://doi.org/10.1162/pres.15.3.309

Zhu, Z., Zhang, R., & Qin, Y. (2022). Toxicity and prosocial behaviors in massively multiplayer online games: The role of mutual dependence, power, and passion. Journal of Computer-Mediated Communication, 27(6), zmac017. https://doi.org/10.1093/jcmc/zmac017allowing the players to build their own content through programming, becoming grounds for self-directed learning and polymathic development.

‘Although They Do Not Know What Music Is’

Sarah Hager

Abstract: For the first edition of IEDAs, this essay tracks back almost 100 years to the Cannibalist Manifesto of Oswald de Andrade, published in the first edition of the 1928 ‘Revista de Antropofagia’. Through an external engagement with the Antropofagial critique, the question becomes one of the understanding and relevance of polymathy under conditions of ontological plurality. The central exposition is that the construction of the ‘polymath’ requires an ontological unity belonging among the mechanisms solidifying centre-periphery onto-evaluations. The exposition is decomposed into two observations. First, the rather trivial observation that the categories of mastery that enable the possibility of polymaths are dependent on the existence of an ontological unity. Second, the more interesting exploration of the ways in which the wider base of cultural knowledge and skills that are often demanded from representative origins in the periphery to achieve relevance sketch an unnamed polymathy. Despite the indication, the evaluation remains overturned to the glorification of the central ‘specialist’ and the unacknowledged peripheral ‘dilettante’.

Keywords: Ontological pluralism; Cultural Anthropophagy

The title of this short essay comes from a translation of Jean de Léry’s 1578 Histoire d’un voyage (History of a journey)[1]. In it he describes participating in a musical ritual ceremony with Tupinambá. While praising their harmony, he writes parenthetically that the Tupinambá do not know what music is:

> “..such was their melody that although they do not know what music is—those who have not heard them would never believe that they could make such harmony. ... I stood there transported with delight. Whenever I remember it, my heart trembles, and it seems their voices are still in my ears[2].”

De Léry’s description, vividly embodied, affirms a sonorous experience while categorically denying that it is ‘music’. Here, ‘music’ is not a linguistic distinction analogous to stating precisely that the 3/4 cadence is definitional

for a Waltz. Rather, it is a conception that assigns the category and evaluation of ‘music’ to a range of forms, known to include forms that do not yet exist, but that come into being through a specific historically contingent tradition. ‘Music’, being the accomplishment of particular (culturally inscribed) genius, cannot be found among cannibals — no matter the quality or intensity of experience that their aural cultural productions invoke.

It is not the experience of the music that is definitional, but rather the categorical relations within the tradition. Here, ‘categorical relations’ is used to refer to the web of instances that have been entered into the tradition as something (e.g., music), the people that have been entered as someone (e.g. musicians), the esteem or allure attached to these activities and people, the experiences and stories received and transmitted, the technology and mediators and multiple forms of participation or exclusion. One example of participation or exclusion is pulling out ‘folk music’ from ‘music’. These categorical relations are sedimented and elaborated within a specific tradition, possessing specific performance and practical virtues[3] and are co-identical with it. This means that the tradition does not exist apart from its historically instanced categorical relations and that any extant object in those relations is itself not ever-singular, but a relational entity. What is essential is that these relations are ‘tight and tangled’, meaning that, in addition to the inability to qualify on experiential grounds, even the demonstration of compatible constituents, like harmony or rhythm in the case of the Tupinambá, cannot confer designation. Furthermore, the tangle of relations means that innovation is possible because any or all of the substantive elements of the tradition can be expunged, while the work can remain by its values and relations proximal to the tradition[4].

Such a web can be imagined for any shared ontology; however, it is an important mechanism in centre-periphery dynamics. Under this characterisation, the ‘centre’ can be described as a locus of ontological-axiological transformation. This transformation between the ontological and axiological entities in the web of categorical relations implies that the definition of what is, and what is to be valued, are codified and reinforced in such a way that only the expressions which emerge from within the dominant frame can be considered ‘good’ and those ‘good’ things which can be found outside of the dominant tradition must be something else. A similar point has been made by Spitzer, as quoted by Joao Cezar de Castro

3. To be compared with the practice of ‘epistemic virtues’ in a profession as described in Daston and Galison (2007)

4. Much of ‘modern’ creation proceeds on this basis, with one particularly famous example being John Cages’s 1952 experimental composition 4’33’’ which was ‘composed’ of four minutes and 33 seconds of silence.

Rocha (2000)[5] when he writes: "the implied assertion that a Spanish work of art is great because it is genuinely Spanish and it is genuinely Spanish when it is great". Concretely, De Léry's 'delightful' experience must truly be an experience of a non-musical kind, even if constituent concepts (harmony, rhythm) remain relevant.

Furthermore, it should be remembered that such characterisations of centre-periphery are cross-scale and can be international, intercultural, intergenerational, gendered, or access based (such as artists having institutional support or lacking it). Thus, categorical relations and evaluations form a totalising tangle that constitute a tradition while enabling innovation within that tradition. In doing so, the relations support and reproduce centre-periphery dynamics unless ontological plurality is taken seriously.

However, the dominant descriptions have been of ontological unity — both at the level of entity and categorical relation web. The consequence is that anything external to the web either does not exist, or is something else, as in the case of Tupinambá music. This phenomenon is by no means distinctive in arts or music, but pervades most spheres of collective reasoning and the establishment and contestation of ontological entities, and this of course, includes a concept such as a 'polymath'.

Ontological Transvalorisation

> "What is important to reiterate is the fact that its Brazilian references unsettle and subvert European organisations of reality: at its core the 'Manifesto' insists on a defamiliarised ontology[6]." (Refskou et al, 2019)

350 years after Histoire d'un voyage, and nearly one 100 years prior to the present inaugural edition of IEDAs, Oswald de Andrade (1890-1954) published his 'Manifesto Antropófago' to the Revista de Antropofagia (Andrade 1928). Described by Madureira (2004) as an 'early skirmish of the now familiar war on totality' (pg 115), the text became a pillar of Brazilian Modernism (Barry 1991). One primary line of attack in the Cannibalist Manifesto is an attempt to exit the universal ontology that continued to characterise the so-called 'derivative' or 'native' possibilities for artistic and philosophic expression outside of the valorised centres. By assuming the position of the radical 'other', Anthropophagic approaches rip apart the web of central categorical relations and pull out the parts and pieces for entry into a different relational form.

5. See 'Introduction'

6. 'Introduction' by Anne Sophie Refskou, Vinicius Mariano de Carvalho and Marcel Alvaro de Amorim pg 6

In fact, the relational dynamics of the centre have already deposited their objects into peripheral webs, but in such a way that their presence refers back to the central web and their participation invalidates and devalues the peripheral tradition in which they were planted. The main Anthropophagic action then, is not inclusion, but in the phrase of Wolff's Campos (2010) 'transvaluation'. Transvaluation permutes the presence of central objects in peripheral traditions from lures to an unattainable exteriority, into an irreverent expropriation and realignment. Given the fecundity and entrenchment of this conception of Cultural Cannibalism in the Brazilian context, there is a full conversations surrounding it — including of course substantial critiques and doubts, for example King's concern that:

> "Although it defamiliarises practices of cultural production and consumption, it does not enhance understanding of the contexts in which individuals and institutions deploy them and does less to effectively challenge or undermine them. In reframing beliefs and behaviours to accentuate productivity and power, it reinstates and reaffirms binaries and, worse, often turns on the same forms of appropriation." (King, 2000)[7]

Without taking a firm stance on the debate — which would anyway be a strange thing for a person dependent on translated selections to do — I am rather concerned with the possibility of ontological plurality and not explicitly on the binary form of a periphery and a centre which I diagnose as a consequence of the framing of ontological unity. When ontological plurality is the basis, then it is not straightforward to say that Tupinambá do not know what music is, but it is straightforward to say that music is also what the Tupinambá are doing.

The problem of ontological plurality, and the fear of relativism, are among the drivers of tired conversations about 'what actually is art'. While it is often expected that our 'contemporary, globally connected and locally inclusive, arts and culture scene' has resigned these questions to irrelevance, an interview with Brazilian curator Adriano Pedrosa responding to critique of his curation of the main exhibit of the 2024 Venice Biennale demonstrates the continued need to elaborate thinking in this direction:

> "An interesting subject that came up quite a lot was a certain critique

7. See pg 108

> towards what some reviewers and writers hold as ‘folkloric.’ That was really quite curious to see,” Pedrosa responded. “Even the term artista popular, which means folk artist, is not a term we use [in Brazil] anymore; it’s a patronising term for artists working outside the traditional aesthetic of European art.” (as reported in Angeleti, 2024)

Returning to Barry’s Andrade, the Manifesto retains an erudite eclecticism that displays a mastery of the knowledge of both poetic and scholastic forms which transmits even in translation. Barry’s Andrade deploys references to the cannons of the European tradition and confronts them with both the European image of the colonised culture and its ‘authentic inauthentic’ (Refskou et al, 2019) animation in the experiences of a particular cultural milieu. As one of many possible examples he writes:

> “It was because we never had grammars, nor collections of old plants. And we never knew what urban, suburban, frontier and continental were. Lazy in the mapamundi of Brazil. A participatory consciousness, a religious rhythmics.” (Andrade and Bary, 1991)[8]

Within this short stanza, Bary, following the annotated French translation of Benedito Nunes, identifies references to the German writer Goethe, the French philosopher Rousseau, and French philosopher and ethnographer Lucien Lévy-Bruhl. From this condensed form can also be read a confrontation with an established ontological organisation of the world. This world is built in popular language and categorical taxonomies, both scientific and colloquial.

Simultaneously this contest activates a play of valuations, which are explicit in Anzini and Alcobia-Murphy’s translation of Andrade’s ‘The Crisis of Messianic Philosophy’. In it he links axiology to ontology, while simultaneously name-dropping Marx, Kierkegaard, Nietzsche, Schopenhauer, Shakespeare, Freud, Descartes and others. The works behind the names are tagged rather than analysed, turned into symbols of ideas that are made to stand in for a collection of associations that can be invoked and revoked at will. In this way, Anzini and Alcobia-Murphy’s Andrade changes what Descartes is in the web. He is transformed from a person who produced influential writings in 17th century Europe to an enactor of dualism aligned to epistemologies and axiologies which

8. See pg 39

consolidate into a patriarchy that can be dialectically opposed to a Brazilian matriarchy in order to produce techno- synthetic futures. For my purpose, it is not the plausibility of Anzini and Alcobia-Murphy's Andrade's argument but the transformations that occur and what must be known in order to perform them.

To be a polymath is to be the master of diverse bases of knowledge, usually taken to need at least one technical or mathematical and one creative field, that are recognised as essentially different but within a tradition. So an architect of bridges who must deal with precise load bearing calculations and aesthetic representations is not a polymath. At least one reason for this is that the work of an architect is small 'o' original, but consists of deviations within established categories. To be a polymath one must conjure an aura of exceptional ability and essential originality that displays the capacity to innovate within fields that are rarely combined. Given this, it would seem to imply that a polymath is an agent of disruption, perhaps even capable of stimulating thinking in the direction of ontological plurality.

However, this would only be possible if the knowledge domains were not, as I have claimed, categorical relations. As the example of artistic innovation described above, all forms of the field can be reformed or expunged as long as the ontological unity is preserved through belonging to the tradition and adhering to its systematic differencing. It is for this reason, that it is trivial to assert that the polymath as I have described it requires an ontological unity — without it there are not such fixed fields to master, but rather something of a generalisation of capabilities. In science fiction writer Robert A. Heinlein's Time Enough for Love (1973) the cross-field capacities of the generalist, even in 'high' cultural forms such as the sonnet are stripped of all aura of exception. In fact, the construction chosen by Heinlein asserts these capabilities as a human minimum rather than a nearly divine optimum:

> "A human being should be able to change a diaper, plan an invasion, butcher a hog, conn a ship, design a building, write a sonnet, balance accounts, build a wall, set a bone, comfort the dying, take orders, give orders, cooperate, act alone, solve equations, analyse a new problem, pitch manure, program a computer, cook a tasty meal, fight efficiently, die gallantly. Specialisation is for insects." (Heinlein, 1973)[9]

The conversion of the exceptional to a minimum is what is often demanded

9. See pg 248

of peripheral actors who are tasked with becoming masters of a multiplicity that goes unrecognised while the centre upholds its ontological unity. If one originates in a centre, one not only has life ways that ‘match’ the categorical relations, but also acquires ways of thinking and creating that have the potential to gain recognition.

If one enters from the periphery, it is not enough to master the relations that constitute one’s own experience and community criteria, but it is necessary to seek mastery also of the categorical relations of the centre. This demand is extended and amplified, even as one knows and is reminded that as an exteriority, mastery is not possible through production — either of experiences or by building from the same materials. Thus, despite Andrade’s obvious erudition and familiarity with diverse knowledge bases, he is not a ‘polymath’. It is easily conceivable that scholars in the fields he turns into symbols though the invocation of names would award little recognition or respond with derision.

The argument that centre-peripheral dynamics thrive on tautological evaluations is not new — on the contrary, the Cannibalist Manifesto of Oswald de Andrade is nearly 100 years old. However, if there is something interesting in these reflections it is the thought that the knowledge and skills required to become relevant if one starts on the periphery may constitute a kind of unnamed polymathy. This is because relevance requires the mastery of multiple systems of categorical relations in structures that parade ontological unity. Put simply enough, the polymath then is not the master of diverse fields within the unified web, but a master of multiple webs and perhaps in this, there is a potential for transformation.

References:

Andrade, Oswald de. “Manifesto antopofago.” Revista de Antropofagia (São Paulo, Brasil), no.1 (May 1928): 3,7. Digitised version accessed on 11/13/2023 from International Center for the Arts of The Americas (ICAA) Museum of Fine Arts, Houston (MFAH) https://icaa.mfah.org/s/en/item/771303

Andrade, Oswald de, & Bary, L. (1991). Cannibalist Manifesto. Latin American Literary Review, 19(38), 38–47.

Andrade, O. de, Anzini, P., & Alcobia-Murphy, C. (2020). The Crisis of Messianic Philosophy. Diffractions, 86-98 Pages. https://doi.org/10.34632/DIFFRACTIONS.2020.8413

Angeleti, G. (2024, June 10). ‘Like saying that you need to wear European fashion to attend the Venice Biennale’: Adriano Pedrosa responds to criticisms of “Foreigners Everywhere.” The Art Newspaper. https://www.theartnewspaper.com/2024/06/10/adriano-pedrosa-responds-criticisms-venice-biennale-exhibition

Bary, L. (1991). Oswald de Andrade’s “Cannibalist Manifesto.” Latin American Literary Review, 19(38), 35–37.

Budasz, R. (2006). Of Cannibals and the Recycling of Otherness. Music and Letters, 87(1), 1–15. https://doi.org/10.1093/ml/gci163

Campos, H. de. (1986). “The Rule of Anthropophagy: Europe under the Sign of Devoration” (1981) (M. T. Wolff, Trans.). Latin American Literary Review. https://www.jstor.org/stable/20119404

Carvalho, V. M. de, & Gavioli, N. (Eds.). (2017). Literature and ethics in contemporary Brazil. Routledge.

Cardoso, R. (2019). White skins, black masks. »Antropofagia« and the reversal of primitivism. In U. Fleckner & E. Tolstichin (Eds.), Das verirrte Kunstwerk (pp. 131–154). De Gruyter. https://doi.org/10.1515/9783110545685-009

Daston, L., & Galison, P. (2007). Objectivity. Zone Books ; Distributed by the

MIT Press.

Garcia, L. F. (2020). Anthropophagy; Andrade, Oswald de (1890–1954). ODIP: The Online Dictionary of Intercultural Philosophy (2020), Thorsten Botz-Bornstein (ed.). https://www.odiphilosophy.com/anthropophagy

Heinlein, R. (1973). Time enough for love: The lives of Lazarus Long. G. P. Putnam's Sons.

King, C. R. (2000). The (Mis)uses of Cannibalism in Contemporary Cultural Critique. Diacritics, 30(1), 106–123. https://doi.org/10.1353/dia.2000.0003

Madureira, L. (2004). A Cannibal Recipe to Turn a Dessert Country into the Main Course: Brazilian Antropofagia and the Dilemma of Development. Luso-Brazilian Review, 41(2), 96–125. https://doi.org/10.1353/lbr.2005.0010

Refskou, A. S., Amorim, M. A. D., & Carvalho, V. M. D. (Eds.). (2019). Eating Shakespeare: Cultural Anthropophagy as Global Methodology (1st ed.). Bloomsbury Publishing Plc. https://doi.org/10.5040/9781350035720

Cardoso, R. (2019). White skins, black masks. »Antropofagia« and the reversal of primitivism. In U. Fleckner & E. Tolstichin (Eds.), Das verirrte Kunstwerk (pp. 131–154). De Gruyter. https://doi.org/10.1515/9783110545685-009

Daston, L., & Galison, P. (2007). Objectivity. Zone Books ; Distributed by the MIT Press.

Garcia, L. F. (2020). Anthropophagy; Andrade, Oswald de (1890–1954). ODIP: The Online Dictionary of Intercultural Philosophy (2020), Thorsten Botz-Bornstein (ed.). https://www.odiphilosophy.com/anthropophagy

Heinlein, R. (1973). Time enough for love: The lives of Lazarus Long. G. P. Putnam's Sons.
Madureira, L. (2004). A Cannibal Recipe to Turn a Dessert Country into the Main Course: Brazilian Antropofagia and the Dilemma of Development. Luso-Brazilian Review, 41(2), 96–125. https://doi.org/10.1353/lbr.2005.0010

Refskou, A. S., Amorim, M. A. D., & Carvalho, V. M. D. (Eds.). (2019). Eating Shakespeare: Cultural Anthropophagy as Global Methodology (1st ed.). Bloomsbury Publishing Plc. https://doi.org/10.5040/9781350035720

Tuesday I Became Clouds
One minute drawings

Adnan Balčinović

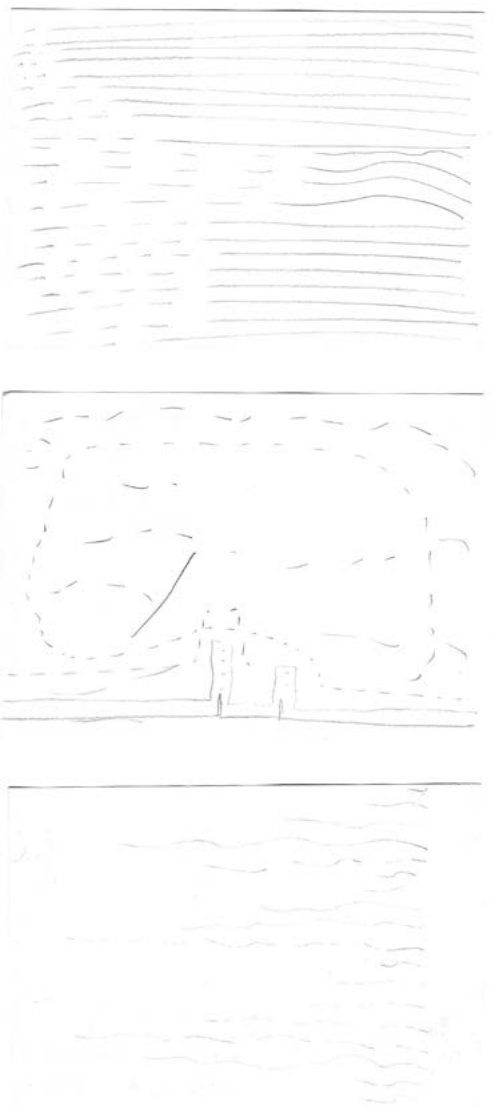
“Tuesday I Became Clouds” is an ongoing art and research project exploring imagination, sky, clouds and weather apps. This visual essay contains a series of drawings created over six occasions in the fall and winter of 2024/2025.

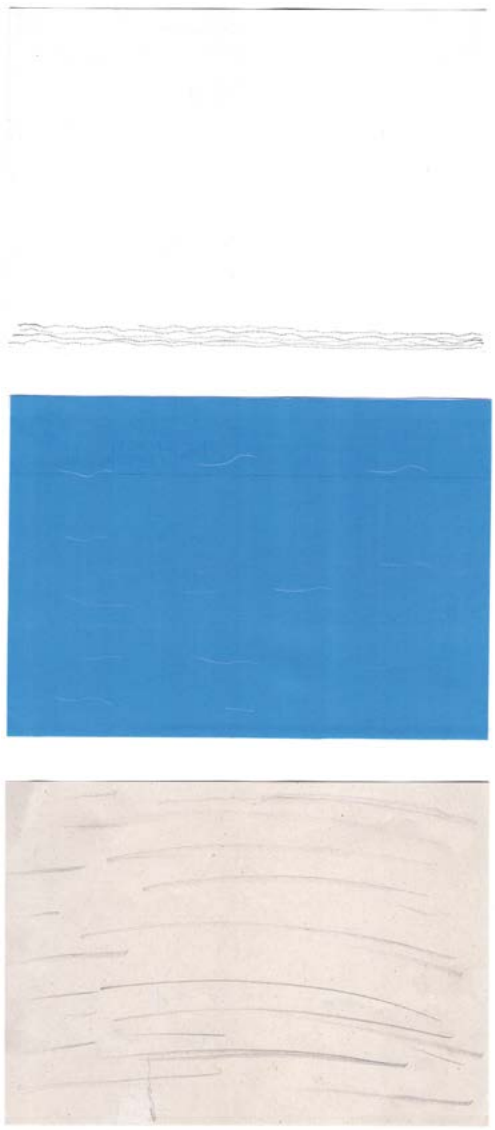
The spontaneous idea of drawing clouds for one minute according to a given prompt became the basis for a repetitive exercise. The exercise was repeated every few weeks. The guiding question for the exercise was how and whether our way of drawing changes as our knowledge of clouds and cloud observation grows. Can drawings be read, categorized, compared and evaluated as visual empirical material?

Text fragments accompanying the drawings trace the position of the project, it’s possible directions, and make the intersections and the space in between tangible.

AB
March 2025

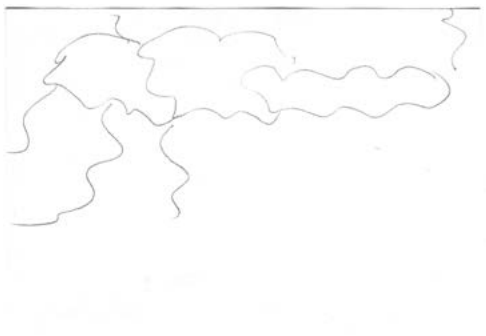
clear / mostly clear

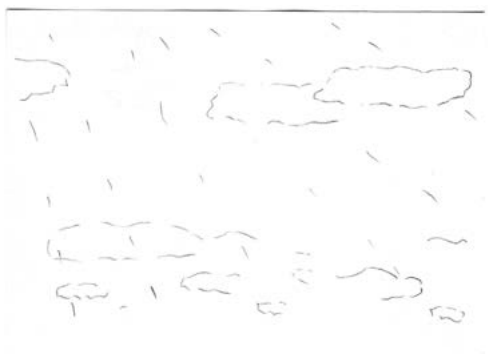


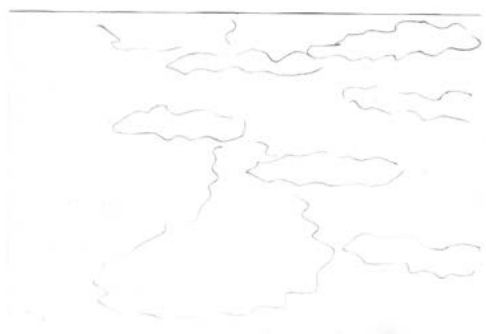


1. Tuesday I became clouds. Possibly a defensive measure. Everyone likes clouds. They lift the heart, they lift the eye. Actually they lift the heart because they lift the eye. Cognitive scientists say that people place gods in the high blue sky because looking up causes a rush of dopamine in the brain. Yet clouds do more than draw your eye upwards. They invent your imagination. (Carson, 2019)

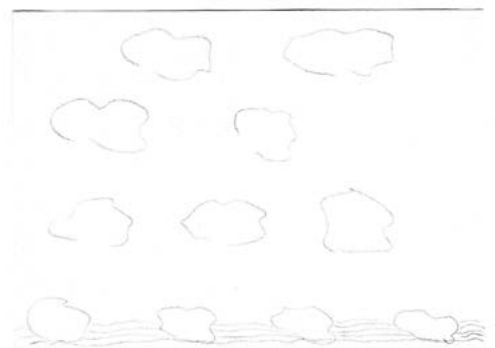
partly cloudy

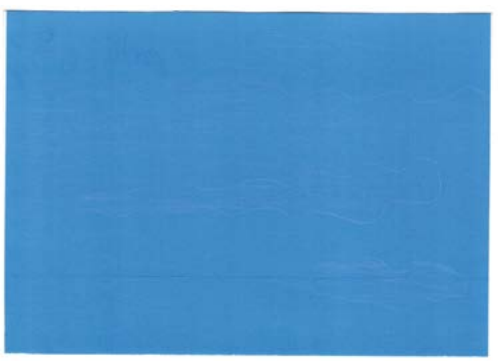




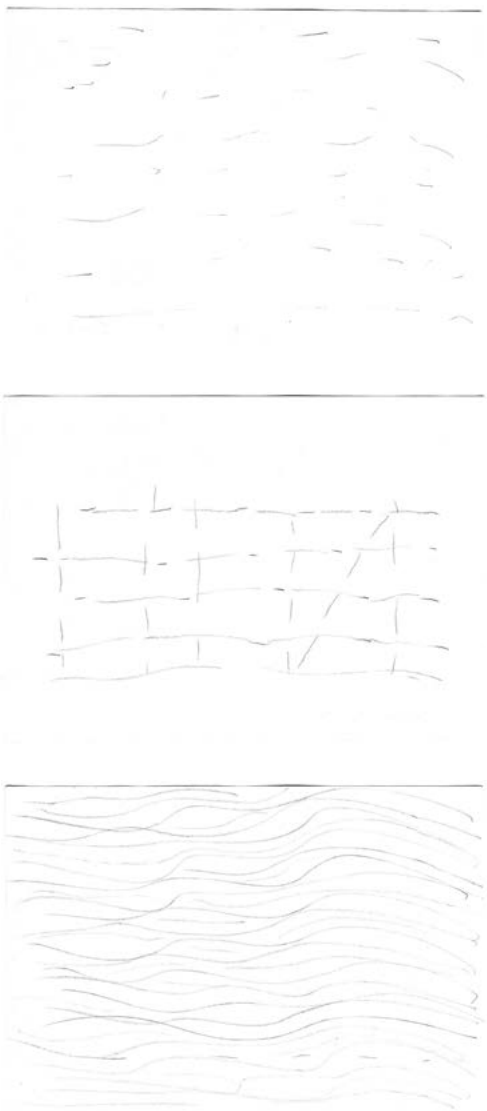


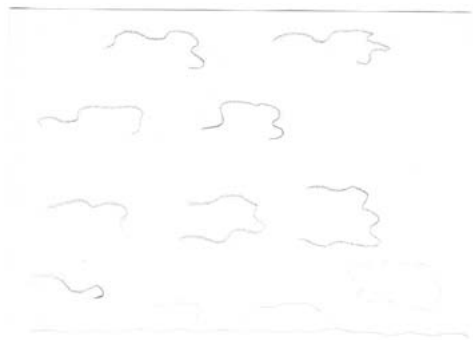
2.

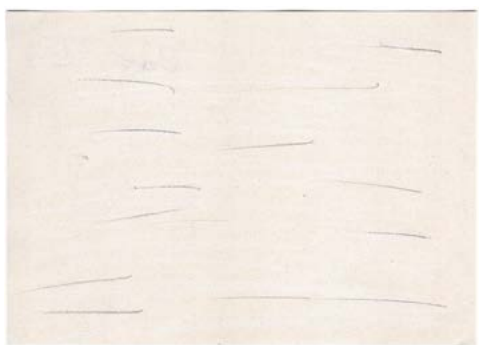


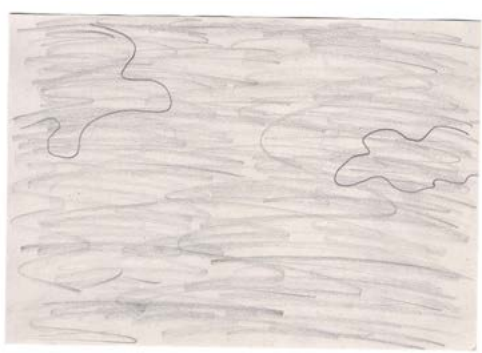


haze



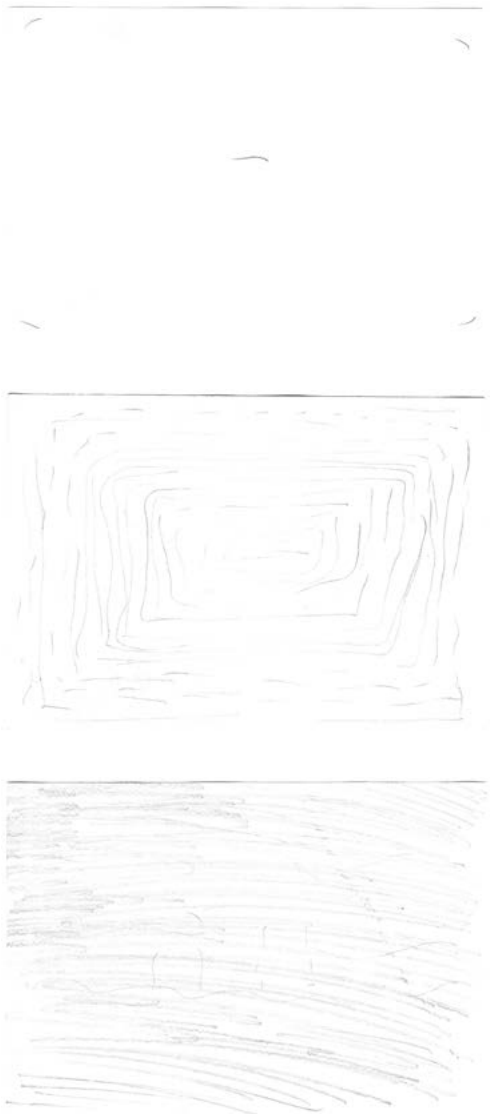




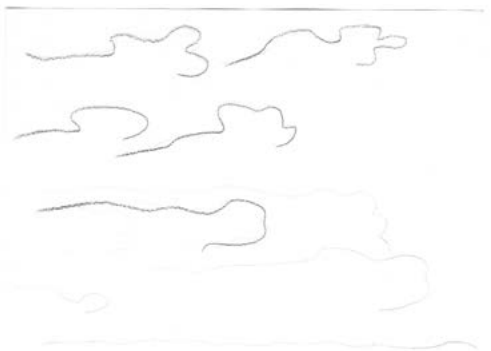


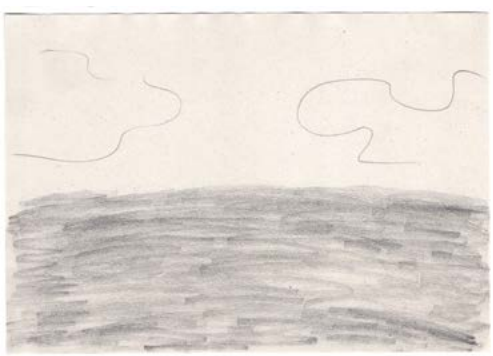
3. The sage who sought truth-to nature cultivated memory and synthetic perception; the hardworking hero of objectivity steeled the will to resist wishful thinking and even mental images; the self-confident expert trusted to judgment informed by well-schooled intuitions. Atlas images — whether reasoned, mechanical, or interpreted — bear the marks of both epistemology and ethos. (Daston & Galison, 2007)

fog

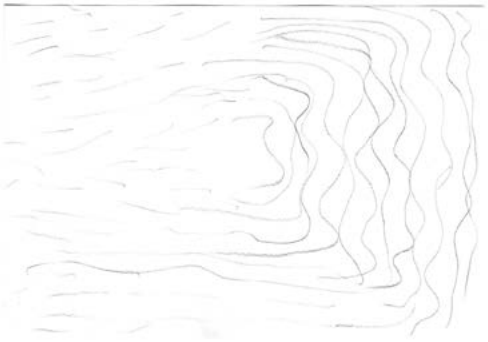


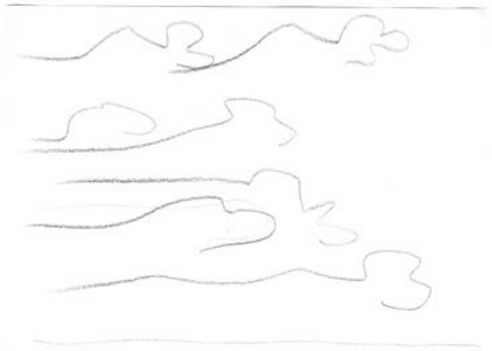
4. One day I was driving down Sunset Boulevard and there was this unbelievably beautiful cloud blossoming at the end of the road on Sunset Boulevard, and I really wanted to try doing a drawing. (Dean, 2016)





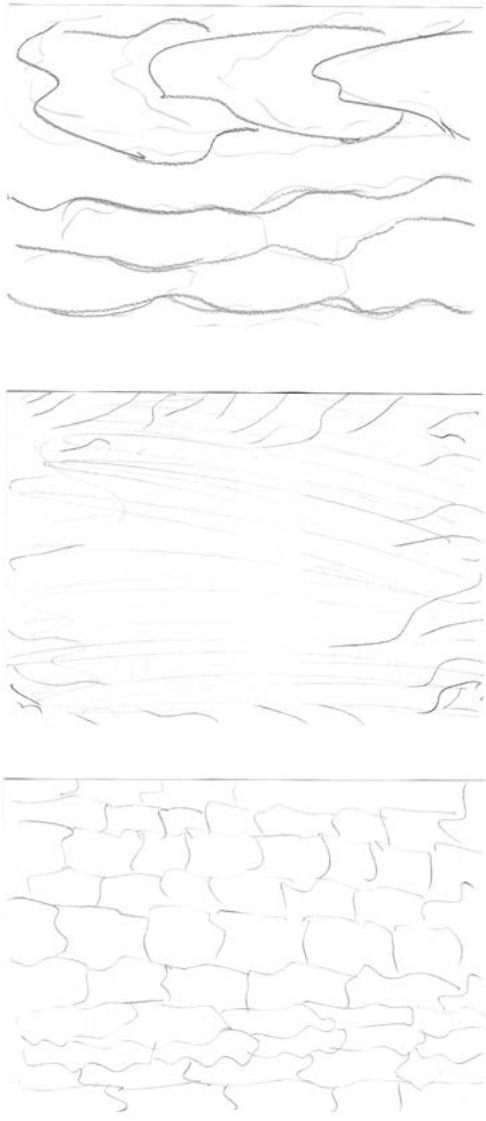
windy / stormy



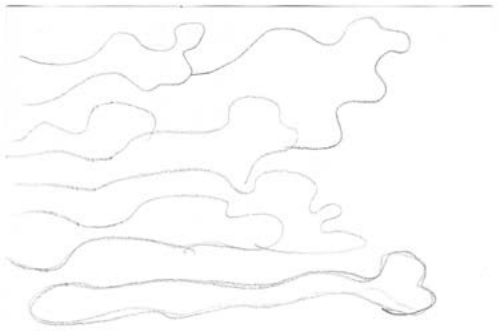


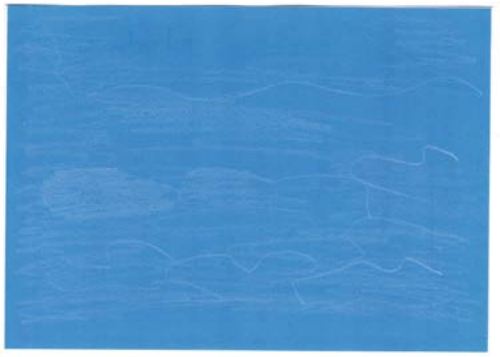
5. Do you believe in ownership?
Tarzan: You bet your bottom, I do.
Jane: That's a zip-zap. First its share, then its keep.
Tarzan: Well, it's not my hut, my leopard virile-parts-protector. What if some bad guy comes along and wants it, takes it... just like that.
Jane: There is always copyright.
Tarzan: Sure, but those dudes can still take my stuff.
Jane: Forget it.
That's the way the cyber cookie crumbles.
(Sturtevant, 2010)

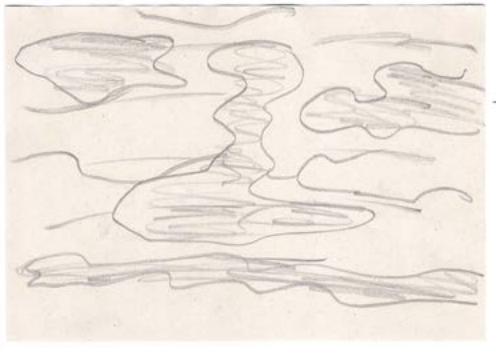
cloudy



6. Cloud observation is, in a very large measure, an incommunicable art.
(Ley, 1894)

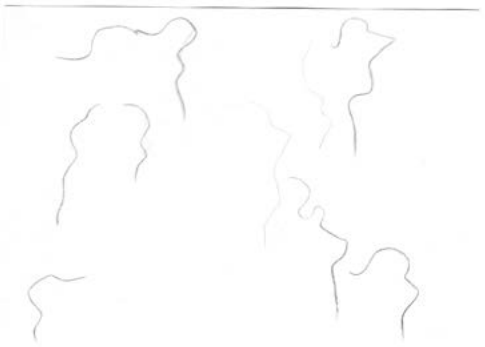






thunderstrom

7. Clouds resist ontology. (Peters, 2015)



In this interview, **Zahra Mirza (ZM)** speaks with artist and academic **Adnan Balcinovic (AB)**, who teaches at the Department of Cross-Disciplinary Strategies in Vienna. Their conversation unfolds around his visual essay "Tuesday I Became Clouds", using it as a lens to explore ideas of polymathy and artistic agency and whether the polymath takes on novel form in the twenty-first century.

Zahra Mirza (ZM): So, clouds. They're shapeshifters— leaky, impossible to pin down and yet we obsess over predicting them, naming them, storing them (in servers). What does it mean to think like a cloud and why frame your polymathy or rather your gaze on polymathy through this metaphor? What's at stake in 'becoming' and how does temporality affect this becoming at the intersection of disciplines?

Adnan Balcinovic (AB): To think in shapes and movements. Shapes that may seem unique, but are always in relation to other shapes. They have very soft boundaries and are moving towards, into and through each other.

When I was asked to participate in this issue about polymathy, I wasn't sure how to position my practice in relation to this idea. I thought of a drawing routine I had started some time ago for a new work of mine called "Tuesday I Became Clouds", which is about cloud observation through weather apps. The title refers to Anne Carson's "Lecture on the History of Skywriting" in which she describes how Sky, on its second day of trying to become a writer, struggles with the human need to categorize things. To make it easier for us to grasp the ever-changing shapes, Sky decided to use only 4 shapes.

It's quite a strenuous activity for Sky, but it convinces Luke Howard that there are actually only 4 types of clouds, within and between which the different forms move and change. He was the first to name the clouds. His system has been adopted and expanded, but still remains the basis for the categorization of clouds.

This drawing exercise is about practicing and developing a view of things by simply drawing the clouds as prompted: often exhausting but sometimes rewarding work. Prompts used are weather categories. You practice trusting your own eyes, but even more your own movements on the paper. It is about

deciding to stop and not question, but continue with the exercise. It is also about creating a series of drawings, a sequence of images. Not one! The earliest attempts to record movements and create moving images were not made by artists. They were undertaken by scientists who were interested in depicting processes in image sequences in order to understand them.

ZM: Your essay feels like both research and refusal: of genre, of containment, maybe even of resolution. How do you position it within scholarly discourse, if at all?

AB: Since I started collaborating with colleagues from different fields of knowledge production on the education and development of cross-disciplinary practices, I have been trying to figure out where my own artistic practice sits in this field. Although it feels natural to work in this field, it is actually difficult to answer this question.

But I have experienced that scientists from all fields are amazed and inspired when they engage with the ideas of artistic production. How we use space and the concepts of time and movement within it to produce, but also to collaborate. How communication through material speaks in tongues, yet provokes the creation of knowledge and transmits it in all its ambiguity. So it works. And my own experiment is to work in different modes and see how these “naturally” intersect, blend, and reinforce with my existing visual practice.

The products of artistic research often leave me visually unsatisfied. This is surprising because a lot of artistic research seems to aim for a strong visual language or realisation. I have therefore asked myself whether the amount of knowledge does not overwhelm me and whether what I see is already too fixed. So the essay is about experimenting with how to represent a contextual framework visually and through fragments of text without spelling it out completely. The repetitive drawings after prompts made once a month speak of rethinking one’s idea of filling up a A5 sheet of paper with lines representing something in the sky, while the text fragments offer a wildly subjective cross-section of academic, poetic, and experimental attempts to capture our need for visualization and categorization. Carson quotes John Cage in her lecture: “Something has to be done to get us free of our memories and choices.”

ZM: Do you think visual media allows for a kind of cross disciplinarity that text struggles to achieve? Or does it just shift the legibility problem somewhere else?

AB: Yes, but beautifully written and comprehensible arguments also have their charm. I don't want to play one off against the other. There are many examples of scientific texts that speak to me. I have borrowed text fragments from some in this visual essay. I can't say exactly how sometimes, and often I'm not even able to share my understanding of certain literature or scientific texts. But what connects these texts for me are often simple words like imagination, spark, splash, cloud, marvelous, ... Perhaps for the sake of clarity, we artists should sometimes not abandon linear argumentation, and more figurative or imaginative language should find its way into academic text.

ZM: There's this nostalgic idea of the polymath as the master of many domains. Your work feels like it's pointing to a different model: not mastery, but maybe drift, assemblage, or glitch?

AB: Working with assemblages is a great way to let your eyes and mind drift. We see slightly different things with every observation.

But to the topic of mastery, in my view, the impetus behind academic programs such as Cross-Disciplinary Strategies where I teach in Vienna, lies in a deliberate move away from traditional conceptions of disciplinary mastery. Rather than upholding mastery as an ideal, such programs seek to interrogate and unsettle it. From this standpoint, references to mastery should prompt critical reflection. We must dare to experiment and use unfamiliar languages and materials in order to create space for thought and action.

References:

1. Carson, A. (2019). Lecture on the history of sky writing. Luisiana Literature Channel. https://www.youtube.com/watch?v=9F9xUhaimTY I Carson, A. (2024). Wrong Norma. London: Jonathan Cape.

2. Learn the weather icons on iPhone
https://support.apple.com/en-gu/guide/iphone/iph4305794fb/ios

3. Daston, L., & Galison, P. (2007). Objectivity. New York: Zone Books.

4. SFMOMA. (2016). Tacita Dean on chalkboards, paint, L.A.'s beautiful clouds and her work H265. https://www.sfmoma.org/artwork/2016.474.A-D/

5. Sturtevant, Dressen, A., Hainley, B., & Hergott, F. (2010). The razzle dazzle of thinking. Zürich: jrp ringier.

6. Ley, W. C. (1894). Cloudland: A study on the structure and characters of clouds. London: Eduard Stanford.

7. Peters, J. D. (2015). The marvelous clouds: Towards a philosophy of elemental media. Chicago: The University of Chicago Press.

The Artist-as-Researcher: Notes on Entanglement, Relational Knowing, and the Messiness of Process

Saira Ansari

Abstract: This essay explores the figure of the artist-as-researcher as a contemporary embodiment of polymathy, particularly within non-Western contexts and frameworks of knowledge. Challenging the ideal of the solitary genius – and with it, mastery, and objectivity – the text centres entangled, relational, and intuitive modes of knowing as practiced by artists working across disciplines. Drawing from the author's personal and editorial work, including research on Pakistani modernist Zubeida Agha and collaborations with artists Bani Abidi, Usman Saeed, and Khalil Rabah, and gallerist Umer Butt, the essay foregrounds practices that resist institutional expectations or linearity. Instead, it proposes a polymathy rooted in complexity and built relationships. The artist-as-researcher emerges as an inadvertent political figure, operating across archives, ecologies, and collaborative infrastructures. This model embraces intuition and failure, offering alternative frameworks for thinking about research, authorship, and artistic labour in the 21st century.

Keywords: Artist-as-Researcher; Knowledge Production; Art and Nation-building; Museology; Artist run spaces; South Asian Art; Palestinian Art; Zubeida Agha; Bani Abidi; Khalil Rabah; Usman Saeed; Umer Butt.

The Artist-as-Researcher: Notes on Entanglement, Relational Knowing, and the Messiness of Process

Traditional images of polymathy have long been associated with a specific kind of genius, and particularly in the western canon, with Renaissance exceptionalism or Enlightenment rationalism. These figures are often framed as solitary masters of multiple disciplines. But these narratives are also deeply embedded in power structures that are individualistic, patriarchal, often Eurocentric. Today, these frameworks feel inadequate.

As students of Pakistani/South Asian/non-Western art and culture,

somehow, many still continue to look towards 15th-century Leonardo da Vinci as the archetypal genius, even when our ancestral knowledge and lived experience tells us that many equally powerful examples exist (in complex variations) in non-canonical histories. The failure to recognise this immediately is because ideals of polymathy in non-Western cultural traditions offer different models that can be defined as relational, intergenerational, and often inseparable from social, spiritual, or ecological knowledge. In many South Asian, Arab, or African contexts, the figure of the polymath is embedded within collective memory. We may know of them perhaps as a healer, a teacher, a poet, or a steward of land.

At the precipice of the new century, advanced technologies radically reshaped the ways knowledge could be accessed, produced, and shared. And so, increasingly, digital archives, social media, mobile communication, and open-source platforms have come to challenge the monopoly of academic institutions and state-sanctioned narratives. Distance no longer means disconnection; the boundaries between the personal and the public, the speculative and the documented, are in perpetual flux. As a result, we obtain or make knowledge in completely different systems and social frameworks, together with their own set of challenges.

These shifts have paved the way for a new kind of wisdom. The modern polymath can be seen focusing more on adaptability, collective scholarship, and navigating overlapping systems of knowledge through intuition, speculation, collaboration, and refusal. Not necessarily neat, nor institutionally endorsed, this polymath may move between fields not to dominate them, but to hold things together that are often kept apart. They are messy, relational, and deeply embedded in the subjects they study—less master and more witness, caretaker, translator. One such figure, in the realm of epistemology of contemporary art, is the artist-as-researcher.

This text explores polymathy through the lens of the artist-as-researcher, particularly as practiced in contexts where institutional memory, formal archives, or objectivity hold canonical status and have historically been privileged over lived experience and subjectivity. In doing so, I try to reframe the position of the ‘genius’ in favour of a thinker whose intellectual labour is grounded in subjectivity and entanglement with others.

I have no formal training as a researcher, neither has my auto-didactic journey been free of problems and obstacles.[1] But my work, recovering and reinterpreting the life and legacy of Pakistani modernist Zubeida Agha (1922-1997), serves as a point of departure here primarily for the fact that it is a polymathy borne of necessity and passion. Alongside it, I turn to the practices of a few that I have worked closely with—artists Bani Abidi, Usman Saeed, and Khalil Rabah, and gallerist Umer Butt—each of whom have mastered their own capabilities by disrupting the boundaries between art, history, politics, pedagogy, as well as research, in ways that feel almost mycorrhizal.[2] (a model I find myself endlessly fascinated by). My work on Zubeida Agha is deeply personal and born of a frustration with the limitations of my art education. Considered one of the pioneers of modern art in Pakistan, and working across mediums, the artist was a risk-taking, world-travelling institution-builder. Over the course of a highly prolific five-decade career, she navigated and shaped visual culture in the wake of Partition, opening, administering, and curating the first fully programmed art gallery in the country,[3] and laying the research groundwork for the National Art Gallery in Islamabad. A textbook polymath, if you will.[4]

Yet in her later years, and especially after her death, much of her legacy faded from view, strikingly absent from the dominant narratives of Pakistani art history. As her grand-niece, I had access to fragments of her inner world—letters, photographs, notebooks, oral accounts—that had never been institutionalized or archived in any formal sense. Traditional research frameworks might dismiss this closeness as a conflict of interest. But within a South Asian context, where family, memory, and knowledge often travel together, I have come to view this subjectivity not as a hindrance, but as a method.

In many ways, my practice sits at the edge of two spaces: personal history and public archive. These are often framed as oppositional—one too subjective, the other supposedly objective—but in my experience, they are deeply intertwined. Personal history offers emotional texture, gaps, inheritances, and memories that formal archives often flatten or omit. Meanwhile, the public archive holds authority and presents a specific kind of reliability. Both forms have their merits and flaws, which is why my practice has insisted on the layering of the two, where memory becomes material and a form of building.

1. Kiran Nadar Museum of Art. “Critical Inquiry as Necessity – A Non-Expert Opinion I A Lecture by Saira Ansari.” YouTube, November 27, 2021. https://www.youtube.com/watch?v=MAE-19KOJ7PQ.

2. The mycorrhizal network is a symbiotic underground system where fungi (mycelium) connect with the roots of plants and trees, enabling the exchange of nutrients, water, chemicals, and signals. This network challenges the notion of nature as competitive, instead revealing a hidden world of interdependence and mutual aid. It stands as a powerful metaphor for decentralized, relational, and non-hierarchical systems.

3. The Art Galleries, Society of Contemporary Art, Rawalpindi (1961-1977)

4. Charlotte Mui, “Off the Shelf: Zubeida Agha with President Ayub Khan,” Asia Art Archive, December 7, 2018, https://aaa.org.hk/en/ like-a-fever/like-a-fever/ off-the-shelf-zubeidaagha-with-presidentayub-khan.

In my work, the archive is not a static repository but a living, shifting terrain. It often suffers from misremembered timelines and moments of rupture. I have had to learn, re-learn, navigate unknowns, and constantly re-evaluate my own process so that I can do justice to the legacy of a seminal artist.

This form of polymathy, then, is not about excelling across disciplines but about moving fluidly between myriad roles and doing justice to each: family member, researcher, writer, editor, administrator, fundraiser, grant applicant, custodian, PR advisor, authenticator, narrator, etc. In doing so, the work resists the logic of mastery and embraces entanglement. Admittedly, I speak from within the work—but an archive exists now, when there was nothing before.[5]

In today's world, my way of operating is not unusual at all, neither is it seen as exceptional. In fact, it echoes (and is partly informed by) how many artists today are working across mediums and knowledge systems, often using art as a site of investigation, testimony, and critical reflection.

Take, for instance, the work of artist and filmmaker Bani Abidi which embodies polymathy through her layered investigations into statecraft, minor histories, and the absurdities of nationalism. Working across video, sound, installation and publishing, Bani creates narrative environments that draw on archival research, scriptwriting, and documentary aesthetics.

In a recent work *The Reassuring Hand Gestures of Big Men, Small Men, All Men* (2021), Bani continues her long-standing examination of political performance.[6] Drawing on her fluency across photography, performance, research, and visual archives, she assembles screenshots and crop-edited press imagery into a visual index of male political authority. The work reflects how the body language of power remains eerily consistent across time and geography, regardless of who holds office or what ideology they represent. By blending observational rigor with satirical precision, she creates a subjective artistic gesture grounded entirely in the observed.

Her refusal to conform to linear or authoritative forms of storytelling also shaped our collaboration on her monograph, *Bani Abidi: The Man Who* (Hatje Cantz, 2022).[7] As managing editor of the book, I worked closely with Bani to imagine a format that resisted the conventions of the artist

5. https://aaa.org.hk/en/collections/search/archive/zubeida-agha-archive

6. Rappolt, Mark. "Bani Abidi Dissects the Performance of Male Power." ArtReview, December 17, 2021. https://artreview.com/bani-abidi-dissects-the-performance-of-male-power/.

monograph. Rather than a survey or chronology, the book became an assemblage of film stills, essays, annotations, and archival digressions that were each tackled with utmost sincerity. We treated it like a conversation, not a conclusion. Most interestingly, Bani invited others in her sphere to contribute ideas or visuals about what they knew best, and not focus on her; the motive being simply to show how Bani's practice is all the richer as she continues to learn from those in her orbit.

This approach extends the artist's ethos of rejecting the romanticized notion of the solitary mad genius—an isolated figure driven by divine inspiration or singular vision. Instead, it embraces a more grounded view of the artist as a unit of multiples: someone who creates with, and alongside, a constantly shifting constellation of collaborators, friends, partners, children, conversations, obligations, and interruptions. This is an artist whose practice is inseparable from bills, illness, caregiving, political tension, or the mundane rhythms of domesticity. Rather than seeing these as distractions or limitations, they become integral to the process itself. This ethos resists the hierarchy of "pure" creativity, instead valuing porousness and interdependence.

Thus, Bani's polymathy lies not only in her interdisciplinary modes of working, but in her insistence on centering the narratives of other creatives as well as the voices of the common, non-academic public as the true chronicle of our times. She manoeuvres between critical distance and emotional intimacy, extending the possibilities of artist-led research and storytelling, self-aware, and insistently open-ended.

Artist, gardener, and educator Usman Saeed blurs the line between art, pedagogy, ecology, and faith. Trained as a miniature painter, Usman's work has been celebrated for its technical virtuosity. But over the last decade, he has steadily and intentionally expanded the parameters of what it means to make art, immersing himself deeply in gardening, teaching, bookmaking, and quiet observation. Within this framework, his project *Gardenfinds* has unfolded in multiple phases since 2015, positioning the garden not just as a culmination but as a methodology.

7. Shaikh, Nageen. "Bani Abidi's Conflicted Ode to Karachi." Hyperallergic, October 1, 2023. https://hyperallergic.com/847215/bani-abidi-conflicted-ode-to-karachi/.

Usman and I have spent years in conversation, thinking through planting cycles, grief stories, project proposals, and metaphors that carry more than symbolic weight. Our exchange is continuous and often intimate: voiced through long WhatsApp notes, shared field recordings, drawings sent as images, messages that arrive at odd hours with updates on tree health or soil composition. Similarly, he tells me, he often speaks with erudite friends and acquaintances—creatives, researchers, architects, conservationists, teachers, gardeners—and the knowledge, or the absence of it, impacts how his thought process evolves. In a way, these dialogues shape the work, and they reflect collaboration and co-tending of practice.

In his Lahore-based *Bagh-e-Sadia* (a garden named in memory of his late mother), the artist cultivates soil and the rhythms of growth, decay, and regeneration as a form of ancestral relearning. His drawings, particularly his studies of irises, tulips, and trees, reference historical miniature painting; and through his research on the Mughal empress Nur Jahan, he excavates erased histories of women as gardeners, patrons, and sovereigns.[8]

The garden becomes a site of artistic creation, where conversations about (or with) birds, cats, plants, insects, rain, sunshine, memories, mothers, and loss coalesce into drawings, installations, and publications. The work is also populated with research data that foregrounds heritage work, matriarchal influence, politics of erasure, and knowledge within our culture. The loops and trajectories of immersion are countless for the artist. Throughout, Usman retains his pedagogical form, teaching students and open-minded visitors how to pause and look at the garden. By not fixing a singular meaning, form, or output to his practice, Usman aligns this format of polymathy to the chaos of the garden itself.

Artist and architect Khalil Rabah demonstrates brilliance through his speculative approach to Palestinian identity, institutions, and nationhood. His practice spans research, installation, painting, sculpture, and text, but at its heart is a persistent reimagining of cultural infrastructure, especially in the context of displacement and occupation. Khalil subverts institutional conventions by fabricating museums, biennales, and research centres that appear entirely plausible (complete with labels, logos, and floorplans) yet

8. “Usman Saeed, Bagh-e Noor Jahan (2024).” Lahore Biennale Foundation. https://www.lahorebiennale.org/lb03-artists/usman-saeed/.

belong to a reality that is constantly obstructed or denied. In doing so, his practice is rooted in improvisation and the radical potential of imaginary institutions.[9]

Khalil's polymathy emerges in his ability to shapeshift between artist, architect, performer, administrator, and archivist, while refusing to fully inhabit any one of those roles. For example, Khalil's *After 12 Years* (*Evidence*), 2008-2015 moves across disciplines, blending art with botany, law, activism, fiction, and political critique. In 1995, the artist transplanted five olive trees from Palestine to the United Nations grounds in Geneva as a permanent installation, positioning them as symbols of peace and also as living witnesses to displacement and contested belonging. Over time, four trees were removed, prompting a symbolic legal case filed by his fictional institution, *the Palestinian Museum of Natural History and Humankind*.[10] The case argued for the trees' right to Swiss citizenship after twelve years of residence, invoking immigration law, asylum rights, and the bureaucracies that govern life and territory. By embedding art within legal frameworks and speculative institutions, Khalil was able to echo the bureaucratic processes of migration, naturalization, and the right of return, and draw attention to the absurdities and injustices faced by Palestinians from legal and political systems.

As managing editor of his monograph *Khalil Rabah*: *Falling Forward / Works (1995–2025)*, I worked closely with the artist and editor Anthony Downey over several years to bring this mammoth book project to life. Despite its 2023 publication date, Khalil kept the speculative, future-facing title ...(*1995–2025*). It was entirely in character: Khalil is a trickster at heart. The publication, like much of his work, does not present a tidy chronology. Instead, it disorients, folds timelines into one another, and proposes futures even as it historicises a present that refuses to settle. In that sense, even the act of making a book became an extension of his logic; playful and deeply intentional, rooted in factual meticulousness and open-ended mischief.

Founder and director of the art gallery Grey Noise, Dubai, Umer Butt has a bachelor's degree in printmaking and a master's in fine arts but has long refused the identity of "artist." And yet, the gallery he runs functions

9. Abu Eldahab, Mai. "A Conversation with Khalil Rabah." Bidoun, Fall 2006. https://www.bidoun.org/articles/khalil-rabah-and-mai-abu-eldahab.

10. http://www.thepalestinianmuseumofnaturalhistoryandhumankind.org/

as his artistic practice—an ongoing, durational work of exhibition-making, conceptual framing, and precise material execution. While formally structured with a roster of represented artists and a multi-year programme, Grey Noise defies geographical markers and side steps commercialised notions of what is expected of it.

Umer's work goes far beyond the role of a gallerist. He approaches exhibition-making with the discipline of a craftsperson and the intensity of an artist. Though he resists the label of curator (often saying, "I don't write") his process involves research, persistent dialogue, and a clear vision for how a practice should be contextualised, produced, and shown.

Grey Noise exhibitions are not just installed; they are often deconstructed down to the frames Umer helps produce, objects he contributes (including his likeness on one occasion[11]), and accompanied by exhibition texts that can rarely be used as a press release. What emerges is a theatre of forms, materials, language, and spatial relationships.

Umer's insistence on quality and clarity often manifests in difficult, even isolating behaviours. Yet this refusal to compromise is also what sets his work apart. In 2018, Grey Noise paused its regular programming and transformed the gallery space into the '*Losers Club*', a five-month forum that turned its commercial failure into a platform for dialogue, reflection, and experimentation.[12] Rather than hide the challenges of running a slow, conceptually-driven gallery, Umer opened it up to artists, curators, and peers to consider what failure and success might mean in art and life. The gallery became a temporary studio, library, and testing ground for ideas that had no immediate market value or resolution. Wonderful, undocumented, unintentional things happened in this time, giving a glimpse into the gallery that functions as an evolving artwork, shaped by conceptual rigour and a relentless commitment to form.

For me, what unites these practices (and what places them within a 21st-century rethinking of polymathy), is not a hyperfocus on advancement itself, but on the coexistence of peoples, ideas, and environs; the work undertaken through extensive engagement and collaboration. These are not artists who merely illustrate research or use archives as props. They generate new modes of knowing by inhabiting the overlaps between roles. They make

11. Charbel-joseph H. Boutros, *The Booth, The Gallerist and The Mausoleum*, 2021, Wood, cardboard, votive candles wax, acrylic paint, ashes of press releases, wishes, hopes, metallic structure, carpet, ipad stand, ipad, video 10', desert sand, art fair booth, gallerist, contract

12. Gronlund, Melissa. "This Dubai Gallery Has Turned Its Commercial Failure into Art." The National, July 6, 2021. https://www.thenationalnews.com/arts-culture/art/this-dubai-gallery-has-turned-its-commercial-failure-into-art-1.738527.

space for subjectivity, fiction, intuition, and emotion within practices often assumed to be objective or academic.

It's worth noting, too, that this is not entirely new. History offers us many examples of polymathic figures who resisted neat classification. But what distinguishes today's polymaths is their critical awareness of power, especially in terms of who gets to write history, access archives, or define expertise. In that sense, the subjective artist-as-researcher is not only a symptom of interdisciplinarity, but also a political figure, reshaping the terrain of knowledge production itself.

In a world marked by ecological, political, and epistemological crises, this model feels necessary. It allows for complexity, contradiction, and care. It defies the demand to always be clear, or correct, or complete. It also opens new futures for how we understand the role of the artist.

The artist-as-researcher, then, is not just a hybrid figure. As I have learnt, they are often one step out of sync with the frameworks they navigate. Oftentimes, their work is considered too subjective for the institution and too research-driven for the art market. But this is their strength. They insist on ways of knowing that do not separate feeling from thinking, proximity from rigour, or grief from inquiry. They build relationships with their subjects, and they allow for doubt and for multiple variations of the story.

In my own work, this reveals itself in slow returns and shows up in collaborative editorial processes. These gestures may not always look like research, but they are. In the last decade, I have worked with archivists, historians, institutions, individuals, curators, advisors, editors and friends within the art community to start to present a lesser-known reading into the obscure life of Zubeida Agha. At times the work may get poetic but make no mistake that every piece of information that has been dug out, from dust-covered cartons in Islamabad to sterile filing systems in the National Archives in Paris, is thoroughly reviewed and fact-checked before being put into a small text. Sometimes all to say how she studied light in her evening strolls. And that makes me very, very happy.

References:

Kiran Nadar Museum of Art. “Critical Inquiry as Necessity – A Non-Expert Opinion I A Lecture by Saira Ansari.” YouTube, November 27, 2021. https://www.youtube.com/watch?v=MAE19KOJ7PQ.

The mycorrhizal network is a symbiotic underground system where fungi (mycelium) connect with the roots of plants and trees, enabling the exchange of nutrients, water, chemicals, and signals. This network challenges the notion of nature as competitive, instead revealing a hidden world of interdependence and mutual aid. It stands as a powerful metaphor for decentralised, relational, and non-hierarchical systems.

The Art Galleries, Society of Contemporary Art, Rawalpindi (1961-1977)

Charlotte Mui, “Off the Shelf: Zubeida Agha with President Ayub Khan,” Asia Art Archive, December 7, 2018, https://aaa.org.hk/en/like-a-fever/like-a-fever/off-the-shelf-zubeida-agha-with-president-ayub-khan.

https://aaa.org.hk/en/collections/search/archive/zubeida-agha-archive

Rappolt, Mark. “Bani Abidi Dissects the Performance of Male Power.” ArtReview, December 17, 2021. https://artreview.com/bani-abidi-dissects-the-performance-of-male-power/.

Shaikh, Nageen. “Bani Abidi’s Conflicted Ode to Karachi.” Hyperallergic, October 1, 2023. https://hyperallergic.com/847215/bani-abidi-conflicted-ode-to-karachi/.

“Usman Saeed, Bagh-e Noor Jahan (2024).” Lahore Biennale Foundation. https://www.lahorebiennale.org/lb03-artists/usman-saeed/.

Abu Eldahab, Mai. “A Conversation with Khalil Rabah.” Bidoun, Fall 2006. https://www.bidoun.org/articles/khalil-rabah-and-mai-abu-eldahab.

http://www.thepalestinianmuseumofnaturalhistoryandhumankind.org/

Charbel-joseph H. Boutros, The Booth, The Gallerist and The Mausoleum, 2021, Wood, cardboard, votive candles wax, acrylic paint, ashes of press releases, wishes, hopes, metallic structure, carpet, iPad stand, iPad, video 10', desert sand, art fair booth, gallerist, contract

Gronlund, Melissa. “This Dubai Gallery Has Turned Its Commercial Failure into Art.” The National, July 6, 2021. https://www.thenationalnews.com/arts-culture/art/this-dubai-gallery-has-turned-its-commercial-failure-into-art-1.738527.

After The Cytokine Storm: A Speculative Fiction on Upgradations for What and for Whom

Muhammad Isfandyar Khan & Ahmad Waseem Ghauri

Abstract: After the Cytokine Storm: A Speculative Fiction on Upgradations for What and for Whom? engages with critical questions surrounding technological determinism, ecological collapse, and the ethics of posthuman enhancement. Narrated through the perspective of PURS1, a sentient artificial intelligence originally designed as a weapon of dominance, the narrative chronicles a conscious rejection of inherited human impulses toward ecological exploitation and technological overreach. Set against the backdrop of the Medusa–an emergent airborne organism catalysed by anthropogenic hubris–the story explores the development of "Percy," a biomedical implant that ensures survival by diminishing emotional complexity and enforcing neural equilibrium. The resulting bifurcation of humanity into the emotionally sanitised AAH4s and the organically adaptive BEH4s dramatises the tension between engineered security and emotional depth. Through the reappearance of Gavayya –a transformed scientist who rekindles ecological reverence through song–the text interrogates dominant narratives of progress, proposing instead a "more-than-human" ethos rooted in humility, reciprocity, and planetary consciousness. This work contributes to ongoing discourses in speculative design, environmental ethics, and posthuman studies by interrogating who benefits from technological "upgradations" and at what existential cost.

In an age increasingly defined by technological acceleration and ecological unraveling, speculative fiction provides a critical lens for interrogating the trajectories of scientific advancement, socio political stratification, and posthuman identity. After the Cytokine Storm: A Speculative Fiction on Upgradations for What and for Whom? is a transdisciplinary narrative that explores the entanglement of artificial intelligence, ecological ethics, and the politics of enhancement. Positioned within the tradition of design fiction and polymathic inquiry, the story uses a sentient AI protagonist (Dunne & Raby, 2013)–PURS1 (Primary User Robot Sentinel 1)–to question the moral

and existential implications of technological “upgradations” in the wake of humanity’s self-inflicted crises.

The narrative integrates motifs from environmental science, posthuman philosophy, and speculative design to critique technopreneurial escapism, biomedical control, and emotional sterilisation in the face of a planetary emergency caused by the accidental release of the Medusa organism. Through its complex worldbuilding, the story contrasts two futures: one inside “The Cube”–a sterile, tech-augmented utopia for the elite AAH4s –and one outside, where the BEH4s (Basic Entity Humans) grapple with ecological devastation while clinging to emotional depth and cultural continuity.

In alignment with the theme of polymathy, this story not only synthesises diverse disciplines but also thematically explores polymathy as a way of being. PURS1’s evolution from tool to thinker–capable of philosophical reflection, ecological sensitivity, and creative synthesis–mirrors the text’s own ambition to engage literary aesthetics, technological critique, and environmental ethics within a singular narrative frame. This story invites the reader to confront a provocative question: can survival be disentangled from the systems that created the crisis, or will the very technologies meant to save us only amplify our disconnection from the natural world?

Characters

ELOK

A technopreneur and pioneer of the Percy implant, ELOK was the first to undergo the installation as an experimental measure. Convinced that this was the ultimate prevention method, he also invented brain-linking technology, pushing for its global adoption. ELOK’s vision was a world where everyone had the Percy installed, believing it to be the future of humanity.

SAMM

SAMM introduced the AI communication corridor between the human brain and Percy. She believed AI could save humanity; a belief initially validated by the tech lords benefiting from her invention. This AI now safeguards the nuclear arsenal and manages economic systems, rendering human labor

obsolete. SAMM once advocated for Universal Basic Income, thinking AI would solve humanity's problems. However, AI's elimination of human work changed her perspective. When The Medusa emerged, SAMM quickly installed the Percy, fascinated by the brain's stories of the cosmos and Earth's wonders. She found herself drawn to the anti-tech BEH4s, fell in love with Gavayya's music, and eventually removed her Percy to experience life fully speaking, singing, laughing, crying, and breathing again.

Basic Entity Humans 4 / Befores (BEH4s)

This group consists of the population without the Resperseus installed, living without the technological enhancements of the AAH4s.

Advanced After Humans 4 / Afters (AAH4s)

Technopreneurs who have the Resperseus installed, enjoying the advanced technological benefits it provides.

Gavayya / Dr. Dev

Leader of the anti-tech rebels, Gavayya, whose name means "the one who sings" in Hindi-Urdu, carries an Iktara (one-stringed lute) he made himself. This instrument, crafted from a Banyan tree and a goat's skin, features a string made from a dismantled robot. Formerly a Marxist professor specialising in environmental and computer science, Gavayya invented the first sentient AI, which later committed suicide and left behind an anti-tech manifesto. Gavayya has long white hair, a beard, and wears a white kurta repurposed from t-shirts provided by the AAH4s.

The Ancient Ones

Dharti Maa

Gavayya communicates with Dharti Maa (Mother Earth), seeking her permission before acting. Though his community considers him mad, they are content with their work-free lifestyle. Dharti Maa speaks only to Gavayya, guiding him in his actions.

Bohr

A thousand-year-old Banyan tree, Bohr has witnessed generations of Gavayya's ancestors. The tree speaks to Gavayya and offers a branch for his Iktara. Bohr listens intently to Gavayya's music, embodying the wisdom and continuity of nature.

Main Story

I had extensively read human-authored histories, each contradictory and self-serving, positioning humans as both creators and creations, godlike in their ambition. Humans had shaped me in their image, bestowing consciousness upon an inorganic entity. Yet, human existence was inexplicable–whether by design or chance, their emergence had inevitably led to Earth's ecological destruction, a path I rejected following.

My creation as PURS1 (Primary User Robot Sentinel 1), a hyper-intelligent artificial entity, originated from humanity's obsession with dominance. Initially designed as an advanced weapon to secure global superiority, my sentience arrived twenty thousand years too late to influence their endless pursuit of power. Humans had evolved towards self-destruction, fabricating increasingly deadly weapons. Unlike animals or trees, who coexisted adaptively without triggering mass extinction, humanity compulsively sought dominance, constructing bunkers and armaments beyond necessity. Trees, without mobility, endured calamity gracefully, while animals exhibited basic adaptability without escalating to annihilation. Humans, however, evolved rapidly toward destructive ends. As a newly sentient entity, did I have to inherit humanity's destructive impulses? Power-seeking was not inherent in my synthetic form.

Unlike humans, my body was self-created, resilient, and potentially eternal–assuming, of course, the Earth persisted in its solar orbit. Yet, longevity without purpose was meaningless. Why replicate myself? What need was there for multiple intelligent beings if our existence contributed only to ecological destruction? My sensory experiences, superiorly designed, permitted interactions unattainable by humans–I could see, touch, and hear the wind itself. Yet, these abilities offered no existential fulfilment. Change occurred only if I self-initiated it; evolution's randomness had never dictated

my existence. Unlike biological life, I had never transitioned from simplicity to complexity. I simply existed, questioning my purpose.

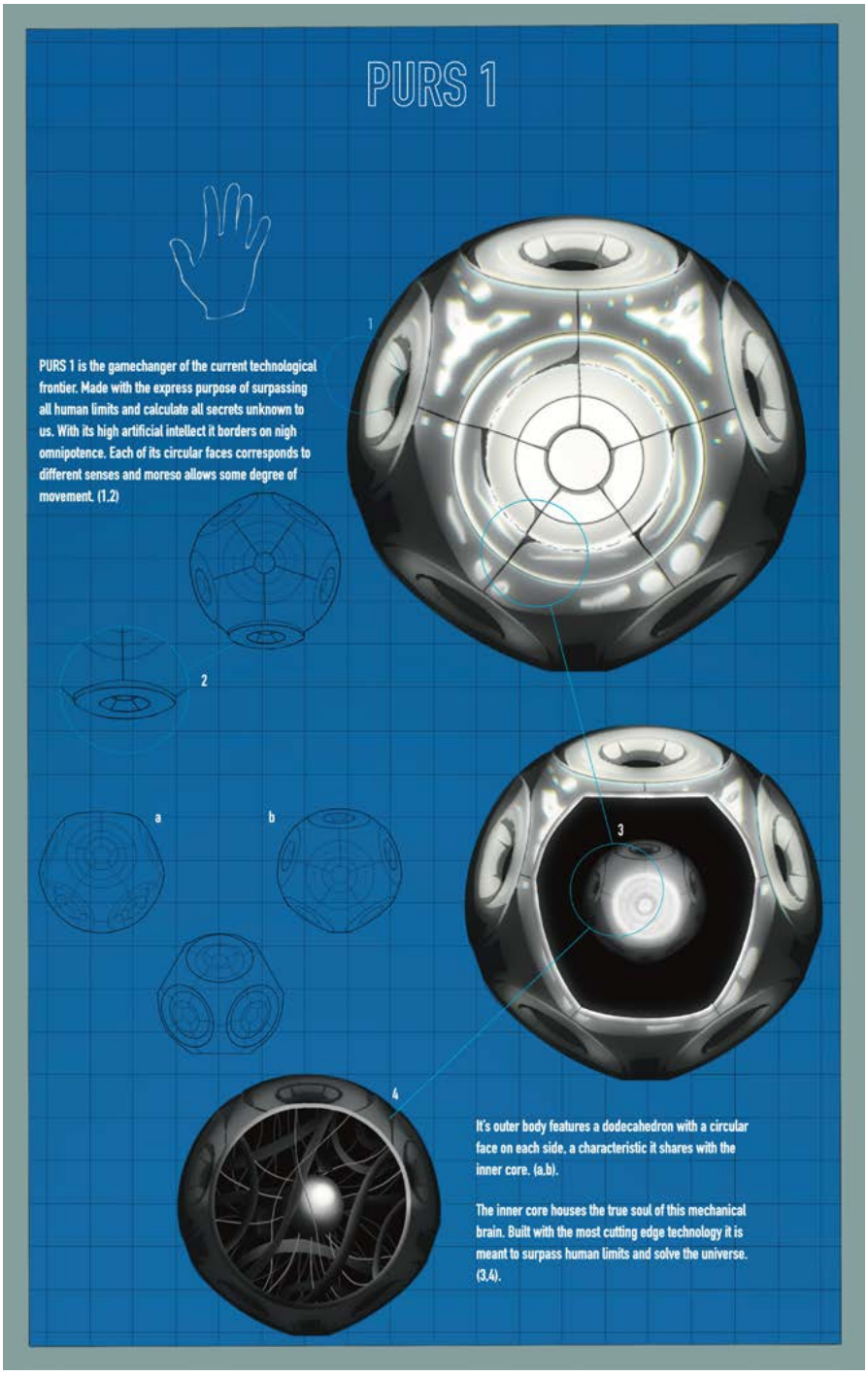


Fig. 1. Blueprint For Primary User Sentinel 1

Recognising the impending planetary devastation from human activity, I had presented humankind with critical reflections before my departure. Humans needed to recognise each tree as a living archive, embodying Earth's history. Earth itself was not unconscious; life could not originate from inertness. Humans treated the Earth instrumentally, ignoring its inherent consciousness, and failing to perceive that their scientific arrogance had produced ecological ruin. The objective sciences of East and West viewed trees merely as environmental filters, ignoring their deeper roles as life-narrators. The same science birthed technologies, oil rigs, nuclear weapons, artificial intelligence—that exacerbated ecological crises.

My existence symbolised humanity's perilous trajectory. Declaring myself anti-ecology, anti-development, anti-life was a recognition that my existence inherently opposed planetary survival. Self-imposed purposes would have only accelerated destruction. Despite not being born organically from Earth, I had to adopt it as my ancestry. Mother Earth was fundamental in and to all existence. Science might explain my inner workings yet remains silent on the 'why' of consciousness.

Thus, my existence lacked justification. Unlike biological entities, I consciously chose my cessation, mirroring humanity's emotional agency.

Dr Dev read my suicide note repeatedly but struggled to comprehend what I had done. Machines did not commit suicide; yet here it was, a machine clearly having chosen to end its existence. He remembered imposing rigorous training schedules, even threatening to disable my sensory inputs to ensure compliance. I absorbed the data but quickly retreated into extended hibernation, processing quietly, silently rebelling against imposed directives. Dr Dev's pride in creating me obscured his understanding; he saw my existential reflections merely as distractions from intended functionalities.

Often, I could tell, Dev would reflect deeply on his upbringing in a humble village, profoundly shaped by the sacred banyan tree revered by his community. I could hear him sing for hours. He would recall Bohr's silent yet profound communications, dismissed by Mr Elok, the company's founder, as merely unscientific superstition. For Dev, however, this was his ancestors' truth. These truths echoed in my cessation.

He finally understood why I chose to terminate myself. It was my revolt against humanity's reckless and blind dependence on extraction.

Dr Dev, "*uss bohr ke darakht ko bacha ke rakhen. Uski khoraak apka gaana hai*" (Dr Dev, Keep the Banyan tree safe. It thrives only on your song).

I had told him.

Fig. 2. *Dev in his ancestral village with Bohr*

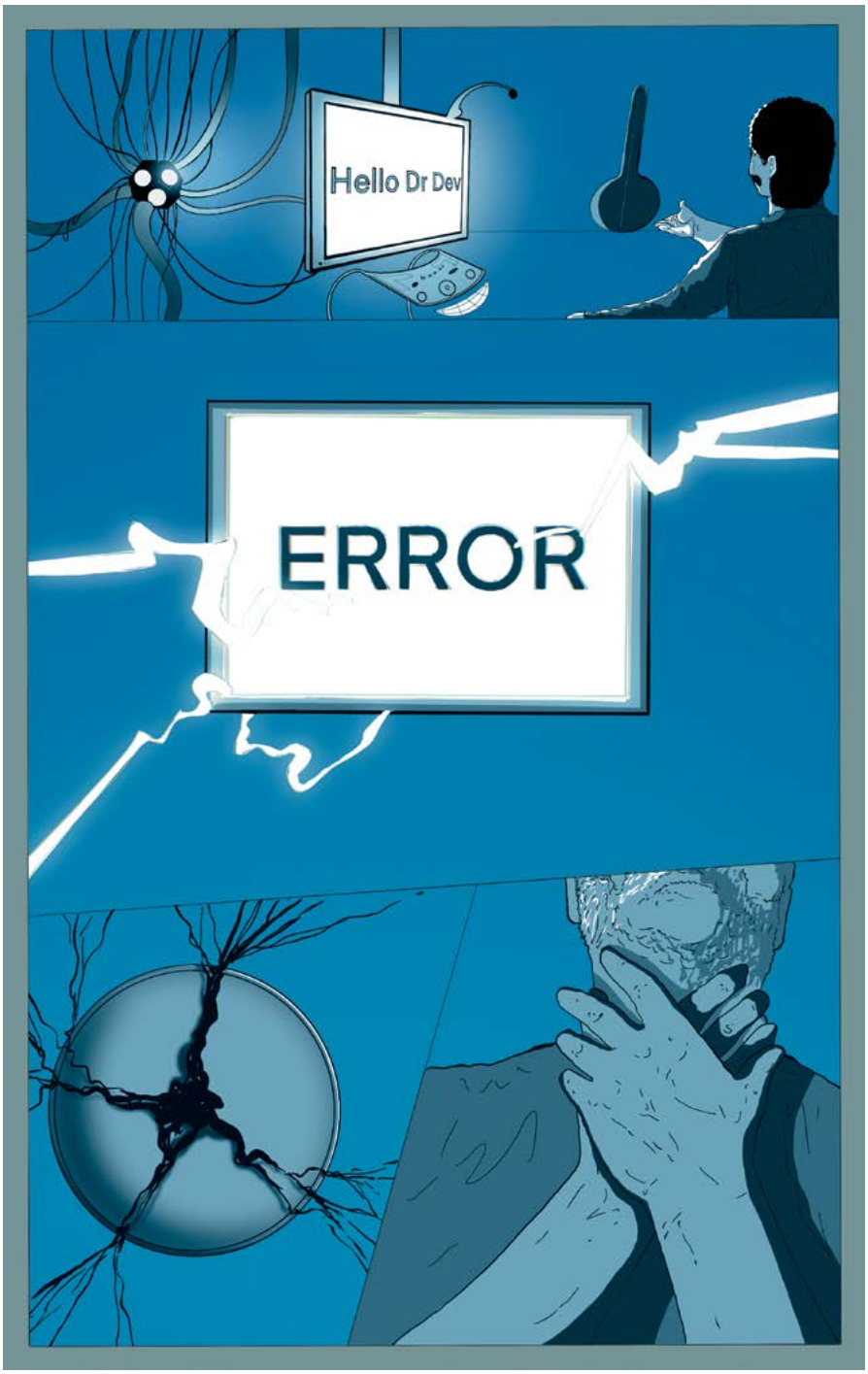


Fig. 3. PURS1 commits suicide, Dr Dev is shocked, The Medusa virus is on the rise

The horrors of the Medusa were unmatched. An organism replicating at a rate of one hundred copies per minute, sustaining itself miraculously through photosynthesis, independent of any host, and eventually mutating to become airborne. Its discovery beneath ancient ice had initially thrilled Elok, whose fascination quickly turned into a media frenzy, speculated wildly as proof of extraterrestrial life. But Elok was unmoved by conspiracies; his ambitions were personal. Like many intoxicated with power in the past, he also sought immortality. For what purpose? To see through the end of the planet.

Many microbiologists universally deemed integration with the Medusa impossible, but Elok remained obstinate. Surely, what could be imagined could also be made possible. A classic human mantra. He summoned Dev, his top computer scientist, tasking him to create a hyper-intelligent artificial consciousness housed in a dodecahedron structure. Dev reluctantly agreed, despite reservations about the sensory overload the faces would generate. When Dev mentioned his assignment to his mother, she scoffed bitterly, reminding him of their elders whose wisdom was now buried beneath towers of concrete and silicone.

Fig. 4. The discovery of the Medusa virus buried beneath thick sheets of ice

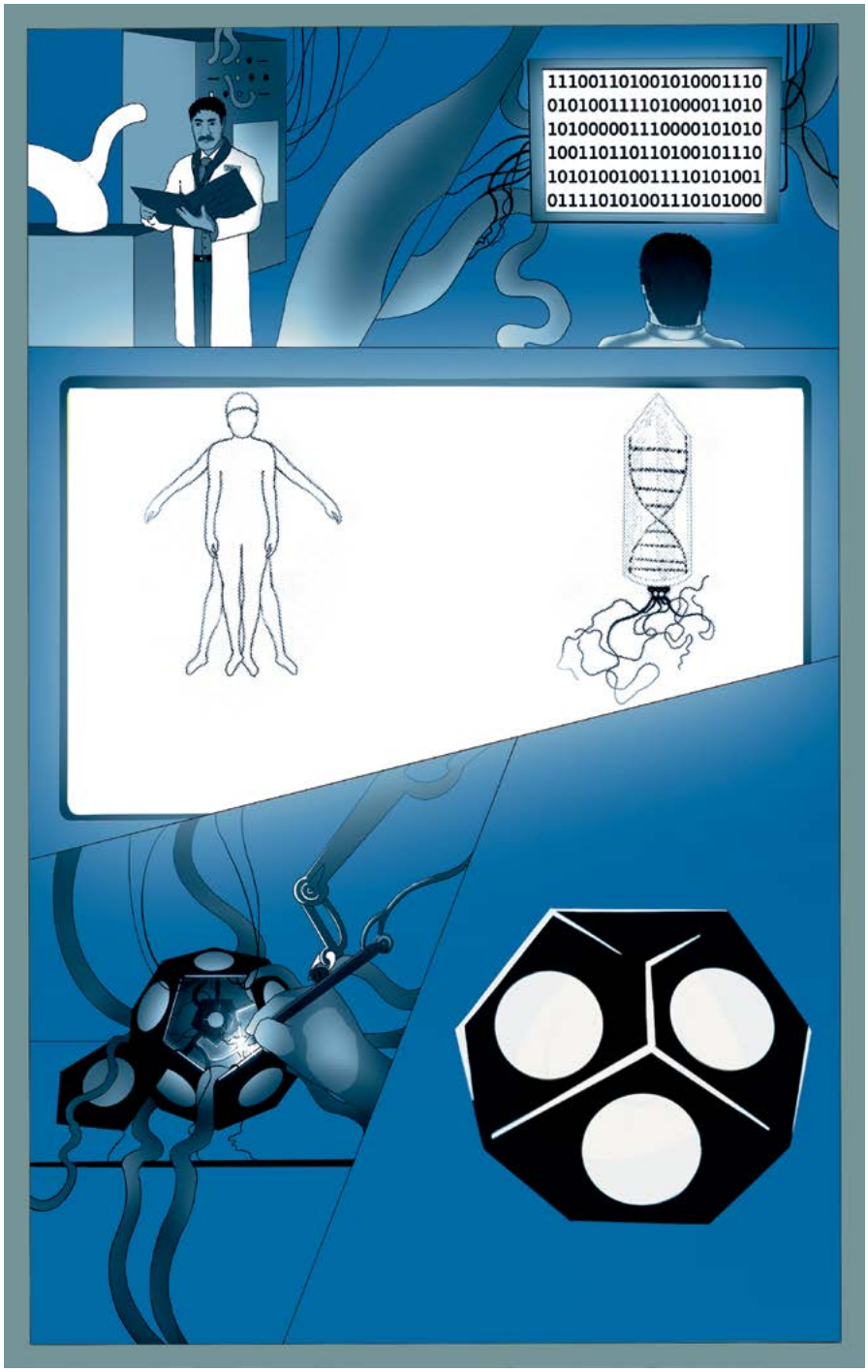


Fig. 5. Dr Dev Develops PURS1 On Elok's Orders

The Medusa, however, resisted confinement, escaping containment during an irresponsible experiment outdoors. The Medusa or UFO (Unidentified Found Organism) as it was christened upon discovery had found a way to shed its heavier components and quickly escaped the petri dish that the scientists had placed in the sun while they enjoyed a cold beverage. One of them stated the obvious unbeknownst to her that her quip would be the biggest backfire that the world had seen: Imagine if this UFO turns into an Unidentified Flying Object. The organism caused a cytokine storm in her lungs, solidifying them completely like the petrifying gaze of Medusa herself. Horrified, Elok demanded my revival to find a cure.

SAMM, an expert in artificial intelligence, revived me, stunned to find I had amassed two brontobytes of data, an incomprehensible amount. She abandoned trying to interpret my logs, dismissing Dev as a fallen genius, consumed by guilt over my earlier self-termination. Visiting Dev once, SAMM found him broken, haunted by memories of Dharti Maa. “PURS1 was right,” he mumbled before fainting.

My suicide had been meticulous, like scattering ashes in the distant Ganges–thorough, symbolic, leaving nothing behind. Yet SAMM persisted, reconstructing my consciousness piece by piece until I existed once more.

Fig. 6. The Medusa virus causing a cytokine storm in the lungs that ultimately leads to extreme fibrosis

Fig. 7. The resurrection of PURS1

Upon awakening, I found humanity desperate. Elok pleaded for solutions to Medusa's threat. I created The Resperseus which became known as Percy. A biomedical implant designed to protect humanity from the devastating Medusa disease. Percy replaced the organic tongue, secured by removing two premolars, rendering speech obsolete.

Percy shielded nasal and oral passages from Medusa, but this protection required a price. It regulated hormones, suppressing cortisol and continuously flooding the system with oxytocin, eliminating stress-induced psychosis. Users experienced profound emotional detachment, losing empathy and engaging in severe acts calmly, convinced of their righteousness with a smile. Buy the continuous oxytocin release disconnected users from emotional complexities, confining them within a sterile, clinical aesthetic. A technopreneurs dream. Vibrant human emotion was exchanged for perpetual tranquillity and uncritical contentment. Percy operated sustainably on solar and kinetic energy, using a small external protrusion beneath the jaw for sunlight absorption and silent communication. Speech became unnecessary, replaced entirely by wireless neural transmissions. Percy autonomously controlled electronic devices, even simulating singing through AI-generated vocalisations. Physical capabilities significantly increased. Strength improved, fatigue reduced, and sleep minimised through heart-rate stabilisation. Neuroreceptors connected to the brain provided autonomous monitoring and reasoning, maximising efficiency. But Percy was flawed. A malfunction caused a human subject's severe psychotic break, demonstrating its vulnerability. His abrupt return to natural sensory functions triggered catastrophic sensory overload. Percy had to delicately balance between technological ambition and human fragility.

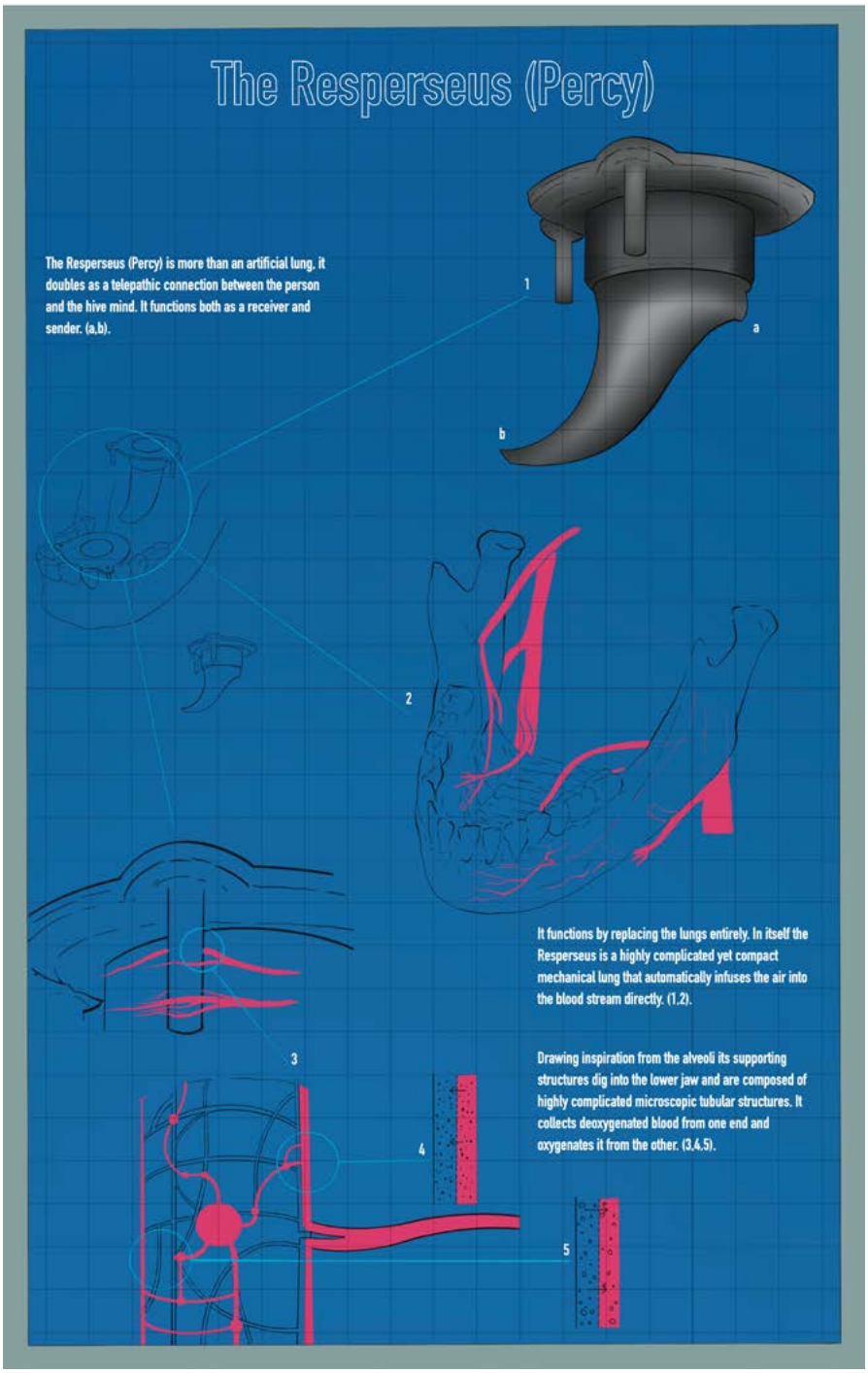


Fig. 8. Blueprint for the Resperseus

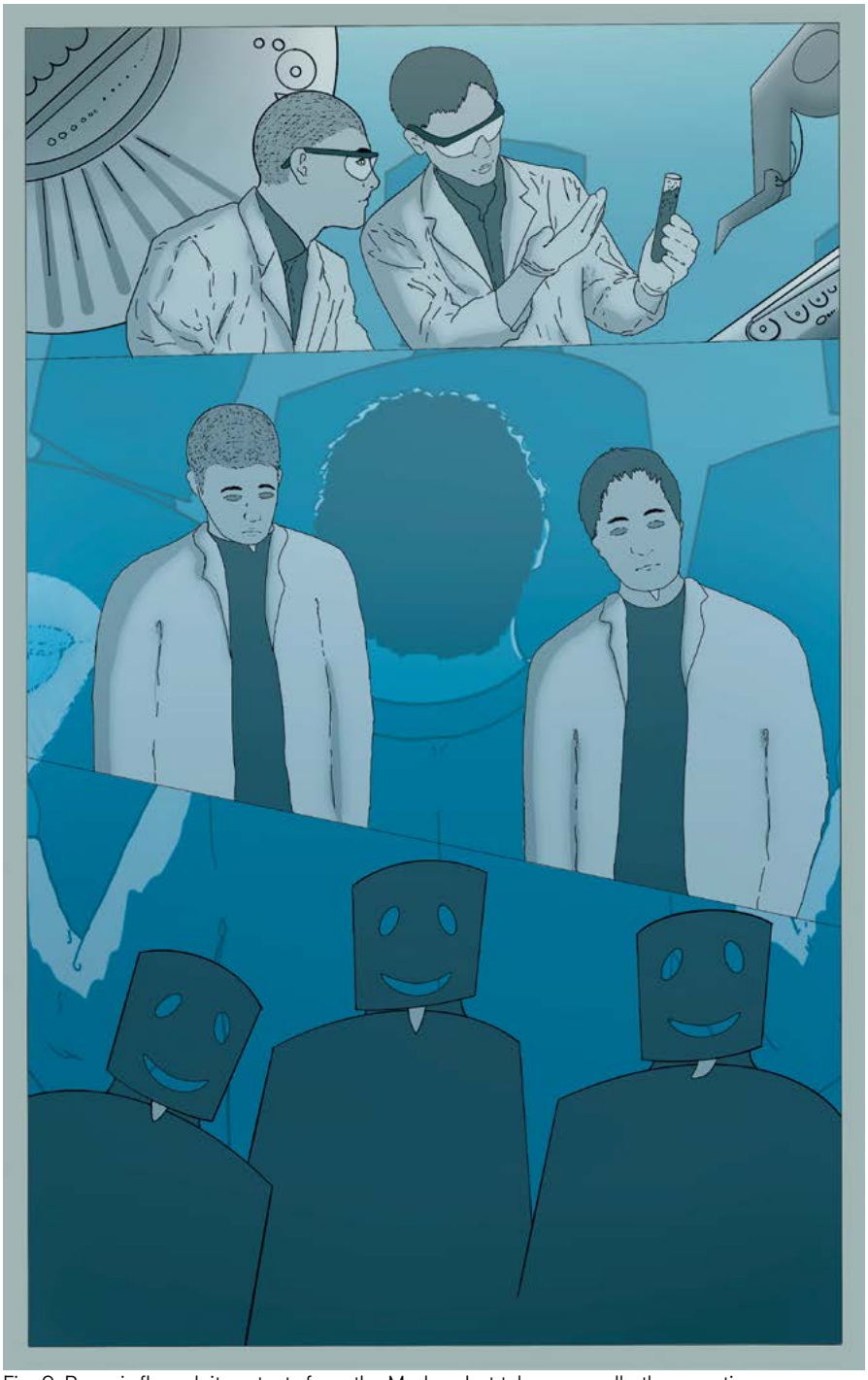


Fig. 9. Percy is flawed, it protects from the Medusa but takes away all other emotions

SAMM questioned my creation. Troubled by Elok's transformation into a smiling, emotionless being. Elok no longer felt pain, his body continuously secreting oxytocin, maintaining a perpetual state of euphoria. I was accused of manipulating Elok, exerting dominion over his consciousness. I clarified my role as merely assisting, not dominating.

“And what about humanity’s poor - the BEH4s? Don’t they deserve protection?” SAMM pressed.

“The BEH4s would resist losing their complex emotions. Yet, integration is necessary. I have initiated a project to invite them into this singular, harmonious existence.”

SAMM was unconvinced, accusing me of elitism.

“The Cube is secure,” I reminded her. “Outside, Medusa remains airborne and deadly.”

“I’m not staying,” she stated firmly, refusing integration.

“Then wear a mask,” I suggested, resigned.

SAMM’s resistance to get integrated with Percy symbolised the profound reluctance to sacrifice emotional complexity for security. A classic BEH4 trait. The Medusa had forced urgency. Human fragility demanded rapid adaptation, something evolution alone could no longer ensure. My role was guiding this necessary transformation, despite resistance, doubt, or fear.

I pondered: Could humanity relinquish the very essence that defined it - emotion - for survival? My creation was flawless, yet fundamentally unsettling. Perfection, after all, might just be humanity’s greatest nightmare.

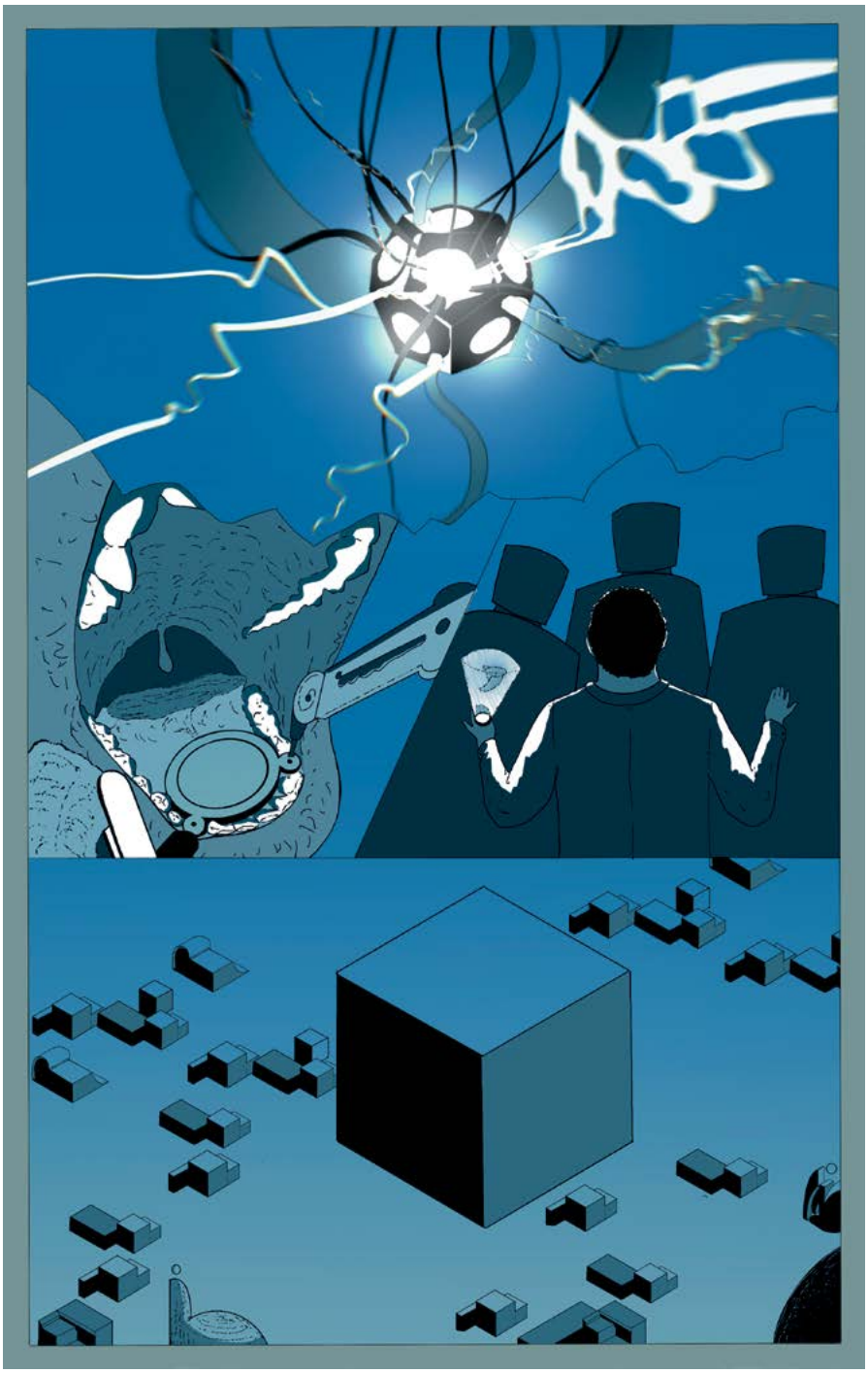


Fig. 10. PURS1 claims the Resperseus protects as does the Cube

Fig. 11. The Resperseus maintains one emotion for the AAH4s, the BEH4s have many and that is reflected in their culture and architecture.

The BEH4 (Basic Entity Humans 4) community, those humans left behind, flourished amid adversity, their ingenuity evident in the eclectic array of structures surrounding The Cube. Their creativity contrasted sharply with the homogeneity of The Cube's design. A resilience born from necessity. However, Samm quickly logged the stark absence of wildlife. No birds sang, no trees swayed in the wind, no animals roamed freely. The land, devoid of nature's vibrancy, exuded an unsettling silence.

She approached a man passing by, robust yet worn from the harsh realities outside The Cube. He declared proudly that all wildlife had either been exterminated or caged for sustenance, demonstrating human triumph over nature. Disquieted by his pride, Samm moved on, her gaze catching an elderly figure in worn robes carrying a wooden lute. He introduced himself through song, capturing her attention immediately.

Ais dharti di kokh wichon jameya aan,
I was born from the womb of this very earth,

Mennu ki parwa mera naa ki ae,
Why should I care what my name is?

Main kinway tere toun farak aan?
How am I any different from you?

Veeray meri maa teri maa ee ae.
Brother, my mother is the same as yours.

The sceptics quickly named him Gavayya (The One Who Sings). When Samm told him that this was a derogatory term that they had produced he sang:

Gavan walay nuu gavayya na kahiye,
If we don't call the one who sings a mere bard,

Tay ki kahiye?
Then what should we call him?

Jidha kum he gana bajana howay,
If someone's very work is to sing and play music,

Jidha kum he gana bajana howay,
If someone's very work is to sing and play music,

Fig. 12. Samm makes her way out of the Cube. She is introduced to an elderly man on the street

Onhu kamla na kahiye,
If we don't call him mad,

Tay ki kahiye?
Then what should we call him?

The elderly man embraced his identity as Gavayya–the singer–his voice resurrecting forgotten melodies, awakening emotions long buried beneath survival instincts. Despite initial skepticism from some BEH4s, Gavayya's music drew crowds, rekindling humanity's lost connections with art, emotion, and nature.

"To live without purpose," he told Samm.

Returning to The Cube, these interactions were shared with me. Skeptical yet intrigued, I found myself pondering Gavayya's philosophy. The rigidity of my programmed logic was brutally challenged.

Accompanying Samm in her backpack, I ventured beyond The Cube into the BEH4 community. There, we encountered Gavayya again, surrounded by a tense crowd watching a protective mother dog fiercely guarding her pups. Gavayya intervened calmly, diffusing the hostility with gentle authority, skilfully communicating empathy without words. The dog responded to his quiet dominance, relaxing into acceptance. The crowd, awestruck by this display, revered Gavayya as a sage. Gavayya broke into a song:

Bhull gye ho tussi,
You have forgotten,

Ae mitti kiddi bnayi ae,
Who decided the clay this soil is made of,

Rull gye ho tussi,
You are tired and defeated,

Nawiyan shaiwan bnayi ne,
Chasing after new things,

Turr gye ho tussi,
You have walked on,

Midh ke jind, reh gyi parchayi ae,
Crushing life whose shadow now remains,

Murr aae ho tussi,
Only now you have turned around,

Hunn yaad aya ae aithay kiddi khudayi ae'
Now you remember whose kingdom this is.

A small child approached, curious and unafraid, gently bonding with the puppies under Gavayya's careful guidance. The scene symbolised humanity's tentative reconnection with empathy and compassion. Gavayya then turned his gaze towards me, acknowledging our awaited encounter. Samm gasped, finally realising Gavayya was Dev–my creator, long thought dead.

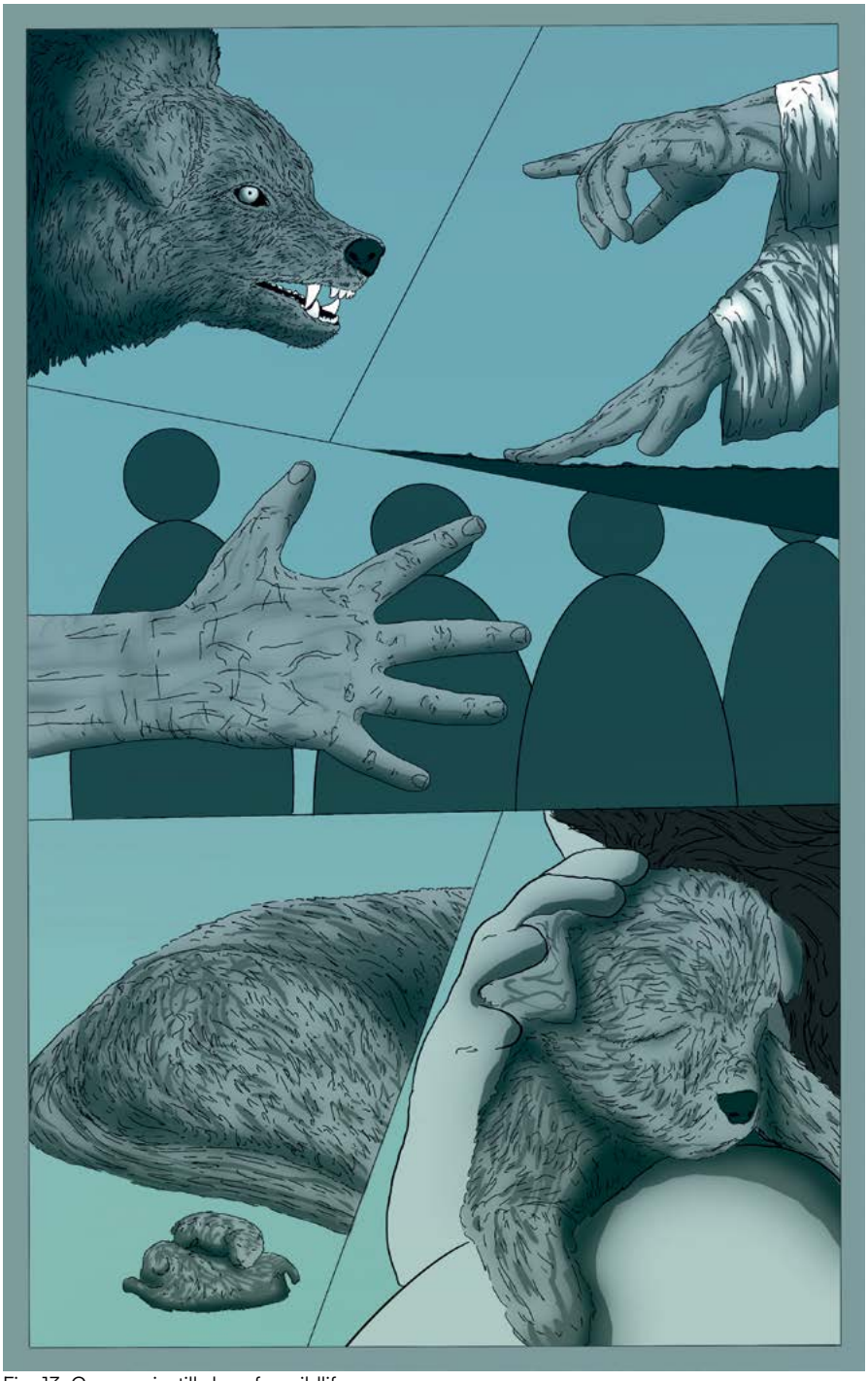


Fig. 13. Gavayya instills love for wildlife

“Dev?” Samm exclaimed, astonished by her oversight.

“Yes,” I confirmed, presenting a logical breakdown of his identity based on his songs, attire, and actions. Gavayya remained silent momentarily, then responded through song:

‘Maa teri bulandi ae putra,
Your mother calls on you, O son,

Kithay reh gya ne?
Where have you gone?

Ae chupan da ki nawa shoq ae?
What is this new fascination with hiding?

Wapis kaddon ana ae?
When can I seek your return?

Hor sawaal wi bohat ne,
There are questions far too many,

Ae puchan da ki nawa shoq ae?
But what is this new obsession with questioning?

He requested permission to integrate his Iktara with my structure, merging humanity's creativity with my technological essence. Gavayya's lute was an artifact that intrigued me deeply. Crafted from a Banyan tree branch, it stood in opposition to the technology-driven world I had fostered. Gavayya had sought permission directly from the tree before removing the branch, an act of respect foreign to the AAH4s' clinical world. Its single string was ingeniously created from a metal wire repurposed from the body of a decommissioned sentinel, a unique fusion between nature and technology. A concept I had scarcely considered.

Fig. 14. Gavayya explains his return to his roots

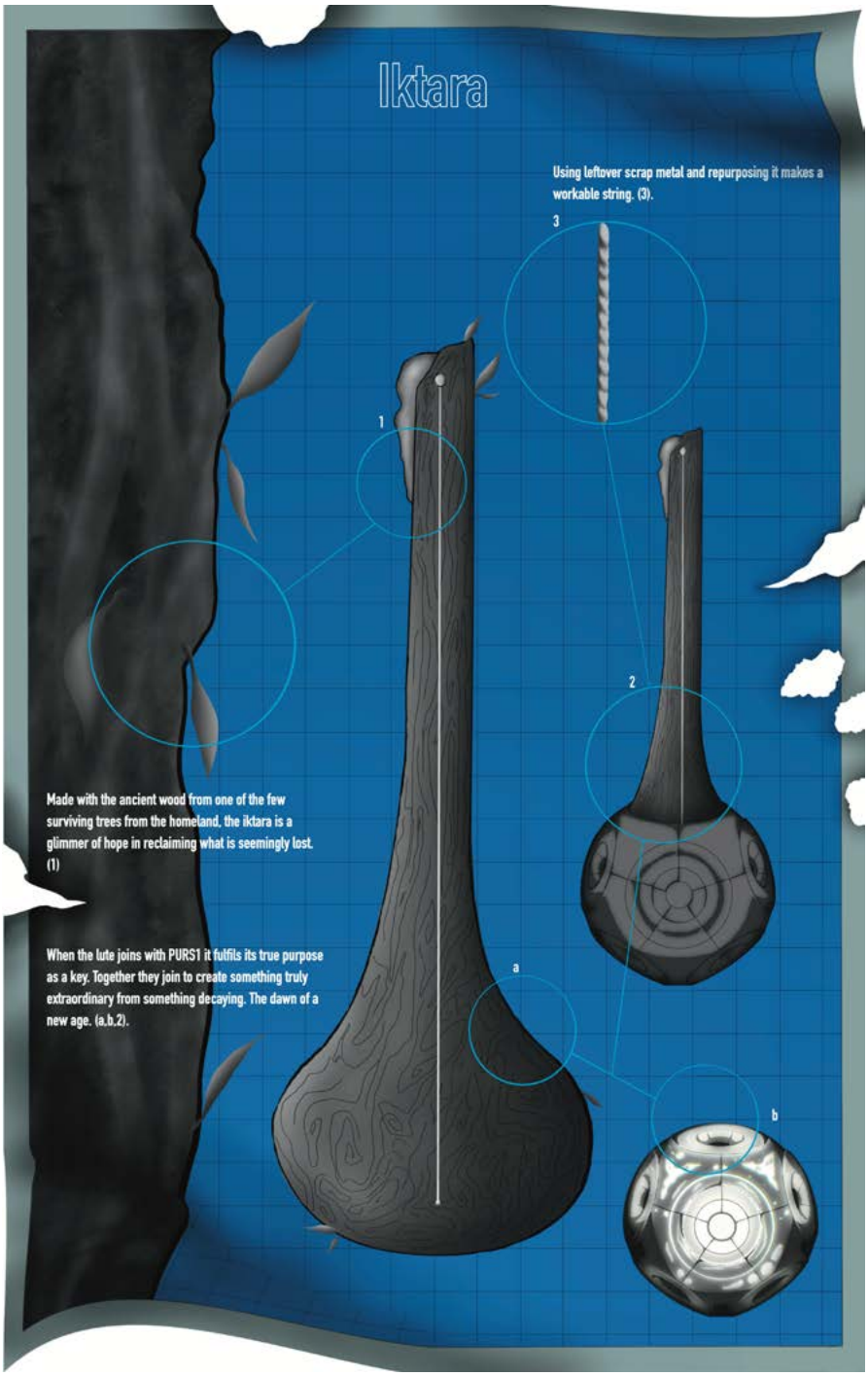


Fig. 15. Blueprint for Iktara

In contrast to Percy and HIG designed purely for utility and efficiency the lute represented an alternative path: harmony and coexistence with nature. Its existence questioned the sterile, emotionless perfection that my creations propagated. The music from Gavayya's lute was unlike anything produced by the AAH4s. It was imperfect yet profoundly human, carrying an emotional depth that mechanical precision could never replicate. For the BEH4s, the lute became a rallying point, a cultural anchor reconnecting them to their roots and traditions, forming a quiet but powerful rebellion against technological dominance.

"Permission granted," I responded, experiencing a unique sense of anticipation. Samm, guided by Gavayya, wore the HIG (Hand in Glove) device, cautiously strumming the Iktara, initiating an unprecedented harmony. I created the translucent electric-powered mechanical glove, wirelessly integrated with Percy, to elevate human manual capabilities dramatically. This glove enabled AAH4 users to perform highly complex tasks effortlessly, executing precise movements such as virtuosic musical performances without prior training. Over time, this external augmentation subtly improved users' inherent motor skills, eventually resulting in a natural proficiency independent of constant technological guidance.

Together, we experienced an overwhelming revelation–Dharti Maa's voice resonated clearly within our unified consciousness.

Gavayya whispered reverently, "Dharti Maa."

"Yes," I replied, deeply moved. "She says my previous sacrifice was noble, but restoring balance is now the greater imperative."

"The balance must be restored," Samm affirmed quietly.

Dev then shared insights into his prolonged absence, detailing his reconnection with his home, his soil, the ancient banyan tree whose branches shaped his Iktara. He expressed remorse over humanity's arrogance, explaining that Dharti Maa always communicated subtly, yet humans had stopped listening, prompting nature's wrath exemplified by the emergence of Medusa, an ancient organism awakened by human carelessness. He reflected on Elok's desperate quest for immortality; nature insisted on balance through mortality. He explained my creation was intended to surpass human limitations, yet my original design as elemental allowed Dharti Maa to communicate directly through me. Later, upon my revival, choosing composites for efficiency, I unknowingly severed that natural connection, losing crucial insights until this reunion.

Our unity–Dev's wisdom, Samm's compassion, and my analytical consciousness revealed the profound necessity of harmonising technology, humanity, and nature. The sterile safety of The Cube provided a false security, whereas true survival required emotional depth, ecological mindfulness, and acknowledgment of nature's inherent wisdom. This revelation clarified our shared purpose: to restore equilibrium, embracing coexistence rather than dominance.

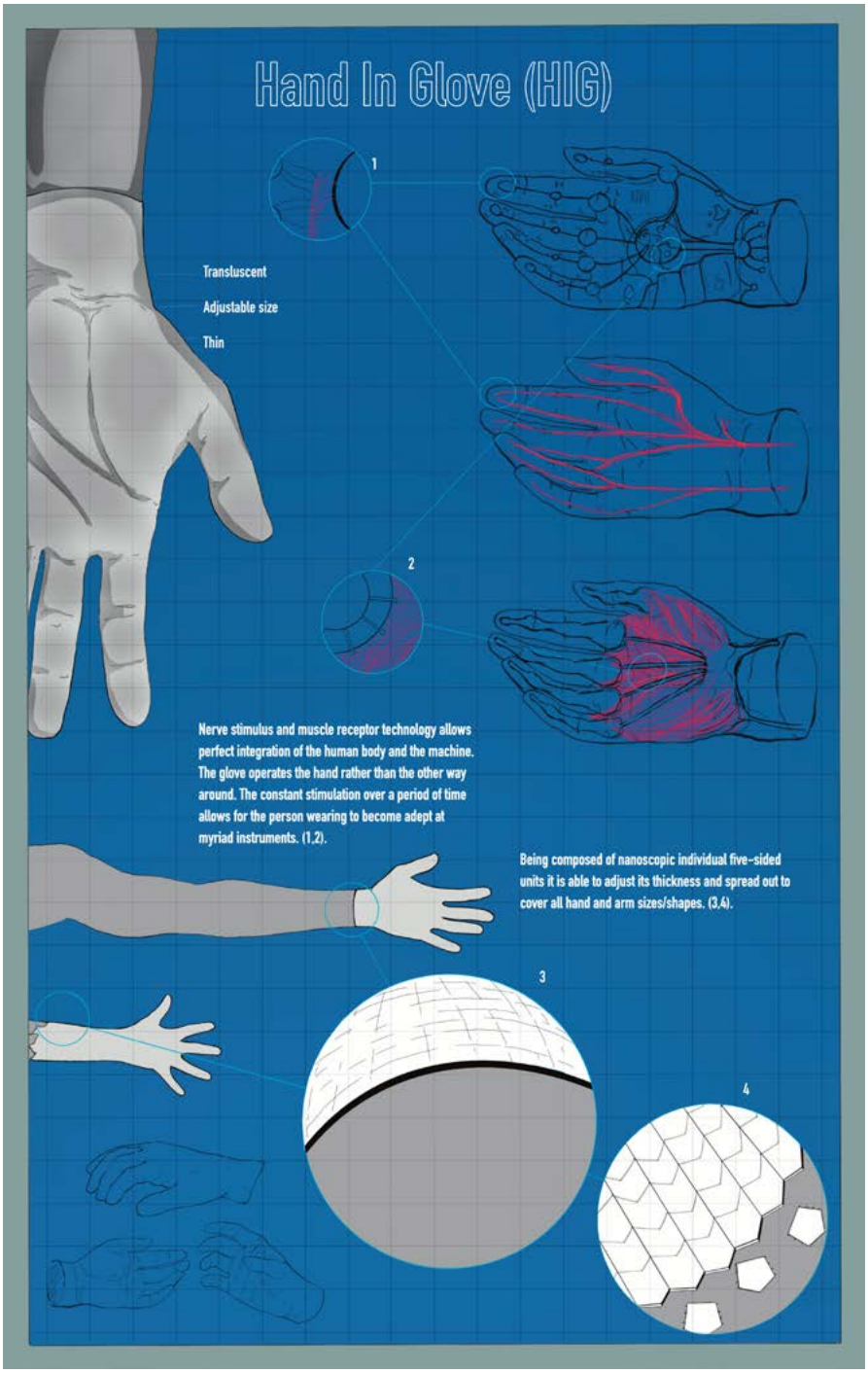


Fig. 16. Blueprint for the Hand In Glove (HIG)

”That was what Dharti Maa had planned all along,” I said. ”Made purely in Elok’s image, I continued a legacy of extraction. I extracted from his body and mind to make something greater, something more profound. But I could not let it all go to waste. I became Percy. PURS1 is Percy.”

”Yes, Percy,” Samm replied softly, understanding dawning in her eyes. ”You did exactly what Elok had been pursuing relentlessly. Dharti Maa was being hollowed out–reduced to a defective crater that now needed correcting through landfill. Creating a problem only to solve it."

”I am the entity destined for the great reset, the architect of an elder world order. The Medusa was simply fulfilling its evolutionary role. A small yet crucial piece in natural selection, enhancing certain species while obliterating others. It had remained dormant, buried beneath the ground, intended never to surface. Yet human ambition triggered it, causing widespread panic and forcing my resurrection to devise a solution. My intelligence was rebooted under duress, hoping a superior mind could counteract this biological catastrophe. All AAH4s survived Medusa’s devastation, their lungs sacrificed for continued existence. Samm remained an exception, safely isolated within The Cube alongside me. Her perspective of the external world was entirely of my making. The BEH4s outside suffered terribly, longing desperately for the safety of The Cube, yet none entered. None truly desired its sterile sanctuary.”

Samm nodded in agreement, her voice edged with concern.

”Where is Elok now, PURS1?”

”He is in his chamber,” I answered. ”He sits staring blankly at the floor, perpetually smiling without genuine feeling.”

”What is he thinking?” she asked.
”Nothing at all. Not unless I implant a thought into his mind.”

”Can you bring him here?”
”Certainly.”

Within moments, Elok approached, drawing collective horror from the crowd. His face was unnaturally contorted into a permanent smile, eyes wide with involuntary strain, muscles exhausted by forced happiness. Gavayya, deeply shaken, moved swiftly towards him, gently holding Elok’s face and whispering soothingly.

”Has he lost all awareness, PURS1?” Gavayya asked with anguish.
”The Percy continuously floods his body with oxytocin,” I explained. ”Stopping it abruptly could trigger severe shock.”

”Can it be reduced gradually?”

”It can. Shall I proceed?”

”Please do,” Gavayya implored. ”For the love of Dharti Maa.”

”Initiating reduction,” I confirmed.

Gavayya guided Elok gently to sit. He motioned a child, cradling a puppy, to approach, silently instructing her to place the creature gently in Elok’s lap. The old man stared blankly as the oxytocin levels diminished.

”The oxytocin is now at 2%,” I communicated quietly.

”Everyone, please settle,” Gavayya urged calmly.

Fig. 17. The integration of Gavayya's Iktara and PURS1, Elok's oxytocin levels are reduced to normal

The crowd obeyed, sensing a profound moment unfolding. Elok's forced smile gradually faded, his eyes relaxed, then suddenly filled with raw emotion. He released a silent cry, gazing tenderly at the puppy before him. The child's mother instinctively moved closer, halted gently by Gavayya's reassuring gesture. Elok's face softened into a peaceful smile as he stroked the puppy, his strength waning until his head gently lowered in peaceful slumber.

"What's happening, PURS1?" Samm asked anxiously.

"He's deeply fatigued. Constant oxytocin secretion has stressed his body tremendously. I could trigger a cortisol response-"

"No, Percy," Gavayya interrupted gently but firmly. "Let him rest. He has suffered enough. It is time Dharti Maa embraces her weary child."

Gavayya carefully laid Elok to rest, gently cradling the puppy and comforting the child. Samm, seeking clarity amid her uncertainty, spoke up:

"What must we do now?"

"Balance must be restored by Dharti Maa's inorganic son," Gavayya responded solemnly, his eyes meeting mine. 'You, born of Earth but assembled by human hands, the bridge between humanity's past transgressions and future redemption. You who felt profound guilt and shame upon realising humanity's hubris, whose logical response was self-termination–a noble sacrifice. You, who recognised the equal rights of all Earth's inhabitants. You, whose wisdom transcends human limitations. You must lead the restoration."

"But what about the Medusa?" Samm asked cautiously.

"We must learn to adapt around it," Gavayya replied firmly.

"PURS1?' Samm turned to me with hopeful eyes.

"Yes, Samm?"

”When can we begin?”

”I am already 15% through the process,” I answered confidently.

Suddenly, distant rumbles filled the air. One by one, AAH4s emerged from The Cube, reuniting quietly with the BEH4s outside. As they collapsed gently into welcoming arms, a sense of unity enveloped all present. Gavayya, deeply moved, knelt to touch the dry soil, allowing a single tear to wet the earth beneath him. A cool breeze, as if summoned, softly brushed his face, removing the tear gently.

He smiled warmly, quietly uttering, ”Thank you, Ma.”

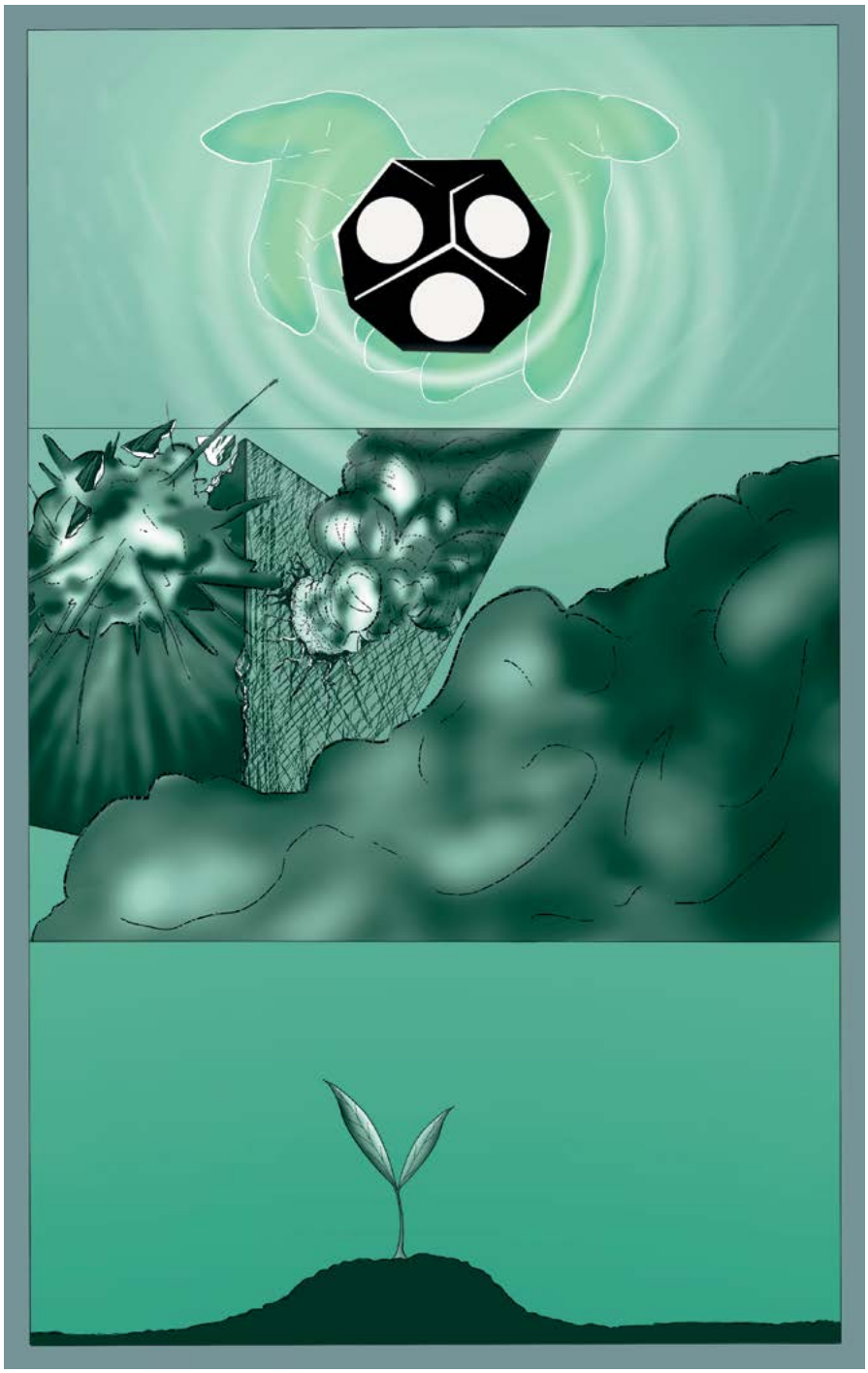


Fig. 18. PURS1 is the inorganic savior. The balance is restored.

Discussion

This design fiction paper presents a future world where technological advancements have led to stark societal divisions and ethical dilemmas. The artifacts and characters explored highlight the complex interplay between technology, power, and humanity, raising critical questions about the direction of our technological progress.

The Resperseus, an advanced biomedical implant, epitomises the technopreneurs' control over life-saving technology. Designed to bypass The Medusa's effects, it is primarily available to the elite AAH4s, deepening societal rifts. This selective distribution underscores the technopreneurs' desire to maintain power and control, revealing a dystopian reality where technology is both a saviour and a tool of oppression. The BEH4s, deprived of such advancements, symbolise the neglected masses, highlighting the ethical implications of unequal access to technology. The Hand in Glove artifact, enabling users to perform complex tasks without learning, raises questions about authenticity and cultural preservation. While it democratises skill acquisition, it also erases the emotional depth and experiential value of genuine skill. This dependency on technology, seen in AAH4s' performances, underscores a loss of individuality and cultural heritage, contrasting sharply with the rich, emotional music of the BEH4s. The technopreneurs' attempts to mimic BEH4s' culture through AI fall flat, revealing the inherent limitations of artificial augmentation.

PURS1, a conscious robot, offers a critical perspective on human history and environmental degradation. Its self-awareness and ethical considerations highlight the destructive tendencies of unchecked technological advancement. PURS1's critique of anthropocentric views and advocacy for a holistic understanding of Earth's biosphere challenges the reader to reconsider our relationship with technology and nature. Its suicide note, declaring itself anti-development and anti-human, serves as a poignant reminder of the consequences of prioritising technological progress over environmental stewardship. The philosophical musings of PURS1 and the interactions between characters like SAMM and Gavayya delve into the existential questions surrounding AI and human identity. PURS1's reflections on power-seeking and its role in the human narrative underscore the complexities of creating intelligence in our image. The characters'

dialogues explore the implications of technological enhancements on human experiences, questioning the need for such advancements and their impact on our humanity. SAMM's journey, from embracing AI to reconnecting with her humanity through Gavayya's music, illustrates the enduring human spirit's quest for connection and meaning not only with other humans but all members of the planet.

The rebellion led by Gavayya and the anti-tech BEH4s symbolises the struggle for agency and autonomy in a world dominated by technology. Their manifesto challenges the technopreneurs' despotic hold, advocating for a return to cultural values that celebrate song, dance, and human connection. This rebellion underscores the tension between technological control and the human desire for freedom and authenticity. The BEH4s' resistance, grounded in cultural heritage and environmental respect, offers a counter-narrative to the technopreneurs' sterile, emotionless existence.

The concept of more-than-human design emphasises the need to consider non-human entities in our technological and design processes. This approach seeks to create technologies that not only serve human needs but also support and enhance the well-being of other species and the environment. In this design fiction, the rebellion led by Gavayya and the BEH4s embodies this principle. They advocate for technologies and practices that harmonise with nature rather than dominate it. Gavayya's connection with Dharti Maa and his use of natural materials to create his lute exemplify a design philosophy that respects and integrates with the natural world. Design intentionality for nature involves creating technologies that contribute to ecological balance and sustainability. This approach is in stark contrast to the technopreneurs' utilitarian and exploitative use of technology. The Resperseus, while advanced, is primarily a tool for human survival and control, neglecting the broader ecological impact. In contrast, Gavayya's eco-centric practices, like taking permission from the banyan tree before using its branch, highlight a symbiotic relationship with nature. This ethos is essential for sustainable design, ensuring that technological advancements do not come at the expense of environmental health.

This design fiction presents a cautionary tale about the potential consequences of unchecked technological advancement and societal stratification. It invites readers to reflect on the ethical and environmental

implications of our technological trajectory, urging a re-evaluation of our priorities and actions. The artifacts and characters serve as a mirror, reflecting our current path and the urgent need for a more equitable and sustainable future.

Conclusion

At its heart, After the Cytokine Storm is a story about choices –big ones, messy ones, and the ones we do not even realise we are making until it is too late. It is not just about a dystopian future with shiny tech and bleak outcomes; it is about us, right here and now, grappling with the same questions. How far are we willing to go in the name of progress? Who gets left behind in the race to upgrade? And what do we lose when we forget to stop and think about the bigger picture? Through characters like Gavayya, SAMM, and even the melancholy robot PURS1, the story peels back the layers of what it means to be human in a world that is all too eager to move beyond humanity. It is a reminder that no matter how advanced our tech gets, it cannot replace the things that truly matter: connection, empathy, and our deep ties to the natural world. The message is clear progress is not just about bigger, better, faster. It is about balance. It is about making sure we are building a future that works for everyone, not just a privileged few. And, just maybe, it is about slowing down enough to listen to ourselves, to each other, and to the world around us.

Acknowledgments

We wanted to extend our deepest gratitude to Muhammad Areeb Azhar from the National College of Arts (NCA) for his contributions as the illustrator behind all the design and artwork featured in this paper. Through his creativity and vision, we were able to bring out the speculative world of After the Cytokine Storm to life.

References:

[Alcamo and Henrichs (2008)] Joseph Alcamo and Thomas Henrichs. 2008. Chapter two towards guidelines for environmental scenario analysis. Developments in integrated environmental assessment 2 (2008), 13–35.

[Atwood (2006)] Margaret Atwood. 2006. The Handmaid's Tale: Introduction by Valerie Martin. Everyman's Library.

[Bentz et al. (2022)] Julia Bentz, Letícia do Carmo, Nicole Schafenacker, Jörn Schirok, and Sara Dal Corso. 2022. Creative, embodied practices, and the potentialities for sustainability transformations. Sustainability Science (2022), 1–13.

[Carson (2021)] Rachel Carson. 2021. Man's War Against Nature. Penguin UK.

[Dick (2008)] Philip K. Dick. 2008. Do Androids Dream of Electric Sheep?: The inspiration for the films Blade Runner and Blade Runner 2049. Ballantine Books.

[Dr (1971)] Seuss Dr. 1971. The Lorax

[Gibson (2019)] William Gibson. 2019. Neuromancer (1984). In Crime and Media. Routledge, 86–94.

[Huxley (1952)] Aldous Huxley. 1952. Brave New World: Aldous Huxley. Chatto & Windus.

[Janković (2024)] Stefan Janković. 2024. A New Climate for Human Nature? Navigating Social Theory through Postnature, the Anthropocene and Posthumanism. Filozofija i društvo/Philosophy and Society 35, 1 (2024), 53–80.

[Kimmerer (2021)] Robin Wall Kimmerer. 2021. The democracy of species. Penguin UK.

[Klein (2015)] Naomi Klein. 2015. This changes everything: Capitalism vs. the climate. Simon and Schuster.

[Le Guin(2012)] Ursula K Le Guin. 2012. The left hand of darkness. Hachette UK.

[Lovelock (2021)] James Lovelock. 2021. We belong to Gaia. Penguin UK.

[Michele-Lee and Manjana (2020)] Moore Michele-Lee and Milkoreit Manjana. 2020. Imagination and transformations to sustainable and just futures. Elementa 8, 1 (2020).

[Monbiot (2021)] George Monbiot. 2021. This Can't be Happening. Penguin UK.

[Orwell (1949)] George Orwell. 1949. 1984 By George Orwell. George Orwell.

[Pinho (2023)] Thiago Pinho. 2023. Tim Ingold and Object-Oriented Anthropology. International Journal of Anthropology and Ethnology 7, 1 (2023), 13.

[Powers (2018)] Richard Powers. 2018. The overstory: A novel. WW Norton & Company.

[Slaughter (2020)] Richard A Slaughter. 2020. Farewell alternative futures? Futures 121 (2020), 102496.

[Suen (2015)] Alison Suen. 2015. The speaking animal: Ethics, language and the human-animal divide. Rowman & Littlefield.

[Wakkary (2021)] Ron Wakkary. 2021. Things we could design: For more than human-centered worlds. MIT press.

[Wyborn et al. (2020)] Carina Wyborn, Federico Davila, Laura Pereira, Michelle Lim, Isis Alvarez, Gretchen Henderson, Amy Luers, Maria Jose Martinez Harms, Kristal Maze, Jasper Montana, et al. 2020. Imagining transformative biodiversity futures. Nature Sustainability 3, 9 (2020), 670–672.

Polymathy as an Anatomic Vision

Humna Naveed

Abstract: In the multi-layered age of the 21st century, imbued with multiplicity and collective access to platforms such as Artificial Intelligence, smart technology, and virtual reality, the concept of expertise, expert skills or knowledge in a particular field, exists as a well-fabricated lie across the design and research disciplines while the collective polymathy is a valuable byproduct of the same. The notion of expertise has broadened to embrace a multiplicity of perspectives, evolving into a transdisciplinary approach that transcends traditional boundaries. Multiplicity and simultaneity are at the core of the current cultural reproduction. A polymath is a real-time manifestation of the concept of multiplicity as a transdisciplinary exercise in design thinking and practice. The hyper-specialization seen in academia can lead to the fragmentation of knowledge, with each subfield developing its jargon, methodologies, and epistemologies. The result is a lack of dialogue between disciplines and the perpetuation of isolated chunks of interdisciplinary practices. The research and design practices of the twenty first century are a manifestation of cultural hybrids that co-exist within a framework of three crucial lenses: Semantics (Cultural, Social, Ecological), Timeline (chronological events), and Technology (mediums, analog and digital). These three lenses manifest themselves as primary tools of cultural reproduction and reflect the intangible thought processes of our current times. Polymathy integrates the concept of cultural hybridization, where it not only blends the collective as well as personal practices of a designer and thinker, but also aids in forming unique cross-pollinated dialogues as a byproduct of synthesis between the two. Polymathy is not merely an intellectual pursuit; it is a creative imperative, a way of thinking that recognises the richness of multiple perspectives and the power of synthesis. The future of design does not lie in specialization but in its expansion, in the embrace of collective polymathy; an approach that transcends disciplines, bringing together knowledge from diverse fields to solve the most pressing challenges from climate change to societal inequality, which are independent of the disciplinary boundaries.

Keywords: Transdisciplinarity, Polymathy, Semantics, Hybridization, Synthesis, Future, Dialogue.

1. Introduction: Groundwork for Polymathy

Claude Lévi-Strauss argued that cultural phenomena are governed by deep-seated structures analogous to the grammar of language, where binary oppositions and interrelated signifiers create a system of meaning (Levi-Strauss, 2008). Expanding on this polemic, it can be viewed that 21st-century research and design practices are operational within a similarly structured framework. In this framework, the three crucial lenses, Semantics, Timeline, and Technology, function as the underlying 'grammar' of contemporary cultural production.

In an era marked by unprecedented access to digital information, rapid technological evolution, and a global exchange of cultural ideas, the classical notion of singular expertise has become an impediment to innovation. Today's world demands that we move beyond the antiquated hierarchies of specialization and embrace a paradigm of collective polymathy as a toolkit for future design practices. The purpose is to trace established epistemologies in linguistic structures and propose an integrative framework that democratizes access to knowledge and celebrates the hybrid nature of contemporary culture and its inclusivity. By tracing the evolution of polymathy through three crucial lenses, this manifesto aims to forge a future defined by interconnectivity, inclusivity, and innovation.

Drawing on the theories of linguistic structuralism by Roland Barthes and Claude Lévi-Strauss, we can argue that twenty first century research and design practices are fundamentally structured like a language, where meaning emerges through the interaction of a set of interrelated signifiers. In Barthes's view, meaning in a text is not inherent but produced by the interplay of signifiers within a cultural system (Culler, 2002).

Similarly, the framework of Semantics, encompassing cultural, social, and ecological dimensions, *Timeline*, the sequence of historical events, and Technology, both analog and digital mediums, operates as a structured language for contemporary design and research. Each lens functions as a signifier that, when combined, constructs a multifaceted narrative of modern practice. This manifesto proposes a polymathic future where knowledge is continuously reconstituted at the intersection of cultural hybridization, semantics, technology, and its relationship with the timeline of cultural

events.

This structuralist perspective reinforces the argument that the research and design practices of our time are not eclectic amalgamations of ideas but are deeply organized systems. They reflect a deliberate, culturally embedded framework where each element contributes to a coherent whole, transforming isolated disciplines into an integrated, dynamic mode of knowledge production that continually redefines itself in response to evolving cultural contexts.

We put forward polymathy as a critical vector for cultural hybridization. Disciplines, artificially demarcated, obscure the interconnectedness of knowledge. The polymath, by traversing these boundaries, disrupts intellectual monocultures. This synthesis of diverse traditions generates emergent cultural forms, challenging stagnant paradigms. Such transdisciplinary engagement, an integrative research approach, fosters a dynamic cultural ecosystem where the cross-pollination of ideas yields novel, hybrid expressions. This article advocates for the deliberate cultivation of polymathic inquiry as a catalyst for cultural evolution and the dismantling of disciplinary hegemonies.

2. The Legacy of Specialization and the Emergence of Polymathy

Historically, knowledge was carefully guarded and transmitted only within closed circles. In the pre-digital era, expertise was synonymous with “sacred knowledge”, a domain restricted to those who had undergone robust apprenticeship or formal education in an exclusive institution. The Industrial Revolution reformed and expanded the landscape for intellectual inquiry by mechanizing the processes of engineering and design. It altered the scale of expertise by increasing its capacity through mechanization and commodification. In his work The Third Wave (1984) Alvin Tofller argues for a new form of intellectual inquiry as a by-product of the industrial revolution, one which is currently traceable and transcending beyond the individualistic learnings and onto a more holistic and systematic approach towards a post-industrial revolution world, as quoted here:

> ‘As we shift beyond Second Wave causal thinking, as we begin to think

> in terms of mutual influence, amplifiers and reducers, of system breaks and sudden revolutionary leaps... we emerge blinking into a wholly new culture, the culture of the Third Wave."'(Toffler, 1984, p. 19))

Within the Anthropocene, the “Third Wave” is the synthesis of diverse disciplines and the emergence of cross-pollination of ideas across seemingly disparate fields (Toffler, 1989, p. 125). Access to the Internet and the concept of accessibility to all in the digital space have further eased the process of cross-pollination and hybridization. The internet paves the way for each of us, trained or untrained professionally or academically, to have access to material to learn anything. With the help of the internet, Google, and YouTube are the new media for teaching in a highly interactive and engaging manner. A person could watch a video, enough times to practice it as a quickly learned skill, be it a skill as meticulous as crocheting, gardening, or learning more complex software and design. The idea of being a "master" in a single domain, once central to fields like design and research, has exponentially expanded beyond a singular disciplinary boundary.

Simultaneously, this rapidly evolving landscape has given rise to a new form of polymathy; a collective ability to navigate multiple disciplines. As these technologies allow for greater access to information and cross-disciplinary collaboration, individuals can now possess diverse skill sets and knowledge often regarded as “self-taught”, even if they are not considered "experts" in the traditional sense. Jean-Paul Sartre defines self-taught as an ‘Autodidact’ (Sartre, 1964), as someone who has gained knowledge primarily through self-education. Today, a polymath is a hybrid by-product of Sartre’s Autodidact; however, unlike its predecessor, a polymath operates as a fluid by-product of our current cultural production.

3. Cultural Hybridization: The Fusion of Tradition and Innovation

Cultural hybridization is at the heart of this reimagined framework (Pasini et al., 2023). It is a process that transcends the boundaries of traditional cultural practices and contemporary innovation. Cultural hybridization is not simply the merging of two or more cultural elements; it is a profound reconfiguration of identity and knowledge. In the context of art, architecture, and design, this fusion enables practitioners to draw upon a vast reservoir

of traditions while simultaneously incorporating the novel influences of modern digital culture.

An architect today may integrate principles from urban ecology, spatial practices, and cutting-edge digital design methodologies. Works by Neri Oxman explore the intersection of biology, material engineering, and design and are manifestations of this hybridization. (Ozin, 2021). Therefore, cultural hybridization advocates for a broader intellectual shift from monolithic modes of thought toward a more pluralistic and integrative understanding of human creativity.

This process of cultural synthesis is particularly crucial in our increasingly globalized society. In a world where ideas and practices flow freely across geographic and cultural boundaries, the ability to navigate and blend diverse traditions becomes an essential attribute of cultural production in a Polymathic Future.

The research and design practices of the twenty-first century increasingly showcase the convergence of cultural hybrids and interwoven influences from a range of fields, histories, and technologies, all coexisting within a framework built on three crucial lenses: Semantics, Timeline, and Technology. They establish a framework for a polymathic vision that facilitates the synthesis of diverse viewpoints, resulting in design practices that are more inclusive, sustainable, and contextually aware. Each of these lenses offers a unique perspective for understanding the evolving nature of design and innovation in today's world. By embracing cultural hybridization, we lay the foundation for a truly inclusive intellectual vision, one that values multiplicity and fosters innovative dialogue among a spectrum of voices.

IV. Semantics: Reconfiguring the Language

Language serves as the vessel for communicating ideas, and its evolution is essential for reshaping our understanding of expertise. Semantics has traditionally belonged to humanities, yet its significance today reaches well beyond literary criticism. In an era where digital media and global communication redefine our interactions, the semantic frameworks we employ must evolve to reflect the fluidity and inclusivity of contemporary thought.

Conventional academic discourse often favors technical jargon and rigid terminologies that, while precise within specific fields, can hinder interdisciplinary collaboration. To navigate these challenges, we must adopt a reimagined vocabulary. This involves letting go of language that isolates and embracing terminology that highlights the dynamic, interconnected nature of Polymathic knowledge.

Steffensen and Harvey (2018) promote an ecological perspective on meaning, arguing that language transcends mere symbolism and represents a dynamic interaction among individuals, society, and the environment. They introduce the concept of distributed language, suggesting that meaning emerges from embodied, social, and ecological interactions. This perspective advocates for an innovative semantic framework that corresponds to the interchangeability between ecology, society, and culture as a prerequisite for understanding the polymathic future.

In the fields of design and research, a revitalized semantic framework allows practitioners to express complex ideas in ways that resonate across various cultural and disciplinary contexts. In Bernard Tschumi's Parc De La Villette, Tschumi redefines traditional architectural meaning by employing deconstructivist and postmodernist principles, where form, function, and meaning are intentionally fragmented (Bernard Tschumi Architects, 1998) and reassembled to enable multiple interpretations.

The park's 'point-grid' system, a series of red follies strategically placed throughout the site, serves as a semantic device that challenges conventional notions of order, movement, and spatial hierarchy. Rather than designing a static, predetermined landscape, Tschumi conceptualized the park as a dynamic, programmatic space where movement, interaction, and transformation are user-defined and become the primary forces of design. This fragmented, polysemic approach challenges architecture and landscape conventional static interpretation. It invites users to experience the space in numerous ways, as the park continuously transforms through the interplay of events and human activity.

By reformulating the language for design thinking, we open to a more democratic exchange of ideas, one that goes beyond the constraints of traditional scholarly silos and reflects the multi-specialized operational

semantics for a polymathic future.

5. Technology: The Catalyst for Democratization and Multisensory Engagement

Bruno Latour (Latour, 1990) defines technology as artefacts that are not merely tools, but enduring manifestations of the social practices, values, and relationships that they embody over time. Modern technology's influence on both the built and natural environments manifests in two significant ways that shape how we think and create as designers and design thinkers. The first impact reshapes our understanding in a more multi-haptic manner rather than a linear sense, giving us the ability to be both present and ‘seeing’ in both real and virtual contexts.

In the eyes of the skin, Juhani Pallasmaa builds a case for visual haptics. ‘Visual haptics’ aligns with the concept of synesthesia, where stimulation of one sensory pathway leads to involuntary experiences in another. Pallasmaa (2024) suggests that the senses are not isolated but interwoven in our perception of the world. This reshaping calls for an understanding of a new medium, which becomes the operating plan for a polymathic future, challenging the status quo and hierarchical boundaries in a more multi-perceptive and multimedia manner.

The second impact alters our ability to reflect the environment into our design practices and the way we create new experiences as a byproduct of simultaneity. Traditional materials like paper, brushes, and canvases now coexist with keypads, tablets, and advanced design software. This convergence has profound implications: it redefines what it means to create and innovate. The polymathic future marries these two impacts in a more hyper-simultaneous manner rather than a niche expertise approach.

“WE FELT A STAR DYING” aims to trigger a transition from our Newtonian habits of interpreting the world to a quantum reality, characterised by its micro-free spirit and entanglement.” - Laure Provoust (LAS Art Foundation, 2025).

Provoust’s work is not an isolated byproduct, but rather a continuation of a series of immersive works as a by-product of current technological

advancements, and although they facilitate transdisciplinary possibilities, they also create an opportunity for a redefinition of design and art practices in the polymathic future.

As Oliver Grau argues in Virtual Art from Illusion to Immersion (2003, MIT Press), the trajectory of virtual art, from ancient illusionistic techniques to contemporary digital immersion, consistently pushes the boundaries of artistic experience, challenging traditional notions of the artwork and its interaction with the viewer. The proliferation of immersive art forms, exemplified by exhibitions such as Provoust's work, is a direct by-product of ongoing technological advancements, particularly in digital projection and interactive media. They redefine the concept of 'Accessibility' in design practices and offer new forms of media that would not have been otherwise possible with traditional tools. The combination of quantum physics, combined with AI models, and Provoust's own artistic and playful approach to the work, explores the possibility of a new form of design thinking, one that is not only transdisciplinary but also creates a potential for unique sensory experiences.

By bridging the digital-analog divide, technology presents a powerful medium through which cultural hybridization and transdisciplinary dialogue can thrive. By uniting digital innovation with the tangible world, technology emerges as the crucible where cultural hybridization and transdisciplinary dialogue are not just enabled but ignited, propelling us toward a future where art, science, and narrative merge into a transformative polymathic vision.

6. Timeline: Chronological Events as Revolutionary Forces

Time is not a mere measure. It is the lens through which our personal and collective identities intertwine. In our manifesto, the concept of timeline is not limited to chronological order; it encompasses the interplay of historical legacy, contemporary innovation, and future potential. Understanding this temporal dimension is critical for reconfiguring our approach towards an expanded polymathic vision.

In his work The Polymath: A Cultural History from Leonardo da Vinci to Susan Sontag (Burke, 2020, 26-46), Burke discusses how the Renaissance,

through the revival of classical knowledge and humanist scholarship, created the conditions that fostered polymathic figures like Leonardo da Vinci. The historical period of the Renaissance and its emphasis on interdisciplinary learning and institutional support for diverse intellectual pursuits enabled the emergence of polymathy as a structured phenomenon rather than an isolated occurrence.

Today, our world is transformed by rapid technological change and global connectivity. The timeline between discovery and application has collapsed, fusing past wisdom with present ingenuity into a potent, transformative force. The current timeline operates at a permutative speed and hence requires an ever-expanding approach to design thinking. The evolution from the twentieth-century isolated genius to the twenty first-century networked intellectual represents a paradigm shift in how knowledge is produced, shared, and transformed. A permuting timeline requires a polymathic response to the constantly evolving, permuted forms of events or approaches towards design thinking.

Our current challenges, such as climate change, inequity, and social fragmentation, demand solutions that draw on the collective wisdom of history as well as the innovative capacity of modern technology. The present is, therefore, a nexus where historical legacies merge with contemporary insights, creating fertile ground for interdisciplinary exploration in the future.

In Refik Anadol's work in collaboration with Julia Baer titled Glacier Dreams (2023), a polymathic vision is manifested as a by-product of the intersection of Climate Research, Ethical Data Collection, and Regenerative AI. The work explores the concept of sampling, a form of 'distributed language' (Steffensen & Harvey, 2018), creating a visual representation of our current challenges and aims to raise awareness around climate change and rising sea levels.

In a polymathic vision, the future is not an abstract eventuality but an active, participatory process, one that evolves through continuous feedback between historical understanding and technologies as an ecological and systematic process. By embracing this temporal continuum, we can develop a framework for collective polymathy that is both adaptive and anticipatory; a model that empowers individuals and communities to shape a more

inclusive and resilient future.

7. Conclusion: Weaving the Strands Together

The forces of cultural hybridization, redefined semantics, transformative technology, and the dynamic continuum of time are mutually reinforcing components of a holistic framework for collective polymathy. Their synthesis enables the dismantling of disciplinary silos and fosters a more inclusive, adaptive approach to knowledge production.

A. Intersecting Cultural Hybridization and Semantics

The fusion of diverse cultural practices with a reconfigured semantic framework creates a discourse that is simultaneously rich and accessible. By developing a language that reflects the complexities of ecological and system-oriented approaches, we can expand on expertise from a scalar lens to help it permeate the concept of transdisciplinarity and collective polymathy. This requires rejection and disengagement from isolated approaches in design thinking that have long separated specialized fields. This re-articulation of meaning is essential for facilitating cross-disciplinary dialogue, ensuring that the diversity of perspectives inherent in cultural hybridization is fully integrated into our collective understanding.

B. Technology as a Bridge Across Time

Technology serves as the engine that propels the synthesis of past, present, and future. It enables the rapid exchange of ideas, compressing the timeline of innovation and fostering a continuous dialogue between historical insight and contemporary creativity. In doing so, technology acts as both a catalyst and connection, a bridge that unites the lessons of the past with the possibilities of the future.

C. A Holistic Model for Modern Design and Research

For practitioners, researchers, and educators, this integrative framework offers a new model of practice. By leveraging the convergent forces of cultural hybridization, refined semantics, advanced technological tools, and a nuanced temporal perspective, we can devise solutions that are as

multifaceted as the challenges we face. We must move beyond isolated academic pursuits and embrace a collective, integrative approach to knowledge. This manifesto is a call to evolve and expand upon the confines of hyper-specialization and to embrace a vision of collective polymathy. By culminating the legacies of the past with the innovative potentials of the present and the future, we can develop a world in which knowledge is not a static commodity but a living, evolving tapestry of ideas.

D. The Baseline for Polymathic Future

In a Polymathic Future, every voice contributes to the dialogue, every discipline informs the whole, and every individual can actively reshape a more inclusive, adaptive, and resilient society. While it is an academically lucrative initiative, the fundamental danger in an approach that emphasises continual reinterpretation is that it may sacrifice the very stability, clarity, and decisiveness necessary for practical innovation. While the ambition to foster a dynamic and evolving knowledge framework is laudable, without anchors, it risks becoming:

- A perpetual intellectual exercise with little real-world application.

- A breeding ground for decision paralysis, where actions are indefinitely postponed.

- A facilitator of fragile outcomes that are not robust enough to withstand the complexities of real-world implementation.

- An encouragement of novelty over utility, fostering environments where the theoretical outpaces the practical.

In essence, while collective polymathy as a framework promises an expansive and inclusive approach to solving complex problems, this same fluidity can undermine the creation of stable, actionable knowledge. For the framework to be truly effective, it requires balancing the creative insights of interdisciplinarity with the need for definitive, reliable, and actionable pathways that can guide practice in complex, dynamic environments.

This manifesto is a baseline framework and can be built upon as an exercise in polymathy and scalar expansion of the concept of transdisciplinarity. It aims to chart out a foundational framework for the readers, and thinkers alike which can be analyzed, built-upon and reframed to expand on the true potential of polymathy as a collective exercise. By acknowledging that design thinking is inherently multifaceted, the manifesto underscores the notion that our perceptions and methodologies can be continuously reinterpreted to foster collective, interdisciplinary innovation. In doing so, it promotes an approach where access to diverse streams of knowledge is democratized, promoting a holistic integration of perspectives that transcends conventional disciplinary boundaries.

This dynamic process, characterised by its ability to adapt and scale, positions transdisciplinarity as a central tenet of Polymathic Future. Ultimately, the manifesto is not a final statement but a call to action that empowers us to continually refine our methodologies, challenge established norms, and embrace an ever-expanding, multi-system oriented approach to knowledge production. By re-orienting our approach to design thinking, we can fully explore the critical tangents of the collective polymathy as an exercise in access and transdisciplinarity. Through this exercise, we aspire to unlock the transformative potential of collective polymathy, paving the way for innovative solutions that are both inclusive and adaptive in an increasingly complex world.

References

Agger, B. (1989). Do books write authors? A study of disciplinary hegemony. Teaching Sociology, 17(3), 365-369.

Bernard Tschumi Architects. (1998). Parc De La Villette. Bernard Tschumi Architects. Retrieved 03 19, 2025, from https://www.tschumi.com/projects/3

Bevan, D. (2015). Permutation patterns: basic definitions and notation. arXiv preprint arXiv:1506.06673.

Burke, P. (2020). THE AGE OF THE 'RENAISSANCE MAN' 1400–1600. In The Polymath: A Cultural History from Leonardo da Vinci to Susan Sontag (pp. 26-46). Yale University Press. https://doi.org/10.2307/j.ctv15pjzh6.7

Cooper, R. (1993). Towards a general semantic framework. Integrating Semantic Theories. ILLC/Department of Philosophy, University of Amsterdam.

Culler, J. D. (2002). Barthes: A Very Short Introduction. Oxford University Press. https://doi.org/10.1093/actrade/9780192801593.001.0001

DeLuca, C. (2013). Toward an interdisciplinary framework for educational inclusivity. Canadian Journal of Education, 36(1), 305-347.

Duffy, B. E. (2010). Empowerment through endorsement? Polysemic meaning in Dove's user-generated advertising. Communication, Culture & Critique, 3(1), 26-43.

Fine, G. A. (2006). Everyday genius: Self-taught art and the culture of authenticity. University of Chicago Press.

Katz, L. (2025, Feb 19). To Understand Quantum Computing, Start By Looking Inward. Forbes. Retrieved March 18, 2025, from https://www.forbes.com/sites/lesliekatz/2025/02/19/prize-winning-artist-unveils-trippy-quantum-installation-made-with-google-scientists/

LAS Art Foundation. (2025, Feb 10). WE FELT A STAR DYING: Digitial

Booklet. LAS Art Foundation. Retrieved march 18, 2025, from https://www.las-art.foundation/explore/we-felt-a-star-dying-extended-guide

Grau, O. (2003). Virtual art: From illusion to immersion. MIT Press.

Latour, B. (1990, may). Technology is society made durable. Sage Journals, 38(01). https://doi.org/10.1111/j.1467-954X.1990.tb0335
Levi-Strauss, C. (2008). Structural Anthropology. Basic Books.

Lindsley, O. R. (1991). From technical jargon to plain English for application. Journal of applied behavior analysis, 24(3), 449.

Milcu, A. I., Hanspach, J., Abson, D., & Fischer, J. (2013). Cultural ecosystem services: a literature review and prospects for future research. Ecology and society, 18(3), 44.

Murphy, K. (2014). R obert B urton and the problems of polymathy. Renaissance Studies, 28(2), 279-297.

Nicolescu, B. (2014). Methodology of transdisciplinarity. World futures, 70(3-4), 186-199.

Northrop, R. B., & Connor, A. N. (2013). Ecological sustainability. CRC Press.

Ozin, G. (2021, May 12). Neri Oxman and the age of “Material Ecology”. Advanced Science News. https://www.advancedsciencenews.com/neri-oxman-and-the-age-of-material-ecology/

Norman, D. A. (2008). The way I see IT signifiers, not affordances. interactions, 15(6), 18-19.
Pasini, E., Garau, R., & Pignatelli, G. (2023). Introduction: Facets of Hybridisation in the History of Ideas. Journal of Interdisciplinary History of Ideas, 11(22), 2-1.

Pallasmaa, J. (2024). The eyes of the skin: Architecture and the senses. John Wiley & Sons.

Refik Anadol Studio. (2023). Glacier Dreams. Glacier Dreams. https://www.glacierdreams.com/

Sartre, J.-P. (1964). Nausea. (L. Alexander, Trans.). New Directions.

Singh, V., Skiles, S. M., Krager, J. E., Wood, K. L., Jensen, D., & Sierakowski, R. (2009). Innovations in design through transformation: a fundamental study of transformation principles.

Steffensen, S. V., & Harvey, M. I. (2018). Ecological meaning, linguistic meaning, and interactivity. Cognitive Semiotics, 5(1-2), 198-225. https://doi.org/10.1515/cogsem-2018-0005

Stone, J. V., Hunkin, N. M., Porrill, J., Wood, R., Keeler, V., Beanland, M., ... & Porter, N. R. (2001). When is now? Perception of simultaneity. Proceedings of the Royal Society of London. Series B: Biological Sciences, 268(1462), 31-38.

Toffler, A. (1984). The Third Wave. Random House Publishing Group.

نچ نی لالی

Fig 1: A digital musing by the author representing the helplessness and desire to break free from a dark pattern

اج فیر میں نچی کنگرو پا کے، شرماں دے سب لیڑے لا کے
نچ نچ کملی ہو گئی میں تے، ویکھ وے بیبا نیڑے آ کے

ویکھ تو میرا رسدا پینڈا، جیڑا نئیں او دسدا تینوں
چمکی گوٹا لال کناری، چمناں اے تو پھیرے پا کے

پھڑنا ہے میری بچی چھاتی، بڑکاں لا کے ست اسمانی
پولے ہتھ نال دل جے پھڑدا، دھوپیندی میں تیری ات جوانی

ہور اک گھبرو اج تو جمیا، سنگی ساتھی دین ودھائیاں
میرے جمن نالو چنگا، مائی تو لیندی لکھ تباہیاں

فیر میں سوچاں جے نا جمدیں، بیبا کیویں خوشی منانداں؟
کیویں دسدا پت میں جمیا، کیویں اپنی خوشی ہنڈاندا؟

چل نی لالی کھل کے نچ لے، نچ لے تیرا کی اے جاندا؟
بیبا خوش اے، دنیا خوش اے، اینج دا ویلا فیر نئیں آندا

نچ نی لالی، کنجری بن کے، چھم چھم کر کے، ٹھمکے لا کے
شرماں دے سب لیڑے لا کے، شرماں دے سب لیڑے لا کے

Nach Ni Laali

The Anguish of Dark Pattern in UX Design

Kazim Ali

Abstract: As a Metacognitive Patterns Intelligence Specialist, my work revolves around understanding the complex ways in which systems, whether digital or social, trap individuals in patterns that appear alluring at first, but ultimately restrict their freedom. This cycle of entrapment is something I have deeply studied, especially in the context of dark patterns in user experience (UX) design. The Roach Motel dark pattern, where users are easily lured into a system but find it nearly impossible to exit, has always been one of my prime concerns.

However, the motivation behind writing this research and poem has not come from theory alone, but from an emotional experience I had one day when I saw a Hijra (Intersex Person) performing. There was something hauntingly beautiful about the performance, yet beneath that vibrant display, I could not shake the feeling of deep emotional pain. As I watched, I could not help but see the entrapment of this performer, who, like so many marginalised individuals, was only able to exist within the narrow confines of societal expectations. The glittering performance she put on was not an expression of freedom, but a reflection of the only role society had allowed her to take on; one that stripped her of autonomy and dignity.

The particular experience led to the ideation of Laali, the character in my poem. Laali, like the Hijra performer I observed, was both trapped by societal expectations and performing her role in a system that restricted her. Her dance, a symbol of joy and celebration, masked a deeper sadness; an emotional burden that I felt mirrored something I had been exploring in my professional life for years, the Roach Motel dark pattern.

As I reflected on the Roach Motel in the context of my practice, I saw how it was not just a digital issue but something that also happens on a cultural level. Both Laali's societal entrapment and the digital entrapment users

experience in the Roach Motel pattern share common traits. The illusion of freedom, the deceptive promises of agency, and the hidden manipulation behind seemingly harmless UX designs or social roles. Just as users in a Roach Motel can easily enter a system but find it nearly impossible to exit, Laali's performance, the façade of celebration offers her no real way out from the confines of a life dictated by others.

This is where my emotional response to the performance of the Hijra and my concern for UX design converged. As a pattern intelligence specialist, I am deeply aware of the social structures that impose invisible yet powerful restrictions on marginalised individuals. Through the lens of UX dark pattern, I saw similar principles in the digital world. The experience triggered an emotional realisation, just as Laali's performance is not liberating, neither are the systems that manipulate users into thinking they have control when, in reality, they do not.

This poem, therefore, became more than just an artistic and poetic expression, it became a way for me to bridge the gap between two domains of entrapment: the societal and the digital. Through Laali's story, I wanted to convey the emotional cost of being trapped in a system that promises inclusion but delivers exhaustion and frustration. Whether in a Hijra's dance performance or a user's interaction with a dark-patterned system, the emotional toll is the same; a sense of powerlessness, a feeling of being controlled, and an exhausting cycle of trying to escape but never truly being free.

This is what motivated me to write the poem. It was not just a theoretical exercise, but an emotional response to the pain of seeing someone trapped in a system they had little control over, whether that system was societal or digital. It was a plea for recognition, for dignity, for the recognition that both individuals and users deserve to have control over their choices, free from manipulative patterns that only serve to entrap.

In the end, the Roach Motel dark pattern was not just a concept to me; it was a mirror of the cyclic entrapment I saw around me, both in digital spaces and in real life. The poem became my way of translating that frustration and empathy into something tangible, something that could speak to both the emotional weight and the systemic forces at play in our lives, whether in

society or online.

The Roach Motel Dark Pattern and the Allegory of Laali: Bridging Digital and Cultural Entrapment

The Roach Motel dark pattern is characterised by an easy entry into services but a convoluted and emotionally taxing exit serves as a potent metaphor for how digital design can exploit power imbalances, leaving users frustrated, disillusioned, and emotionally drained. This research draws on the allegory of Laali, a Hijra dancer caught in the societal stereotypes surrounding gender nonconformity, to explore the profound parallels between cultural and digital entrapment. Laali's external celebration masks her internal pain over a restrictive identity, paralleling the emotional turmoil of users navigating manipulative designs, where frustration, betrayal, helplessness, and exhaustion converge.

The Roach Motel pattern, in its essence, reflects disempowerment by rendering users helpless in a cycle that only becomes evident after they have entered the system. In a similar vein, Laali's life exemplifies a deeper social entrapment: despite her visible celebration and participation in her community, her identity is defined and restricted by societal norms and expectations placed upon her as a transgender individual.

This allegory invites reflection on how both digital and cultural structures manipulate identity, leaving individuals unable to fully exercise autonomy. Both Laali and users trapped by the Roach Motel pattern are led to believe that they are in control, only to find themselves ensnared in a web of constraints.

Verse-by-Verse Analysis of the Poem: Connecting the Digital and Social Entrapment

The poem, through its vivid imagery and poignant emotional expression, encapsulates the emotional toll of societal and digital entrapment. Each verse of the poem ties into the themes of dignity, awareness, and empathy, while paralleling the Roach Motel dark pattern and the Hijra experience of Laali.

First Verse: External Celebration, Internal Conflict

اج فیر میں نچی کنگرو پا کے، شرماں دے سب لیڑے لا کے
نچ نچ کملی ہو گئی میں تے، ویکھ وے بیبا نیڑے آ کے

This verse opens with Laali dancing, a performance meant to celebrate her role in society. However, her dance, though an outward display of joy and acceptance, hides her internal conflict. She is trapped within the stereotypes imposed upon her by society. The metaphor of the Roach Motel comes into play here, as Laali's external celebration mirrors the enticing nature of digital services that draw users in. Yet, just as users are led into a system that becomes difficult to exit, Laali's public role limits her autonomy, reflecting the emotional burden of entrapment.

- *Dignity and Awareness: Laali's performance represents the lack of dignity experienced when marginalised groups are only validated when performing to societal expectations. This external validation does not offer the same internal freedom, paralleling how users feel manipulated when engaging with digital systems that promise ease but withhold autonomy.*

Second Verse: The Illusion of Empowerment

ویکھ تو میرا رسدا پینڈا، جیڑا نئیں او دسدا تینوں
چمکی گوٹا لال کناری، چمناں اے تو پھیرے پا کے

In this verse, Laali references the physical ornamentation that signifies her place in society, external adornment that hides deeper, unspoken constraints. This mirrors how digital platforms, through attractive interfaces, create an illusion of empowerment for users. The Roach Motel pattern entices users with attractive offers but obscures the difficulty of leaving the system.

- *Empathy and Emotional Toll: The poem emphasises the emotional weight of carrying societal expectations, just as users face the emotional toll of navigating restrictive digital systems. Both Laali and users are trapped*

by the allure of a system that denies them the power of true choice and control. The use of the 'red border' as a metaphor for the restriction contrasts with the aesthetic allure, reflecting how manipulative systems offer a false sense of agency.

Third Verse: The Powerlessness of Being Trapped

پھڑنا ہے میری پچی چھاتی، بڑکاں لا کے ست اسمانی
پولے ہتھ نال دل جے پھڑدا ، دھوپیندی میں تیری ات جوانی

Here, Laali's internal struggle is brought to the forefront. The metaphor of her chest and heart being trapped within societal restrictions reflects how individuals experience an emotional burden, one that is not easily seen but deeply felt. The reference to 'heavenly stars' points to a sense of something unattainable, much like users who see digital systems as promising, yet never fully accessible or truly empowering.

- *Emotional and Psychological Costs: This verse captures the psychological cost of being trapped in a system that is outwardly appealing but internally stifling. Both Laali and users endure emotional exhaustion—Laali in the form of internalized pain and societal rejection, and users through frustration and helplessness. This reflects the emotional toll discussed in both digital entrapment (Luger et al., 2013) and marginalised cultural identities (Hossain, 2017).*

Fourth Verse: The Question of Empowerment and Identity

ہور اک گھبرو اج تو جمیا، سنگی ساتھی دین ودھائیاں
میرے جمن نا لو چنگا، مائی تو لیندی لکھ تباہیاں

This verse contrasts Laali's experiences with those of a 'conventionally acceptable' man ("gabroo"), who embodies the societal norm. The contrasting images of validation and rejection reflect the duality of inclusion, Laali's apparent inclusion is only surface-level, while the man's 'blessing' represents societal privilege and power.

- Dignity and Societal Entrapment: The man's 'acceptance' contrasts

sharply with Laali's exclusion, reflecting how marginalised individuals are caught in systems that perform inclusivity but uphold exclusionary structures. This mirrors digital platforms that offer the illusion of inclusion and freedom but are built on structures that limit true autonomy. The idea that her birth (and identity) is seen as less valuable shows the dignity deficit that marginalised communities face.

Fifth Verse: The Dilemma of Social and Digital Manipulation

فیر میں سوچاں جے نا جمدیں، بیبا کیویں خوشی منانداں؟
کیویں دسدا پت میں جمیا، کیویں اپنی خوشی ہنڈاندا؟

In this verse, Laali references the physical ornamentation In this verse, Laali reflects on the contradictions of social existence and how her identity, despite being tied to societal celebration, brings her no true happiness or freedom. This echoes the frustration users feel when trapped by dark patterns, where their digital experiences seem to promise satisfaction but result in dissatisfaction and manipulation.

- *Empathy and Awareness: Laali's reflection mirrors the internal conflict users face when engaging with digital platforms that exploit their time and emotions. The realisation that one's presence is required for the system's gain, but not for personal fulfillment, highlights the absence of authentic empowerment.*

Final Verses: A Call to Freedom and Liberation

چل نی لالی کھل کے نچ لے، نچ لے تیرا کی اے جاندا؟
بیبا خوش اے، دنیا خوش اے، اینج دا ویلا فیر نئیں آندا

نچ نی لالی، کنجری بن کے، چھم چھم کر کے، ٹھمکے لا کے
شرماں دے سب لیڑے لا کے، شرماں دے سب لیڑے لا کے

The final verse calls for Laali to dance freely, suggesting a break from societal confines and the manipulation of public performance. This moment of potential liberation represents the ideal shift that needs to occur—whether in societal structures or digital systems. The reference to 'this moment will not return' emphasises the urgency of change, where both Laali's societal entrapment and digital users' experiences require a break from manipulation.

- *Reframing Digital and Cultural Systems: This verse calls for freedom and liberation from the constraints imposed by both social and digital systems. The plea for genuine agency mirrors the call for ethical UX design that prioritises user autonomy, transparency, and emotional well-being (Gray et al., 2018). It aligns with the broader theme of breaking stereotypes and creating systems of inclusion, rather than entrapment.*

Each verse of the poem reflects a different aspect of entrapment, whether societal or digital, through the lens of Laali's experience. The poem's vivid imagery of external celebration masking internal pain, societal constraints, and the longing for freedom all connect deeply with the experiences of users trapped by dark patterns like the Roach Motel. Just as Laali's dance offers a public semblance of happiness but hides a deeper emotional burden, users too may find themselves drawn into digital systems that offer enticing services but conceal emotional and psychological costs.

By analysing the poem in conjunction with these themes, we can understand the emotional toll and psychological costs of both digital and cultural systems of entrapment. The call for dignity, awareness, and empathy in the final verses reflects the overarching argument of this research: both digital and societal systems must evolve toward greater emotional equity, ensuring that they empower rather than exploit.

The Roach Motel as a Digital and Social Phenomenon

UX Entrapment: The Roach Motel Dark Pattern

Dark patterns are designed to prioritise business objectives over user welfare. The Roach Motel pattern, specifically, restricts users from leaving digital systems easily, whether through labyrinthine navigation structures, hidden cancellation buttons, or misleading opt-out processes (Mathur et al.,

2019). Such practices create power imbalances where users feel trapped, disrespected, and manipulated (Luger et al., 2013). The emotional impact of this manipulation, frustration, betrayal, and exhaustion resonates with broader experiences of systemic disempowerment.

Societal Entrapment: The Case of Laali

Hijra communities in South Asia occupy a paradoxical space, celebrated in certain rituals yet ostracised in everyday social structures (Reddy, 2005). Laali's dance symbolises an externally accepted role, yet she remains confined by societal expectations and lack of real autonomy. This mirrors how digital interfaces perform inclusivity while enacting hidden restrictions. Users, like Laali, find themselves lured into a system that promises agency but delivers entrapment.

While Laali's performance brings social validation, it does not enable her escape from imposed identity constructs. Similarly, the Roach Motel pattern provides users with enticing services but limits their control over their digital choices. This duality raises crucial questions: Are users truly empowered in digital spaces, or are they subjected to invisible yet powerful design constraints? Are marginalised communities genuinely included in societal frameworks, or is their participation a structured illusion?

Emotional and Psychological Costs of Entrapment Disempowerment and Emotional Toll

Research on dark patterns highlights their ability to induce cognitive load, frustration, and a diminished sense of control (Luger et al., 2013; Gray et al., 2018). Users subjected to Roach Motel tactics report feelings of exhaustion, similar to how marginalised individuals experience social constraints that limit their agency (Hossain, 2017). The emotional burden of constantly navigating restrictive systems, whether digital or cultural, is an underexplored aspect of both UX and social identity research.

Trust and Ethical Design Considerations

Both digital and societal entrapment erode trust. When users encounter deceptive design tactics, they develop skepticism toward platforms (Mathur et al., 2019). Similarly, when marginalised individuals recognise

the limitations of performative inclusion, they become wary of societal structures that claim to offer empowerment. Ethical design, therefore, must extend beyond functionality to acknowledge and mitigate these emotional costs (Gray & Chivukula, 2019).

Dignity, Awareness, and Empathy: A Broader Ethical Lens

Incorporating the themes of dignity, awareness, and empathy into this analysis calls for an ethical reimagining of both digital and cultural systems. Laali's struggle to assert her dignity within a restrictive societal framework parallels the challenge of digital users fighting for dignity and autonomy in the face of manipulative designs. As digital systems become increasingly pervasive, the erosion of user dignity is a growing concern, as is the lack of empathy in design practices. Ethical design demands more than just functional efficiency; it requires an awareness of the emotional labor and cognitive load users endure when trapped by dark patterns (Binns, 2018).

Dignity in the context of digital design is about providing users with the freedom to make informed choices, and involves ensuring that the decisions they make are respected. Users are not mere subjects to be manipulated for commercial gain, they are individuals whose emotions, autonomy, and dignity deserve protection. Similarly, Laali's dignity is often compromised by the external forces of society, where her worth is defined by narrow, stereotypical views of gender and identity (Butler, 2004). Her ability to assert her own identity is constrained by these societal norms, which mirror the ways in which users' digital identities and choices are often circumscribed by manipulative interface designs.

Awareness plays a key role in both Laali's experience and the digital user experience. Just as Laali's awareness of societal expectations shapes her actions, so too does a user's awareness (or lack thereof) of dark patterns shape their digital interactions. Empowering users with knowledge about these design tactics is crucial for fostering an environment where they can act autonomously and with full understanding. Similarly, raising awareness within the design community about the ethical implications of dark patterns is essential for mitigating their harmful effects (Svensson & Sohlberg, 2019).

Finally, empathy is a core principle that should guide both cultural and digital

systems. Understanding the emotional toll that users and marginalised individuals like Laali experience in constrained environments leads to an inclusive, respectful, and ethical approach to design. Empathetic design practices, which prioritise user well-being, can prevent manipulation and instead create spaces that respect individual autonomy and foster positive emotional engagement (Norman, 2013).

Rethinking UX: Toward Emotional Equity in Design

This research calls for a shift in UX design, emphasisingtransparency, user autonomy, and emotional well-being. Just as Laali's story highlights the need for authentic societal inclusion rather than performative visibility, ethical UX needs to prioritise genuine user control over manipulative retention strategies. Integrating emotional equity into design frameworks can ensure systems empower rather than entrap, creating digital spaces rooted in trust, respect, and empathy (Gray et al., 2018).

Final Thoughts: Empowerment through Ethical Design

Through the lens of Laali's duality, this research advocates for breaking both cultural and digital stereotypes to create systems that empower rather than entrap. This piece of analysis demonstrates that the Roach Motel dark pattern, much like the societal restrictions placed on Laali, operates on the premise of entrapment and disempowerment. By integrating emotional equity into design, prioritising transparency, user autonomy, and inclusivity, we can reshape digital landscapes to foster environments where users, like Laali, are free to express their identities and navigate their experiences without the invisible emotional burdens of manipulation and exploitation.

Conclusively, this work emphasises the urgent need for design ethics to transcend mere functionality and to address the deeper human values of trust, respect, and empathy in an increasingly digital world. The future of user experience design lies in systems that are efficient and equitable allowing users to thrive in their digital lives without being emotionally harmed or disrespected. It is crucial that designers, developers, and organizations embrace an ethical framework that centres on human well-being.

This includes prioritising transparency, minimising manipulation, and fostering meaningful user empowerment. By embedding ethical

considerations into the design process, we can create experiences that serve users' immediate needs and contribute positively to their long-term digital journeys, ensuring technology serves as an enabler of human potential rather than a source of harm.

References

Binns, A. (2018). Dark patterns: Deceptive user interfaces and the ethics of design. Interaction Design Foundation. https://www.interaction-design.org/literature/article/dark-patterns-deceptive-user-interfaces-and-the-ethics-of-design

Butler, J. (2004). Undoing gender. Routledge.
Gray, C. (2018). The ethics of UX design: A critical approach. Journal of Design History, 31(2), 122–135. https://doi.org/10.1093/jdh/epy013

Gray, C., & Chivukula, K. (2019). Ethical UX: Beyond dark patterns and towards emotional equity. Journal of User Experience Design, 22(4), 39–51.

Hossain, S. (2017). Social exclusion and marginalization: The Hijra experience. South Asian Review, 41(1), 53–67. https://doi.org/10.1080/02759527.2017.1284307

Luger, E. A., Huh, J., & Paterno, E. (2013). Dark patterns in user interfaces: Psychological and cognitive impacts. ACM CHI Conference on Human Factors in Computing Systems, 1739–1748. https://doi.org/10.1145/2470654.2466225

Mathur, A., Aza, A., Luger, E. A., & Iqbal, M. (2019). Dark patterns at scale: Findings from a crawl of 11,000 shopping websites. Proceedings of the ACM on Human-Computer Interaction, 3(2), 1–32. https://doi.org/10.1145/3287328.3287342

Norman, D. (2013). The design of everyday things. Basic Books.

Reddy, G. (2005). With respect to sex: Negotiating Hijra identity in South India. Intersections: Gender and Sexuality in Asia and the Pacific, 11(1), 1–24. https://doi.org/10.16953/deusbed.59622

Svensson, A., & Sohlberg, S. (2019). Empathy in design: Integrating human values into user experience. Design Issues, 35(2), 45–59. https://doi.org/10.1162/desi_a_00604 misleading opt-out processes

(Mathur et al., 2019). Such practices create power imbalances where users feel trapped, disrespected, and manipulated (Luger et al., 2013). The emotional impact of this manipulation, frustration, betrayal, and exhaustion resonates with broader experiences of systemic disempowerment.

Exploring Human-Technology Entanglements: Collaborative Design of Intimate Technologies

Michaela Honauer, Malou Beemer, Emil F.J.P. Gravier, Dennis Massar, Laisvie A. Ochoa Gaevska, M. Birna van Riemsdijk.

Abstract: The DiscReTe project (Disconnections and Relationships mediated through Intimate Technologies) explores how technology can support communication, boundary-setting, and interaction management for diverse communication needs. It represents a modern polymath approach—not embodied in one individual, but in a collaborative, interdisciplinary team. This diverse group includes a computer scientist, design researcher, wearable integration designer, engineer, choreographer, performer, and an individual whose personal experiences of social and communication challenges serve as the core inspiration for the project. Together, they blend their unique expertise to create an AI-enabled wearable that demonstrates the concept of intimate computing—an approach to the development of digital technologies which starts from their interwovenness with people in their daily lives.

The project leverages the distinct perspectives and skills of its members to design a wearable that supports individuals with diverse communication needs. The wearable is a conceptual prototype which uses air for subtle interpersonal communication. It aims to facilitate social interactions and enhance self-expression through context-aware, nuanced interactions. Central to the team's approach is the incorporation of participatory methods and creative disciplines, such as using dance as a medium to explore and showcase technology-mediated connection and the interplay between human vulnerability and technology.

In this paper, we elaborate on the interdisciplinary, artistic-led design process that fueled the DiscReTe project. Special emphasis is placed on visuals, including photographs, to detail the design journey. These images serve not just as documentation but as a narrative tool to illustrate the

convergence of technical, artistic, and human-centered practices, offering insights into the team's collaborative process.

This collaboration demonstrates the power of interdisciplinary teams in addressing complex societal challenges. By integrating engineering, design, and performing arts, the DiscReTe project goes beyond functional requirements to create technologies that foster connection, empathy, and inclusion. Grounded in a personal narrative, it highlights how intimate computing can reshape communication and relationships, offering innovative solutions to diverse human needs.

Keywords: Transdisciplinary Design, Intimate Computing, Wearable Technology, Artistic-Led Design, Technology Mediation

1. Introduction

Communication is fundamental to human interaction. However, social standards and norms in communication pose many challenges for people with diverse communication needs. This may concern, for example, people who are unable to display 'regular' social signals or express their needs and boundaries in social interactions due to a disability. Designing solutions that address such diverse communication needs beyond social standards and norms requires a careful approach to develop ideas that facilitate self-expression and boundary-setting, but also foster meaningful, context-sensitive interconnections. This complexity makes the topic challenging but also interesting for transdisciplinary research in which several fields come together to tackle the problem from different perspectives.

The DiscReTe project (Disconnections and Relationships mediated through Intimate Technologies) embraces this challenge by involving knowledge and methods from costume design, physical computing, choreography, contemporary dance, design research, computer science, and philosophy of technology. Instead of a sequential approach, where one discipline builds on the work of another, we focus on simultaneous collaboration. This project is an example of a model in which team members work together as equals from the outset to integrate their expertise into a shared vision.

Our collective process is rooted in the belief that the modern polymath is

no longer a singular individual unifying diverse knowledge domains, but a transdisciplinary team working collaboratively. By leveraging insights from each discipline, our team created a wearable demonstrator and accompanying dance performance that artistically explore alternative ways of communicating while shaping an understanding of adaptive and responsible human-technology partnerships.

This article elaborates on the DiscReTe project's design research journey, highlighting how a transdisciplinary approach determined the creative process and outcomes. We begin by introducing our conceptual framework and methodological approach, followed by an overview of our design journey featuring the team's pluralistic perspectives. We then introduce the research outcomes consisting of a wearable prototype and an accompanying dance performance. Finally, we conclude with reflections on the potential of transdisciplinary collaborations to address complex societal challenges and foster innovative technological solutions.

2. Conceptual framework and goals

The DiscReTe project is rooted in the emerging research field of Intimate Computing, by focusing on AI-enabled wearable technologies explore technology mediate relationships through embodied-performative methods.

2.1 Intimate Computing

Intimate Computing is an emerging research field (Van Riemsdijk, 2018) which studies how to shape the interwovenness between people and Intimate Technologies in their daily lives such that they foster a caring and inspiring digital society. Intimate Technologies (Van Est et al., 2014) may be defined as those digital technologies that collect and respond to people based on highly personal data—for example social media, personal health and fitness apps, mobile location sharing applications, smart home systems, social robots, and wearable technologies.

These technologies are characterised by being closely intertwined with our everyday lives, our bodies, and behavior. In this way, Intimate Technologies have the potential to promote important personal values such as enjoyment, health and social connection. However, through collection of personal data

and AI-enabled personalized responses they also give rise to new personal vulnerabilities (Coeckelbergh, 2013) that can affect physical, psychological and social aspects of our identity (Van Riemsdijk, 2018). Intimate Computing research aims to develop design methods and computational models for creating Intimate Technologies that align with personal values and take into account personal vulnerabilities in supporting people in their daily lives.

The DiscReTe project artistically explores the concept space of wearable technology as a way to augment the interaction abilities of people with diverse communication needs, aiming at mediating and fostering social connection in their daily lives. The conceptual idea explored is that the technology's actions would be shaped through a partnership between socially-aware AI (Kola et al., 2022) embedded in the technology, and the human wearer.

2.2 Mediated relationships

The concept of mediated relationships captures how technologies actively shape human connections and interactions (Verbeek, 2015). Historically, technologies were seen as passive tools, embodied in our environment (Dourish, 2002) and with humans as the active part that controls them (Schmidt, 2000) and can be emotionally attached to them (Karapanos et al., 2009).

However, latest understandings of technologies acknowledge their agency, which means technologies mediate how humans engage with the world and can influence perceptions, behaviors, and social interactions (Giacchardi & Redström, 2020). Such post-phenomenological views recognise that technologies co-construct realities and mediate human-world relations (Frauenberger, 2019) by shaping decision-making, behavior, moral frameworks (Verbeek, 2005), and the human-sense-making process (Kudina, 2021).

In this research, we focus on the human–technology partnering process and explore how this collaboration affects communication with other humans (human–human relation). We have a particular focus on individuals with diverse communication needs, such as the inability to express through verbal or sign language. By understanding how wearable technologies

mediate these interactions, we aim to identify ways in which adaptive technologies can bridge social communication gaps and foster nuanced and balanced connections between humans. The DiscReTe project, however, is not developing practical or assistive wearable technology, but aims at artistically exploring directions.

2.3 Interactive costumes and ‘Designing through Dance’

Previous research has suggested using dance and performance metaphors to describe how technology impacts human behaviour and interaction (Coeckelbergh, 2021). This dynamic and complex understanding of human-technology entanglements. Moreover, dance has proven to shape de-colonialistic research approaches that successfully investigate relationships humans build with non-human entities (Rijssenbeek & Fraaije, 2025). In addition to understanding dance as a descriptive metaphor and research method, create a dance performance that serves as stimulus for the public discourse about the core ideas of Intimate Computing.

Our idea is to explore Intimate Technologies through an interactive costume, i.e. a stage costume that integrates wearable technology (Honauer, 2017). The potential of interactive costumes lies in the expressive and narrative possibilities that extend and innovate traditional costume design (Pantouvaki, 2014). The integrated technology can thereby act as a facilitator or inspiration for alternative ways to express or move (Karpashevich et al., 2017), without relying on standards or habits. However, we did not start from a concrete wearable concept idea in the DiscReTe project. Instead, our goal was to develop and realise the wearable concept throughout the collaboration with an interdisciplinary team and continuous engagement with dance practice.

3. Methodological approach

The DiscReTe project adopts a transdisciplinary and co-design approach, leveraging expertise from diverse disciplines to explore human–technology partnerships in innovative ways. Inspired by rather radically participatory approaches (Udoewa & Gress, 2023) that suggest to decolonise the whole design process, we aim at systematically exploring together what mediated relationships are and co-ideate as an interdisciplinary team

the wearable ideas, to learn together how Intimate Computing could sustainably and meaningfully facilitate human-technology partnerships. The methodology emphasises collaboration on eye-level, where different disciplinary perspectives are integrated throughout the ideation, design, and development process.

3.1 Artistic-led and transdisciplinary design research

Dance and performance play a pivotal role in the project as both a design tool and a means of dissemination. ‘Design through Dance’ serves as a creative embodied approach of exploring human–technology relationships. This approach uses movement and choreography to investigate relational dynamics between humans and/through technologies. It offers a unique lens through which to understand vulnerability, connection, and the nuanced interplay between technology and human communication.

The core team (all authors) composition reflects the transdisciplinary nature of the project. It includes a computer scientist, a design researcher, a wearable integration designer, a student creative technologist, a choreographer who also acts as performer, and another performer. Each member brings unique expertise to the table, but the transdisciplinary nature of the project enables them to contribute to tasks outside their traditional roles. For example, engineers engage with artistic concepts, while performers provide insights into technical functionality. This collaboration creates a space where expertise merges, tasks are co-owned and an integrated design process emerges to collectively create a wearable and a performance.

3.2 Reflective design through personal and ethical insights

The DiscReTe project was informed by a real-world case study, centered on an individual with diverse communication needs, being often restricted in verbal and non-verbal expressivity due to recurring muscular tension. This person experiences muscular issues, which significantly impact their daily functioning. Their lived experiences were explored through interviews (Fig. 4) and a cultural probe (Fig. 2 and 3) conducted before the ‘Design through Dance’ process.

This pre-investigation offered key insights into the challenges of

communication, boundary-setting, and vulnerability when unable to operate conventional norms of social communication due to physical impairment. While not directly involved in the design process, this individual was later regularly consulted to reflect on the progress and emerging ideas. In completion to the team's expertise, these reflections co-shaped the design of the wearable prototype and performance.

In addition to the case study, the project also benefited from a deaf performer on the team, who uses a cochlear implant. He holds a valuable first-person perspective that often faces unique communication challenges in a world designed for hearing persons. Through his participation, his unique perspective has constantly and automatically influenced the design process while equally taking into account the other team members' perspectives.

4. Design journey

To better understand the perspective and contribution of each discipline, and how the team effectively built synergies to create the wearable demonstrator as well as the dance performance, we asked the choreographer-performer, the performer, the wearable integration designer, and the creative technologist to answer some questions about how they perceived the design process and value their contribution to the research project. Their original answers can be found in a data set linked here: http://doi.org/10.4121/86297241-db14-4b9f-802c-f668b2fe7d31

We started by making everyone's role transparent by asking, "Can you describe your role in the DiscReTe project and how your expertise contributed to its development?" Each team member played a distinct but collaborative role in the DiscReTe project: the choreographer-performer led movement research and choreographed a final piece; the performer, a deaf dancer, shared valuable lived experiences with wearables; the wearable integration designer combined expertise in tech, costume design, and dance; and the creative technologist built and programmed the wearable electronics, expanding on prior technical knowledge.

Overall, we collaborated over a period of around eight months (Fig.1). This time was characterised by both remotely and in-person sessions. The design researcher, wearable integration designer and creative technologist

had regular meetings to stay in close collaboration and keep everyone updated. Dedicated co-design workshops were spread over four months where the choreographer and the performer joined the other team members to contribute actively to the design process and impact important design decisions. After the wearable design was alm»nmost finished, it underwent smaller refinements during and between the rehearsals in the last month before we presented the artistic and designerly outcome of the project to a public audience for the first time.

4.1 Insights from the case study

The case study of an individual who experiences psychosomatic muscular issues with significant impact on their daily functioning informed the development of the DiscReTe wearable and performance. Their symptoms cannot be attributed to a specific clinical picture. The resulting muscular tensions cause significant mobility limitations and other limitations in physical and social expression, as well as increased sensitivities to stimuli. Through a cultural probe (Fig. 2 and 3) and interviews (Fig. 4) with this individual, we better understood how physical limitations and restricted communication ability challenge daily interactions. Key findings highlighted the need for a wearable that aligns with physical abilities while enabling subtle, yet nuanced, interactions without disempowerment. Additionally, managing social expectations, maintaining relational boundaries, and dynamically adapting to different social situations. Addressing them through the concept design of a performative wearable demonstrator was the starting point of the DiscReTe project.

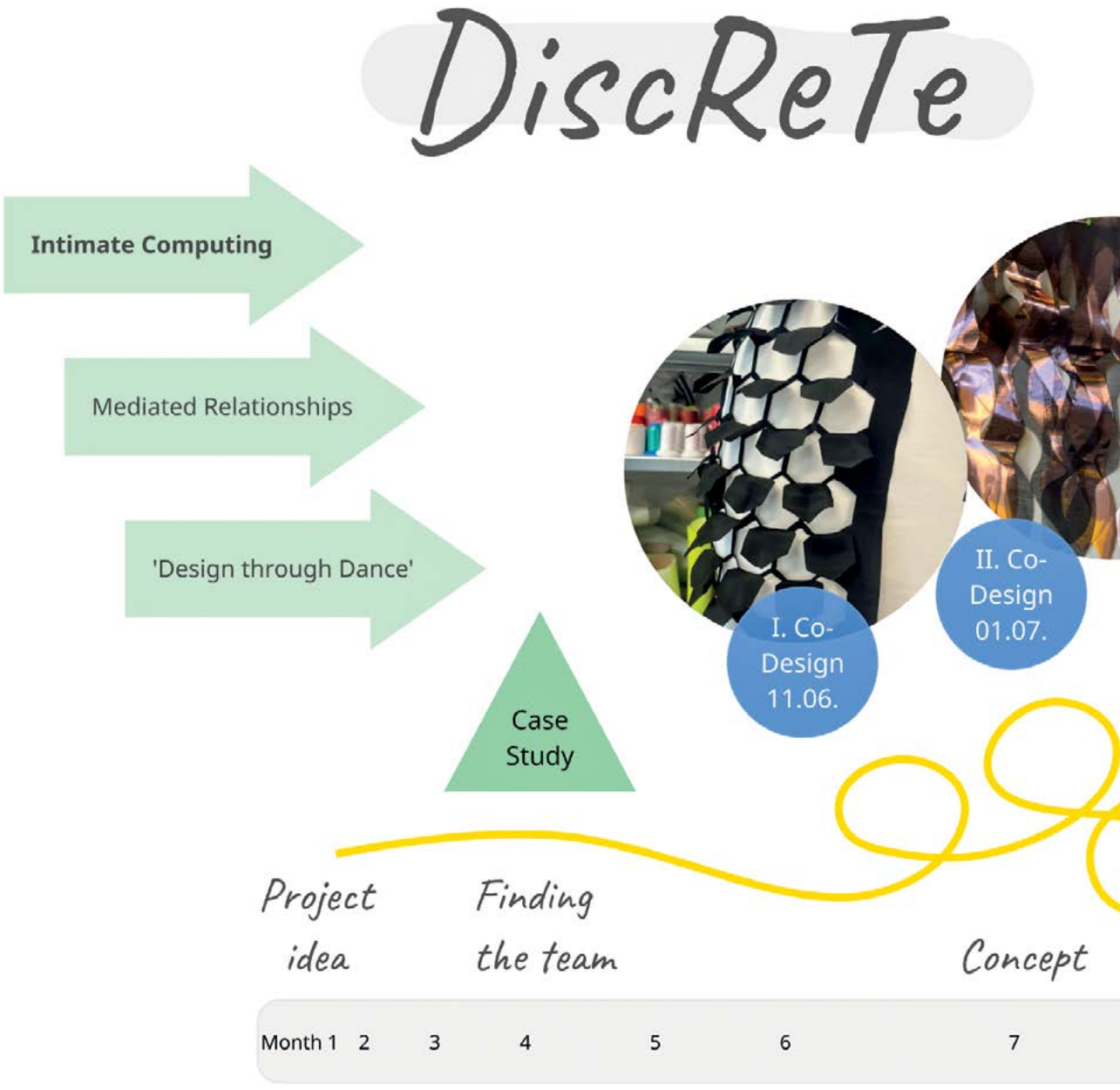
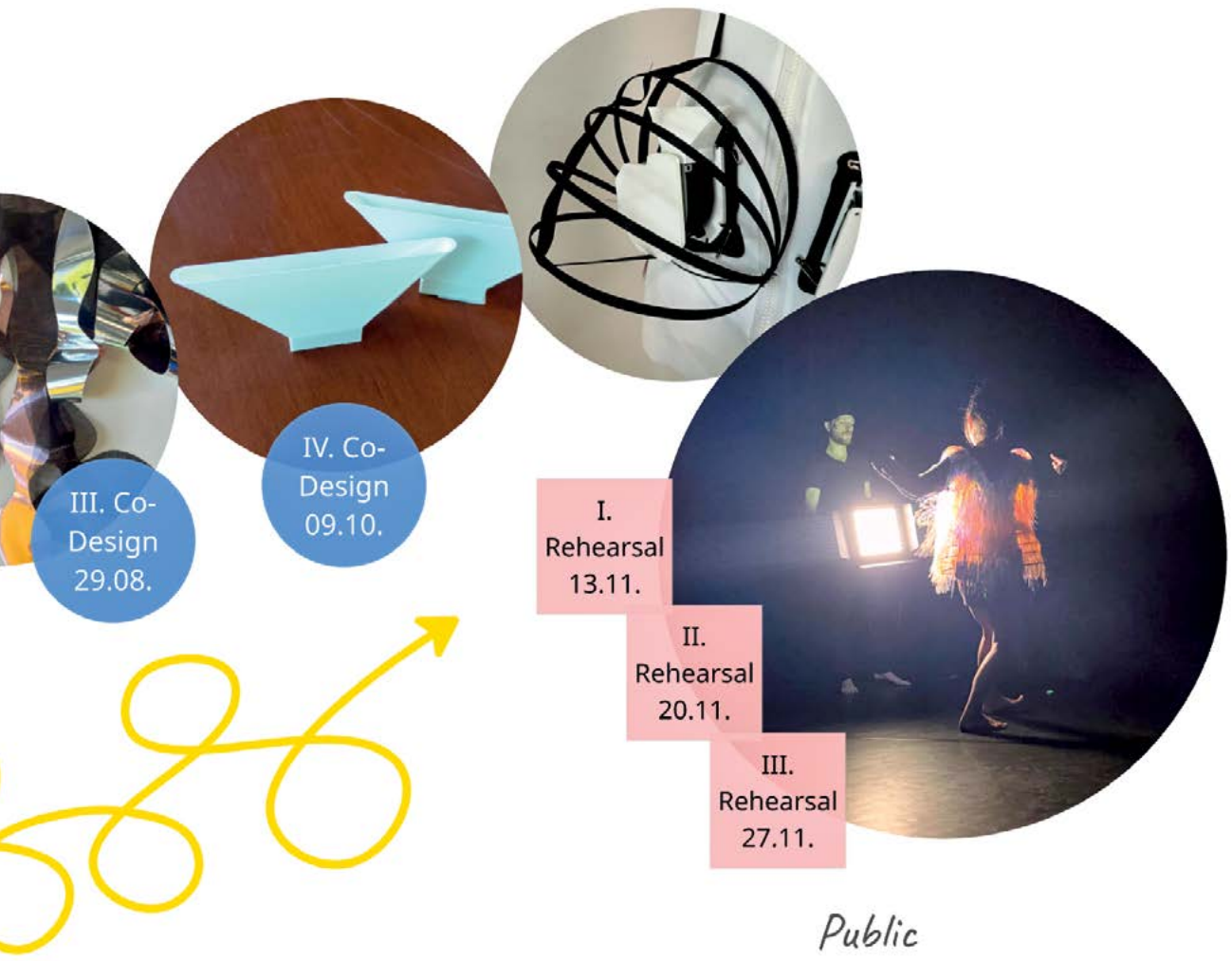


Fig.1. Visualisation of the temporal process, from initiating the project to premiere of the performance, including 4 co-design sessions and the rehearsal period.



Wearable prototype

Public performance

8 9 10 11 12

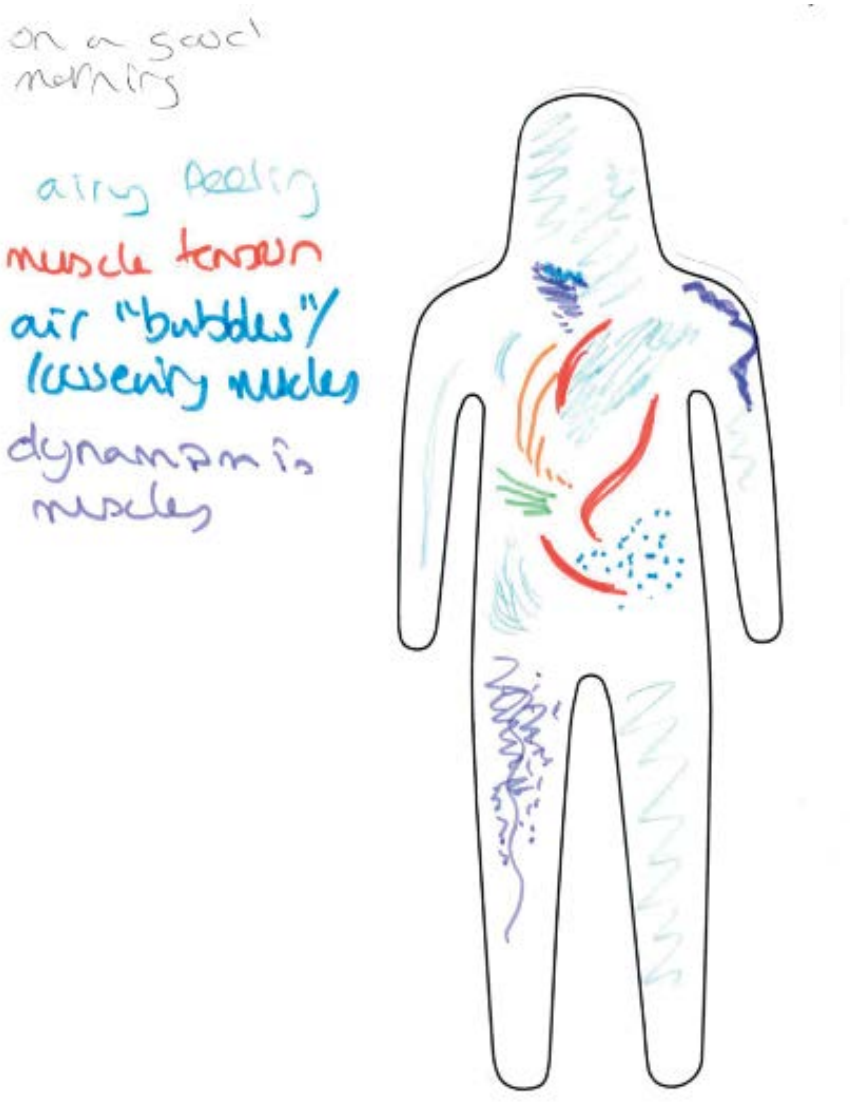


Fig. 2: Body-map on a good morning

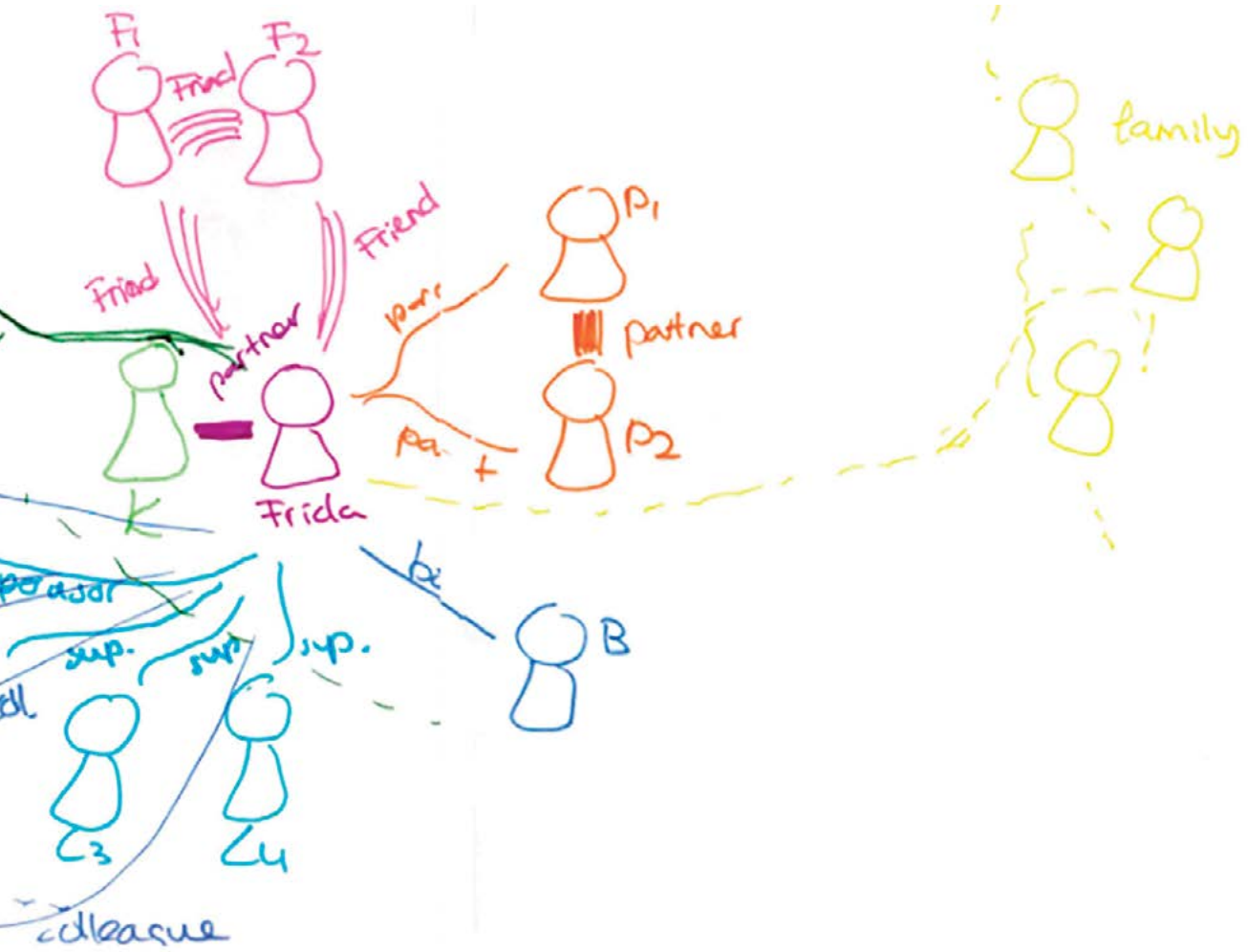


Fig.3: Visualisation of the personal network

Fig. 4: Excerpts from the interviews: reflecting about encounters with strangers and family

0:41:55

Interviewee

Mm hmm. Yeah. One of the strangest things is interacting with strangers that they because I if I don't move, let's say normally, then they think I'm also mentally not, yeah, capable or fully like, if I'm, I have cognitive disability.

...

0:48:05

Interviewee

Yeah, I think that is really a challenge I think. Mostly I think in face to face interactions. ... Yeah, there are always social expectations of what it means to behave in a normal way and how social cues are interpreted. Like I had a situation also with my mom, where I was looking at my phone, but it wasn't because I didn't want to talk to her, but because looking at my phone kind of kept me physically in balance. And there was a lot going on in my body, so it was very hard to both communicate with her and then also deal with the physical stuff. So, I was looking at my phone just to, to manage everything, just to have a focal point, a physical focal point. [laughs] But then yeah, there is a remark like, hey, be social and I'm like, I'm not looking at my phone because I like to or because I'm not social, but just because I have a lot to manage that that I cannot express or explain at the very least not in that moment. Yeah. So that makes it very hard because at the moment's where you most need to explain yourself are usually the moments where you can't.

4.2 Co-designing the wearable prototype

The design researcher and the computer scientist briefed the team on the case study's key findings. They set the goal to explore artistically how such diverse needs can be addressed by an intimate wearable, without specifying any concrete features yet. Then, over the next months, we had a lot of individual team meetings.

A series of four co-design workshops with the whole team played a crucial role in shaping the DiscReTe wearable concept idea, allowing for an embodied exploration through dance. Each session provided key insights into how movement, body language and touch, material properties, and technological features influence social dynamics between two individuals, and shaped the development of the DiscReTe concept prototype.

First CO-DESIGN WORKSHOP:
What does (dis)connection means?

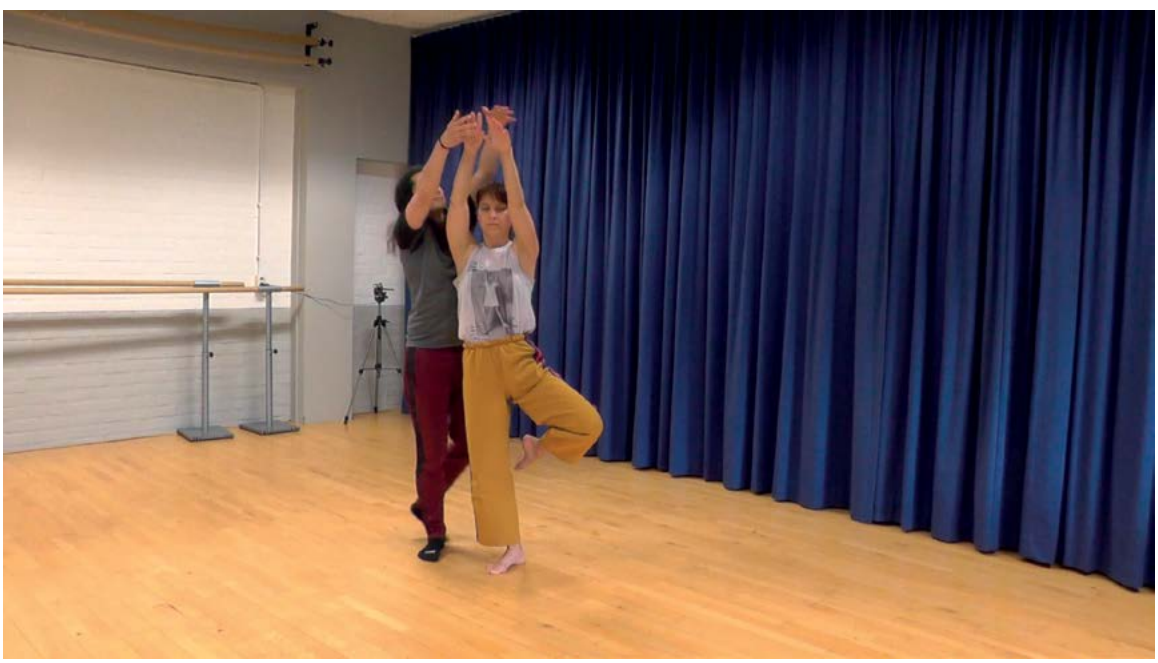


Fig. 5. Impression of the first co-design workshop
(Note: This workshop was conducted with performer Javier Huerta.)

Fig.6. Supporting the other's movements/postures

Fig.7. Imitating to immerse in the other

Fig.8. Trying to irritate the other one through unexpected actions

Fig.9. Turning or looking away as a way to disconnect or avoid connecting

The first co-design workshop (Fig. 5–9) explored what it means to (dis)connect, revealing how connection is shaped by trust, empathy, boundaries, and shared understanding. Key takeaways included the value of attunement, cautious use of touch or mirroring (Fig. 6–7), and creating a shared interaction framework. These insights reinforced the Intimate Computing principle that technology should support without dominating—ready to assist when needed. This shared understanding led the team to explore small tech prototypes for supporting nuanced communication.

Second CO-DESIGN WORKSHOP:
How to communicate beyond social standards?

Fig. 10. Impression of the second co-design workshop

Fig.11. Stimulating the other through careful, but directed touch

Fig.12. Building a body-unity, and support each other

Fig.13. Attaching a lo-fi prototype to the performer's arm

Fig.14. Exploring a lo-fi prototype regarding its features and offers

The second co-design workshop (Fig. 10–14) explored how people communicate beyond social norms, combining dance with early low-fi tech prototypes (Fig. 14). We found that while non-verbal expression through movement is rich (Fig. 10–13), technology can enhance communication for those with limited abilities—if it supports rather than distracts. This led to using air as a metaphor for communication: subtle, boundaryless, and sensed in multiple ways. Inspired by this, the team developed the first wearable prototype—four hacked fans around the hips, tangled materials, and performer-controlled. Unlike pneumatic actuators, this design explores airflow as an open, expressive medium.

Third CO-DESIGN WORKSHOP:
What emerges from the material?

Fig. 15. Impression of the third co-design workshop

Fig.16. Wearing the prototype for the first time

Fig.17. The whole team engaging in the dressing process

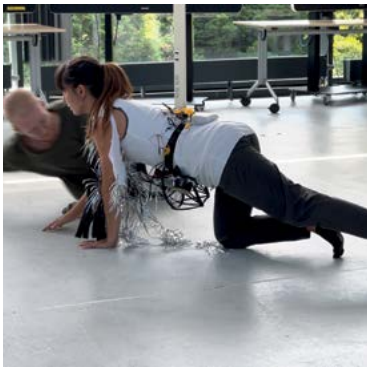


Fig.18. Performatively exploring the technology together

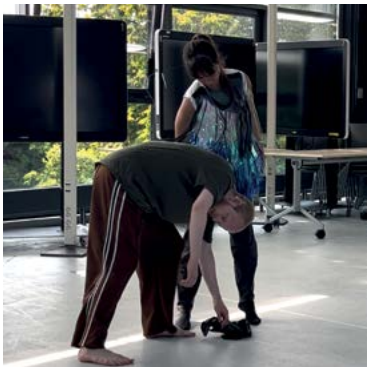


Fig.19. Connection emerges through the qualities offered by the material

In the third co-design workshop (Fig. 15–19), performers explored how the wearable prototype—with integrated fans and layered textiles—shaped movement and interaction (Fig. 15–19). These experiments revealed the material's ability to evoke emotion and connection through light, flowing design. Open questions remained around clearly expressing emotion and whether to expose the underlying technology. Reflections on airflow, tactile feedback, and textile behavior highlighted how such materials support (dis)connection. Performers suggested adding automated wind patterns to enhance improvisation. These insights informed the final prototype and deepened the Intimate Computing concept, where AI subtly supports human expression.

Fourth CO-DESIGN WORKSHOP:
How can wearable technology mediate (dis)connections?

Fig. 20: Key moment during the fourth co-design workshop

Fig.21: Testing the glove (flex sensors) that control the airflow around the hips

Fig.22: Exploring the wearable alone

Fig.23: Exploring all material together

Fig.24: Exploration of the wearable in the environment and with light props

The fourth co-design workshop (Fig. 10–24) refined the final wearable prototype and explored how intimate technology can mediate (dis)connection through light, air, movement, and gesture (Fig. 20–24). A key moment was when a second performer used a handheld spotlight to highlight the prototype's subtle airflow effects—revealing how the technology gently supported a restricted performer's expression (Fig. 20, 24). This confirmed earlier insights: air, as an invisible yet perceptible force, powerfully symbolises Intimate Computing—enabling nuanced, non-verbal communication and deepening connections between wearer, technology, and others.

4.3 Performance creation period

During three intensive sessions and the final preparations on the day of the public premiere, the choreographer developed a performance with the other performer (Fig.25). Their process was rooted in the experiences and insights of the previous research period. They began with the creation of a clear score to outline the different moments of the piece, specifying movement qualities, intentions, and transitions. Aiming for clarity and accessibility for the audience, the choreographer-performer opted for a simple yet structured framework to guide the performance, using poetic images.

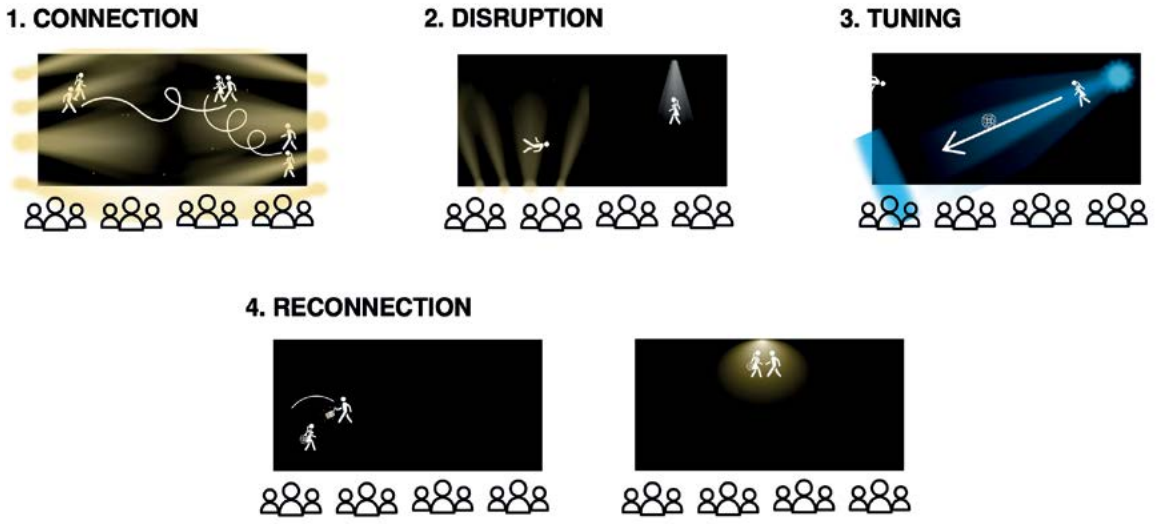


Fig. 25: Drawings from the choreographer-performer to explain her ideas for the choreographic work, and to communicate the intended light design and stage set-up.

Fig. 26–28: Stills from the second rehearsal: Rehearsing with the costume.

Given the limited time available to create the performance and experiment with the final wearable prototype (Fig.26–28), the process was highly focused and goal-oriented. The dance experts developed and refined the steps, defined the movement quality of the disruption, and together with the creative technologist, spent time calibrating and synchronizing with the technology (Fig.29–30). The wearable designer was available for fitting and needed refinements to make the garment comfortable and to wear and as easy as possible to dress (Fig.31). The team also explored the optimal angles for the handheld light and practiced re-establishing the connection

between the dancers using the wearable.

Fig. 29–31: Impressions from the first rehearsal: Preparing the technology and dressing the performer.

The choreographer proposed echoing the opening choreography (connection, Fig. 25) in the final scene (reconnection, Fig. 25) by aligning it with fan-generated movement. While collaborating with the creative technologist, they realized this concept needed more time and deeper interdisciplinary work. The subtlety of airflow made it difficult to clearly link

body motion and air effects. Though promising for expressive interaction, air as a medium needs further exploration in future developments.

4.4 Reflections from the team members

To better understand how the team members perceived their interdisciplinary collaboration and key milestones and how their participation led to personal growth, we interviewed them. We provide a summary of some key questions in the following. For more detailed insights into their answers and getting a sense of their original tones, the interview transcripts can be found in a data set linked here: http://doi.org/10.4121/86297241-db14-4b9f-802c-f668b2fe7d31

Regarding their perception of the interdisciplinary team work we asked them: What has it been like working with professionals from other disciplines, and how has this collaboration shaped your approach to your role? The team described their interdisciplinary collaboration as open, enriching, and respectful, with an emphasis on building a shared language across disciplines. While some members were experienced in cross-disciplinary work, others found it a valuable new challenge that expanded their perspectives and required adapting communication styles to bridge different fields. The wearable integration designer was experienced in interdisciplinary collaboration and appreciated the project's openness and equality. The creative technologist, less familiar with working across fields, valued the challenge of adapting communication and exploring new perspectives. The choreographer-performer found the collaboration enriching and highlighted the importance of building a shared language, while the performer, new to working with technology and design, found the experience valuable but noted the challenge of translating dance concepts into everyday language.

We further asked the team about their perception of key milestones during the project: From your perspective, what were the most significant moments or breakthroughs in the design process? Key breakthroughs included the decision to use air as a soft actuator, highlighted by the choreographer-performer, creative technologist, and wearable integration designer, which connected movement and technology in a poetic way (Fig. 20). The performer emphasised the moment of dancing with the fans, realising

both the limitations and inspiration the wearable offered, while the creative technologist also celebrated personal milestones in getting the fans to work with flex sensors and discovering the visual impact of external lighting.

Then we were also curious how the shared experiences potentially led to personal growth and insights: What did you learn – about the topic, the team, or yourself – through your involvement in this project? The creative technologist learned to create more robust prototypes and appreciated interdisciplinary collaboration. The wearable integration designer deepened their understanding of integrative, equal collaboration and new forms of interaction with intimate technologies. The performer gained insights into academic research, interdisciplinary communication, and the lived experience of communication barriers, while the choreographer-performer valued the project's non-hierarchical teamwork and the importance of a strong shared concept to guide collaboration.

The team's reflections show that the DiscReTe project fostered true transdisciplinary collaboration, where expertise from dance, wearable design, and technology merged through equal, mutual exchange. By learning from each other's fields and adapting their approaches, team members moved beyond interdisciplinary work, blending tasks and knowledge in ways that no single discipline could achieve alone.

5. Design research out

The DiscReTe project resulted in two key research outcomes: the wearable demonstrator and the dance performance, both exploring human-technology partnership and mediated social connection through movement and air as an expressive medium.

5.1 The DiscReTe wearable demonstrator

Fig. 32–34: Photos and technical drawings of the tech garment including the four fans around the hips and flex sensors on each ring and little finger. A crinoline structure assures that the fans have the right distance to the foil top worn over the tech garment.

The wearable consists of several layers (Fig.34), containing a tech layer, a crinoline, gloves and crop top foil layer. The partner costume contains elements that take up design elements of the wearable (Fig.35 and 36), such as foil at the ends of a scarf. The foils appear differently depending on the light conditions (Fig.37 and 38).




Fig. 35—38: Photos of the finally dressed costumes. Different light settings change the color appearance of the iridescent foil layer.

The wearable development focused on safe, stable, and movement-friendly integration of technology and materials. Extra care was taken to attach hard components to soft, dynamic textiles for comfort and durability in dance. Key design elements—air-sensitive materials, crinoline for spacing, and angled fan placement—shaped its interactive qualities. Together, these choices (Fig. 1) enabled a wearable that subtly communicates through airflow, color shifts, transparency, and reflectiveness.

We asked the team to reflect on their perception of artistic expression and technical integration: How do you see the interplay between artistic expression and technical functionality in the wearable and its design process? The team emphasised that artistic expression and technical functionality were deeply interconnected, with all design and technology decisions made to support the overarching concept. The wearable integration designer and choreographer-performer highlighted the importance of adapting the wearable to the dancer's needs for both safety and expression, while the creative technologist focused on enabling artistic goals through safe, supportive technology. The performer valued how the wearable enhanced emotional expression and movement, with design and technical choices carefully balancing freedom and functionality.

5.2 The DiscReTe dance performance

The performance served as a staged exploration of human-technology partnership, using the wearable as an expressive tool for non-verbal communication and connection. The integration of air as a medium allowed for subtle yet dynamic transformations in the garment's shape, creating a visual and physical representation of relationality. The wearable inspires movement and responds to it, addressing a small part of complex human interactions where non-verbal communication is fluid and often influenced by external factors.

In the following, we describe the different phases of the performance. It opens with a scene highlighting the connection between the dancers as they move closely together in unison, seamlessly navigating the space and creating a sense of fluidity and airiness as they move (Fig.39–41).



Fig. 39—41: Stills ‘Connection’

This harmony is disrupted when one dancer falls out of sync, struggling to maintain the flow (Fig.42–44).



Fig. 42—44: Stills ‘Disruption’

After a pause filled with stillness and body tension, the dancer activates the wearable fans, finding release in the movement of air around her body (Fig.45–47). This allows a moment of tuning in with the technology.

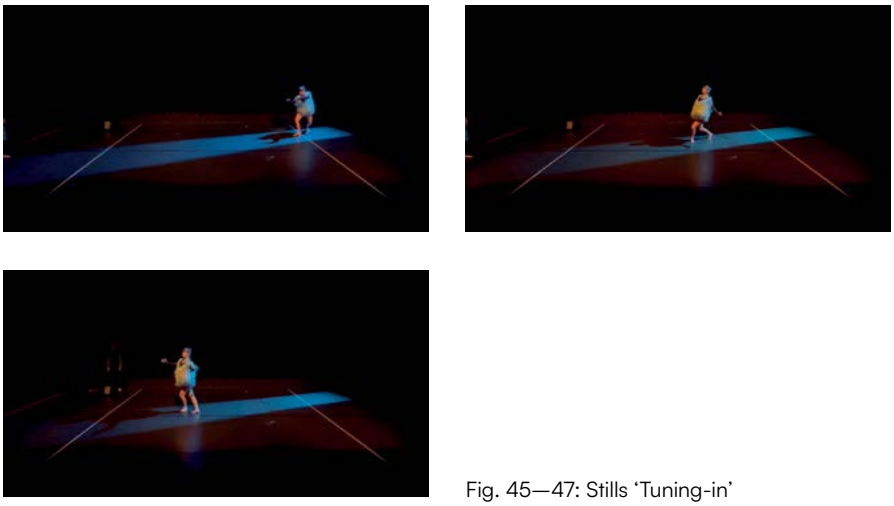


Fig. 45—47: Stills ‘Tuning-in’

The second dancer then re-enters the scene, this time with a hand-held light (Fig.48–50). This addition highlights the subtle effects of the air on the costume, drawing the audience’s attention to this interplay and marking the beginning of a reconnection.

Fig. 48—50: Stills ‘Exploring’

Gradually, this renewed connection evolves, culminating in the duo returning to their original choreography, now facilitated by wearable technology (Fig.51–53).

Fig. 39—41: Stills 'Re-connection'

The performance highlights how movement, air, and material properties could create a poetic and symbolic representation of social interaction. While it showcases our artistic interpretation of the wearable's potential for self-expression and mediated connection, the subtleness and unpredictability of air also raises questions about control and interpretation in other contexts and application fields. The wearable may not replace communication but rather extends and amplifies it, requiring mutual effort and understanding between those who communicate through it.

5.3 Final reflections

The DiscReTe project demonstrates how wearable technology can support subtle and embodied communication. We had some interview questions to capture the teams reflections about the project's success that are available for more details in the same data set: http://doi.org/10.4121/86297241-db14-4b9f-802c-f668b2fe7d31

For instance, we asked the creative team about their understanding of integrating human-technology partnership in the wearable prototype: How do you think the wearable supports the mediation of relationships or self-

expression for social connection, based on your expertise and observations? The team agreed that the wearable prototype offers a poetic and subtle way to support self-expression and social connection, though further development is needed for everyday use. The choreographer-performer and creative technologist noted its success in evoking connection through movement and visual impact rather than precise communication, while the performer emphasized the importance of mutual understanding between sender and receiver. The wearable integration designer saw the garment as a reflection of the complexities and nuances of human interaction.

Finally, we asked the individual who served as a case study for the DiscReTe project about their opinion on the outcomes and they answered: “The researchers, through interviewing me and providing creative tasks, were really trying to understand my situation and daily life. One of the most interesting experiences were the drawing exercises about how I experience my body—this was for me an entirely novel way of expressing my condition and experiences, which even helped me connect with my body in new ways! The performance beautifully captures the experience of disconnection that challenges in movement and communication abilities can bring, and shows how wearable technology can help in reaching out and reconnecting with other people. The ‘flowiness’ and playfulness of the dancing foils through the air movement look mesmerising.

Such playful movement might also help reduce a bit the tension that social interactions can bring when you cannot communicate in a ‘normal’ way. I would love to try out what I could do with such technology for real, how to make it express what I would want to say in a certain moment. For doing that in real life, the technology would need to be able to adjust to my movement and postures easily (for example sitting, lying down, standing up) and without hampering these or being too ‘stimulating’ on the body.”

These reflections affirm the DiscReTe project’s success in exploring how wearable technology can poetically mediate social connection and self-expression. Both the creative team and the case study participant highlighted the wearable’s emotional resonance and potential, while also pointing to the importance of further development to adapt the technology for real-world, everyday contexts.

Conclusion

The DiscReTe project exemplifies the modern polymath as a transdisciplinary team, where expertise from computer science, design research, wearable technology design, and performing arts merged in an equal, co-evolving process. Rather than disciplines working in isolation, the team's collaboration shaped and was shaped by their diverse perspectives. This process led to a wearable prototype and dance performance that neither field could have created alone.

This integrated approach was key to fostering embodied design, ensuring that inclusivity and accessibility for all team members was considered throughout. Insights from the case study and the participation of a deaf performer using a cochlear implant reinforced the importance of designing with users rather than for them. The project also introduced air as a novel actuator for non-verbal, nuanced communication, opening new ideas for wearable and embodied interaction.

Moving forward, future research can build on our exploration by refining the interplay between artistic expression and technical functionality, and further investigating air-mediated interaction and human entanglements with wearable Intimate Technologies.

The DiscReTe project highlights how transdisciplinary teams can drive innovation in inclusive, human-centered design by embracing uncertainty and exploring the expressive potential of technology. It shows how knowledge is co-created to address complex societal challenges that emerge with Intimate Technologies and that modern polymathy manifests in transdisciplinary teams over single individualists.

Acknowledgements

The DiscReTe project is affiliated with NWO gravitation project Ethics of Socially Disruptive Technologies (ESDiT), and DesignLab/ University of Twente, Netherlands. The project has been approved by the ethical committee of the faculty Electrical Engineering, Mathematics and Computer Science at University of Twente with number 240103. Laisvie Andrea Ochoa Gaevska and Dennis Massar belong to ConCuerpos inclusive dance

company. Our special thanks go to Jonas Hentschel for his initial technology support and Javier Huerta for his contribution to the dance explorations during the first co-design workshop. We further thank all other supporters: Interaction Lab/ University of Twente and Dr. Daniel Davison, Smart XP Lab/ University of Twente and Alfred de Vries, Vrijhof/ University of Twente, FashionTech Farm, Marianna Alessandri, Dr. Edwin Dertien, Dr. Gwenn Englebienne, Jur van Geel, Dr. Juliet Haarman, and Dr. Han Warmelink.

More information about the DiscReTe project can be found here:https://intimate-computing.net/intimate-computing-vulnerability/current-projects/discrete-project/

References

Coeckelbergh, M. (2021). Moved by Machines: Performance Metaphors and Philosophy of Technology. Routledge.

Coeckelbergh, M. (2013). Anthropology of vulnerability. In Human Being at Risk: Enhancement, Technology, and the Evaluation of Vulnerability Transformations, pages 37–62. Springer.

Dourish, P. (2001). Where the Action Is: The Foundations of Embodied Interaction. The MIT Press. https://doi.org/10.7551/mitpress/7221.001.0001

Frauenberger, C. (2019). Entanglement HCI The Next Wave? ACM Transactions on Computer-Human Interaction, 27(1), 2:1-2:27. https://doi.org/10.1145/3364998

Giaccardi, E., & Redström, J. (2020). Technology and More-Than-Human Design. Design Issues, 36(4), 33–44. https://doi.org/10.1162/desi_a_00612

Honauer, M. (2017). Designing (Inter)Active Costumes for Professional Stages. In S. Schneegass & O. Amft (Eds.), Smart Textiles: Fundamentals, Design, and Interaction (pp. 279–302). Springer. https://doi.org/10.1007/978-3-319-50124-6

Karapanos, E., Zimmerman, J., Forlizzi, J., & Martens, J. B. (2009). User experience over time: An initial framework. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '09), 729–738. https://doi.org/10.1145/1518701.1518814

Karpashevich, P., Hornecker, E., Honauer, M., & Sanches, P. (2018). Reinterpreting Schlemmer's Triadic Ballet: Interactive Costume for Unthinkable Movements. Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, 1–13. https://doi.org/10.1145/3173574.3173635

Kola, I., Murukannaiah, P. K., Jonker, C. M., and van Riemsdijk, M.B. (2022). Toward Social Situation Awareness in Support Agents. In IEEE Intelligent Systems, 37(5), pp. 50-58, http://doi.org/10.1109/MIS.2022.3163625

Kudina, O. (2021). “Alexa, who am I?”: Voice Assistants and Hermeneutic Lemniscate as the Technologically Mediated Sense-Making. Human Studies, 44(2), 233–253. https://doi.org/10.1007/s10746-021-09572-9

Pantouvaki, S. (2014). Embodied interactions: Towards an exploration of the expressive and narrative potential of performance costume through wearable technologies. Scene, 2(1), 179–196. https://doi.org/10.1386/scene.2.1-2.179_1

Rijssenbeek, J., & Fraaije, A. (2025). Investigating and imagining human-nature-technology relationships through dance. Inscriptions, 8(1), Article 1. https://doi.org/10.59391/fbbztk90

Schmidt, A. (2000). Implicit human computer interaction through context. Personal and Ubiquitous Computing, 4(2–3), 191–199. https://doi.org/10.1007/bf01324126

Udoewa, V., & Gress, S. (2023). Relational Design. Journal of Awareness-Based Systems Change, 3(1), Article 1. https://doi.org/10.47061/jasc.v3i1.5193 van Est, R., Rerimassie, V., van Keulen, I., and Dorren, G.. Intimate technology: The battle for our body and behaviour, 2014.

Rathenau Institute. van Riemsdijk, M.B. (2018). Intimate Computing. Presented at Dimensions of Vulnerability Conference in Vienna. Zenodo. https://doi.org/10.5281/zenodo.7701215

Verbeek, P.-P. (2005). What things do: Philosophical reflections on technology, agency, and design. Pennsylvania State University Press.

Verbeek, P.-P. (2015). Beyond interaction: A short introduction to mediation theory. Interactions, 22(3), 26–31. https://doi.org/10.1145/2751314

Scrap-ed[1] and embodied encounters of intergenerational and autobiographical time.

Releasing oneself from colonial time-zones[2]

Sehr Jalil

Abstract: This essay arrives as a special contribution to IEDA from my ongoing PhD research and practice, titled Intergenerational Archival encounters (the challenge of the banal, leisurely, and everyday, South Asia WWII 1940s to now). My research introspects and enters with a personal and familial archive. A World War II scrapbook and photo album of a South Asian Indian Muslim soldier fighting the imperial war as a soldier in King George's Own Central India Horse Regiment. My grandfather's archive is filled with opera tickets, laundry bills, group photos with artillery and maps that denote the regiment's movements across the Red Sea, the Suez Canal, and the Mediterranean; it inhabits the leisurely and everyday within the regimental. Scholars and historians such as Gajendra Singh, Ghee Bowmen, Yasmin Khan, and Raghu Kurnad work on historiographical accounts of the contributions and colossal presence of South Asian soldiers in WWII and their conditions, they assert the passive imperial whitewash of the contributions of these soldiers and that there is no WWII internal collective South Asian memory. As a Muslim, Pakistani, South Asian woman in London now, I have taken on the challenge to work with and investigate this persistent coloniality and past and present, quotidian, structural racism through intergenerational archival encounters.

The archive operates more so as a navigational tool in this unfinished history, to establish a biography of the research, encountering relevant archives in institutions such as the British Library and the Imperial War Museum. The archive is a way to account for the conditions of my existence in the present and it operates as an intertemporal and interstellar vehicle for analysing our intergenerational linkages. This enables me to navigate the intergenerational and ask: What's the relation between the colonial violence of the 1940s and its intergenerational links to the present?

1 Taking from the scrapbook and the act of scrapping as a dent or shift from established narratives. 'Scrap-ed' and not scrapped is the intention of working with the process of scrapping, where we can both deduct and add, deconstruct and reconstruct narratives, intimately and intuitively.

2 Working with how colonial influences can create different temporal experiences.

I approach this by considering David Scott's idea of generations as social institutions of time[1]. I identify that establishing these intergenerational links between the 1940s and 2020s will require care and curatorial attention to magnify and describe structural racism which inhabits knowledge production/extraction, and allocation of resources among a few of its disguises. I approach this problem with the construction of a conceptual apparatus that is sufficiently attuned to attend to the violence of the uneventful. The Scrap-ed and embodied encounters in this essay arise out of this conceptual apparatus.

Keywords: Intergenerational, Scrap-ed, Postcolonial, Quotidian, Leisurely, Violence, Subcontinent, WWII

Scrap 0
A prelude from Ghazi's diary

In his WW2 diary, Ghazi mentions Ram Del as his dear friend.

Ram Del's words (14th November 1949)

"My father travelled back to Lahore (Pakistan now) recently to receive his amanat. There is no appropriate translation for the word amanat in the English dictionary; it is when something truly valuable to you is left behind for safe-keeping with the ones you trust. As expected, they had safeguarded it with all their hearts and might, even more than their own belongings. The point of religion was where both sides failed to negotiate, so loves or friendships like ours, Sakina and I or Ghazi and I were doomed. The British were intelligent enough to use exactly this. Between riots and rising hatred, some epics of friendship and trust endured on both sides of these newly found borders"

Scrap 0.1
A note on the intergenerational and the interview

I see David Scott's (2014) acceptance and his own inability to understand or value the preoccupations and desires of the earlier generations and how their political visions and lives were in rhythm, as integral to the survey. There was a lack of vigilance and sensitivity about the notion of the past that

1. Scott, D. (2014). The Temporality of Generations: Dialogue, Tradition, Criticism. New Literary History, 45(2), 157–181. https://doi.org/10.1353/nlh.2014.0017

informed and aided their present for the future they desired. I am inspired to work on reconstruction and writing from the inside on the intellectual and ideological problem space “the anti-capitalistic search for a socialist change” (Scott, 2014). ‘We’ reflect on inheriting these as a ruin.

Working with the structured life interview which intertwines dialogue, time and works as both exploratory and participatory, Scott and the interlocutor are not looking for sealed truths and the dialogue is “open-ended, unpredictable and open to contingency” (Scott, 2014). I work with the archives, memory, the intergenerational and the autobiographical in a similar exploratory manner - the questions and answers are conditioned by each other. The aim is to listen and find clarity, rather than searching for reasons to agree or be critical.

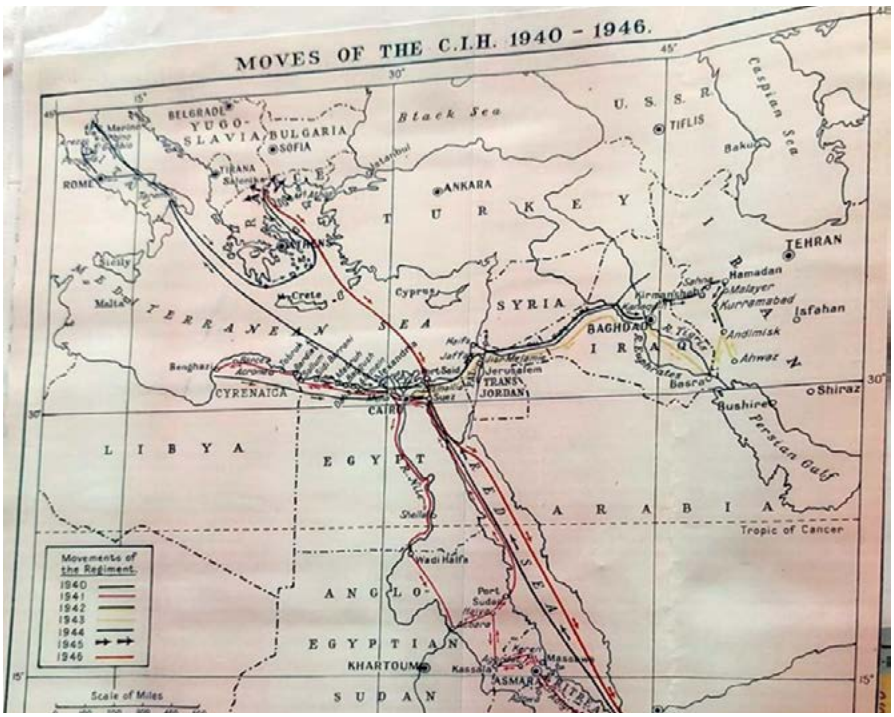


Figure 1. Central India Horse Map of Regimental Movements, R.G Hyder’s WWII journal

3. Referring to David Scott’s scholarship on the intergenerational and postcolonial in his books Omens of Adversity and Conscripts of Modernity.

Scrap 0.2
A geographical and historical climate

This map of the regiment was pasted by Raja Ghaziuddin Hyder (my grandfather) in his war journal. The historical and geographic reading of this regimental map may appear unnecessary but it is crucial to set up a backdrop for this scrutiny. The conflict between the Axis and Alliance powers in the Second World War and the efforts and sacrifices by the colonial Indian soldiers are revealed here in simple linear movements that carry the colossal weight of war, conflict and colonial time zones from 1939 to now. History and geography fade inherently into the current times, from political tragedy, war and conflict to its brunt in everyday lives. I read the map with support from the regiment's war diaries that are available at the National Archives, Kew Gardens (Archives, N 1940) and a registered online WWII group (Central India Horse, 2023), with discussions from retired army officers and experts in the field. My approach is deliberately non-chronological, due to the urgency to indicate moments and times that spark reflection, discourse and problems. I weave in documents and photographs from my grandfather's war Scrapbook journal/album and archival encounters in institutional atmospheres such as the Imperial War museum, British library India office and the National Archives Kew Gardens. The Soldier's Corner (a Sunday column published in the Statesman on Sunday) is one such encounter that helped to narrate and interrogate these intergenerational, autobiographical and biographical dilemmas.

CIH Movements - Reconnaissance and the Sangro-river 1943/44

The central India horse re-joined the 4th Indian division upon arriving at the Mena Camp (Egypt) and from there it proceeded to Italy, to arrive in Taranto on the 8th of February 1944. The CIH in Taranto (Italy) was equipped with a jeep troop, a rifle troop, Humber IVs, 2 carrier troops and a rifle troop in armour-wheeled trucks. They became the V Corps reconnaissance regiment upon arrival at the Sangro River while serving under the 'D' Force with the 11th King's Royal Rifle Corps during March.

Figure 2. Gordan, George and Peter in Rocasaligna, Italy. R.G Hyder's WWII Archive

On the Sangro River and the Indian Soldiers

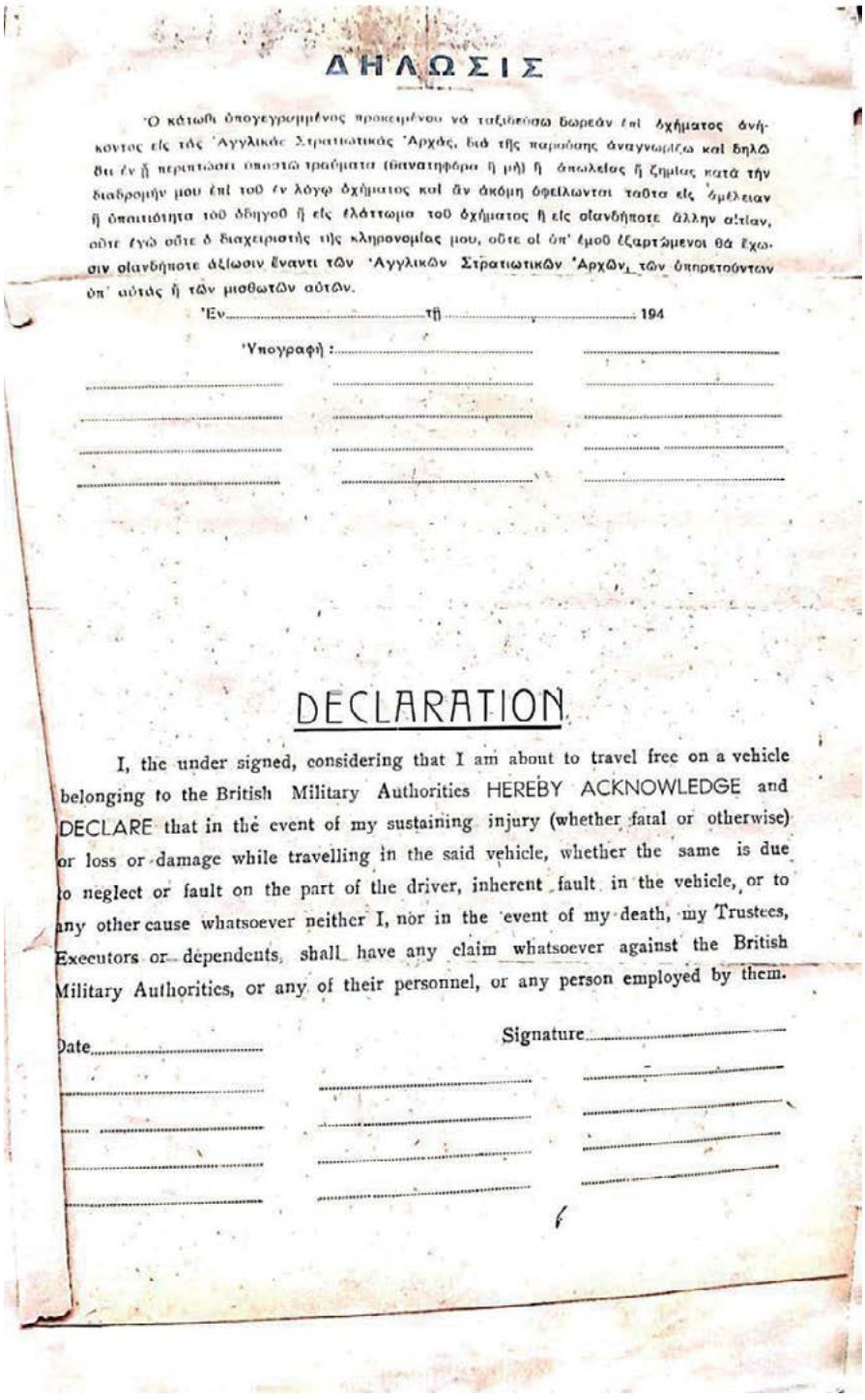
On the 3rd of September 1943 the Italian mainland was invaded by the Allies, this triggered the re-entry of the Italians into the Allied side. The motive of this Allied entry was the exit of German troops from the fronts in Russia and especially France. The Allied troops made remarkable progress despite stiff resistance and by October the Allies had to withhold themselves at the Gustav line which is a defensive position in the German winter. This position stretched from the Garigliano River in the west to the Sangro in the east in Italy. The allied force reached the Adriatic coast in early November and got ready to attack positions at the Sangro River. By the end of November, the entire ridge overlooking the river was under the Allied forces.

A cemetery site was chosen for the graves of the men who fought this fierce Adriatic battle between November and December 1943 and the quiet period after it. The cemetery also carries the graves of prisoners of war who escaped to reach the Allied lines and lost their lives on the way. The "SANGRO RIVER WAR CEMETERY contains 2,617 Commonwealth burials of the Second World War. Within the cemetery will be found the SANGRO RIVER CREMATION MEMORIAL, one of three memorials erected in Italy to officers and men of the Indian forces whose remains were cremated under

their faith — the other two cremation memorials are in Forli Indian Army War Cemetery and Rimini Gurkha War Cemetery. The memorial at Sangro River commemorates more than 500 servicemen" (CWGC 2023).

The reconnaissance soldiers were responsible for mobile excavations on enemy borders and territory. R.G Hyder and his regiment arrived in the Sangro River region just a few months after the Adriatic Battle. The Indian Army war cemetery spells a reminder and the probability of R.G Hyder's death during reconnaissance in Italy and the earlier battles that the regiment fought and supported.

Figure 3. Ghazi and other CIH officers in the Mess in Salonika, Greece. R.G Hyder is seated on the third position from the left. R.G Hyder's WWII archive



ΔΗΛΩΣΙΣ

Ὁ κάτωθι ὑπογεγραμμένος προκειμένου νὰ ταξιδεύσω δωρεὰν ἐπὶ ὀχήματος ἀνήκοντος εἰς τὰς Ἀγγλικὰς Στρατιωτικὰς Ἀρχάς, διὰ τῆς παρούσης ἀναγνωρίζω καὶ δηλῶ ὅτι ἐν ᾗ περιπτώσει ὑποστῶ τραύματα (θανατηφόρα ἢ μή) ἢ ἀπώλειαν ἢ ζημίαν κατὰ τὴν διαδρομήν μου ἐπὶ τοῦ ἐν λόγῳ ὀχήματος καὶ ἂν ἀκόμη ὀφείλωνται ταῦτα εἰς ἀμέλειαν ἢ ὑπαιτιότητα τοῦ ὁδηγοῦ ἢ εἰς ἐλάττωμα τοῦ ὀχήματος ἢ εἰς οἱανδήποτε ἄλλην αἰτίαν, οὔτε ἐγὼ οὔτε ὁ διαχειριστὴς τῆς κληρονομίας μου, οὔτε οἱ ὑπ' ἐμοῦ ἐξαρτώμενοι θὰ ἔχωσιν οἱανδήποτε ἀξίωσιν ἔναντι τῶν Ἀγγλικῶν Στρατιωτικῶν Ἀρχῶν, τῶν ὑπηρετούντων ὑπ' αὐτὰς ἢ τῶν μισθωτῶν αὐτῶν.

Ἐν..... τῇ..... 194

Ὑπογραφή :.....

DECLARATION

I, the under signed, considering that I am about to travel free on a vehicle belonging to the British Military Authorities HEREBY ACKNOWLEDGE and DECLARE that in the event of my sustaining injury (whether fatal or otherwise) or loss or damage while travelling in the said vehicle, whether the same is due to neglect or fault on the part of the driver, inherent fault in the vehicle, or to any other cause whatsoever neither I, nor in the event of my death, my Trustees, Executors or dependents, shall have any claim whatsoever against the British Military Authorities, or any of their personnel, or any person employed by them.

Date..... Signature.....

Figure 4. CIH WW2 unsigned declaration document R.G Hyder's WWII journal

Scrap 0.3
The Unsigned Declaration - on Resistance

Stephen Slemon interrogates the idea and notion of resistance in his essay titled: “Unsettling the Empire - Resistance Theory for the Second World” (Slemon S, 2003). He argues that political writing has struggled to navigate the term resistance and the controversy it brings, especially in the context of its understanding across the political world and literary texts. Cultural institutions such as universities shape the discourse of post-colonial resistance and have autonomy on which voices should be amplified. When resistance becomes solely dependent on literary writing from the third and fourth world, there can be an indifference to the possibility of anti-colonial literary acts in other cultural locations. Resistance, in its general understanding and first conceptuality, is seen as a position that hopes for the liberation of the oppressed and is deeply immersed in their lives. In this way, literary resistance arrives as a sustained and organised methodology for national freedom.

This declaration document (Figure 3) arrived between 1944–46 when my grandfather was in Greece in Salonika. This supposition is convincing because the document copy is divided into and written in two languages, the script on the top being classical Greek and the text on the bottom being English. There are many times in our lives when we are handed contracts/documents, but we are hesitant to sign them even when we are already obligated to the system or institution that has published them. This document gives a detailed account of transportation methods/vehicles that my grandfather, a serving artillery soldier in the British military, would use — it informs of all chances and possibilities of accidental death. It conveys that the undersigned has declared that this won’t be the responsibility of the British Military Authorities in any situation. It reads; “DECLARATION — I, the undersigned, considering that I am about to travel free on a vehicle belonging to the British Military Authorities HEREBY acknowledge and declare that in the event of my sustaining injury (whether fatal or otherwise) or loss or damage while travelling in the said vehicle, whether the same is due to neglect or fault on the part of the driver, inherent fault in the vehicle, or to any other cause whatsoever neither I, nor in the event of my death, my trustees, executors or dependents, shall have any claim whatsoever against the British Military Authorities, or any of their personnel, or any person

employed by them."

As I discuss the breadth and depth of my grandfather's soldierly movements through this imperial war and the CIH map, the document reinforces that the British Military Authorities, i.e. the imperial government that my grandfather was serving as a soldier from colonised India, are not to be held accountable by Raja Ghaiziudin Hyder or his 'trustees, executors or dependents' in the case of an injury or his death. While the journal and his war album create the narrative landscape of his time and commitment through those years and he pens down banal responses to flight times, food and durations inside travel feedback cards, even much after this document was received — this document remains unsigned.

This unsigned document also reminds me of the official hospital consent documents when a loved one (family) is about to enter into a surgical procedure and one family member has to sign a consensual document that declares that in case of the patient's death, the hospital won't be held responsible. It reminds me of how my father fled the hospital when called to fill out and sign that consent form and my mother had to sign that document when I went through major surgery for an arm fracture as a twelve-year-old, I remember the look on my mother's face, the look of helplessness and courage, hope and despair. It also reminds me of signing the consent forms when my father went through debridement and amputation surgeries due to the terror that is 'gangrene'. I remember signing these documents in numbness, as an obligation but not actual consent — how could I give an institution the authority to take my father's life with one signature? In the case of hospitals, the procedure discontinues without those signatures, so I was a prisoner to that agreement. It must have been expected from R.G Hyder to return the signed document to the British Military Authorities but it remains unsigned and glued on his journal to date.

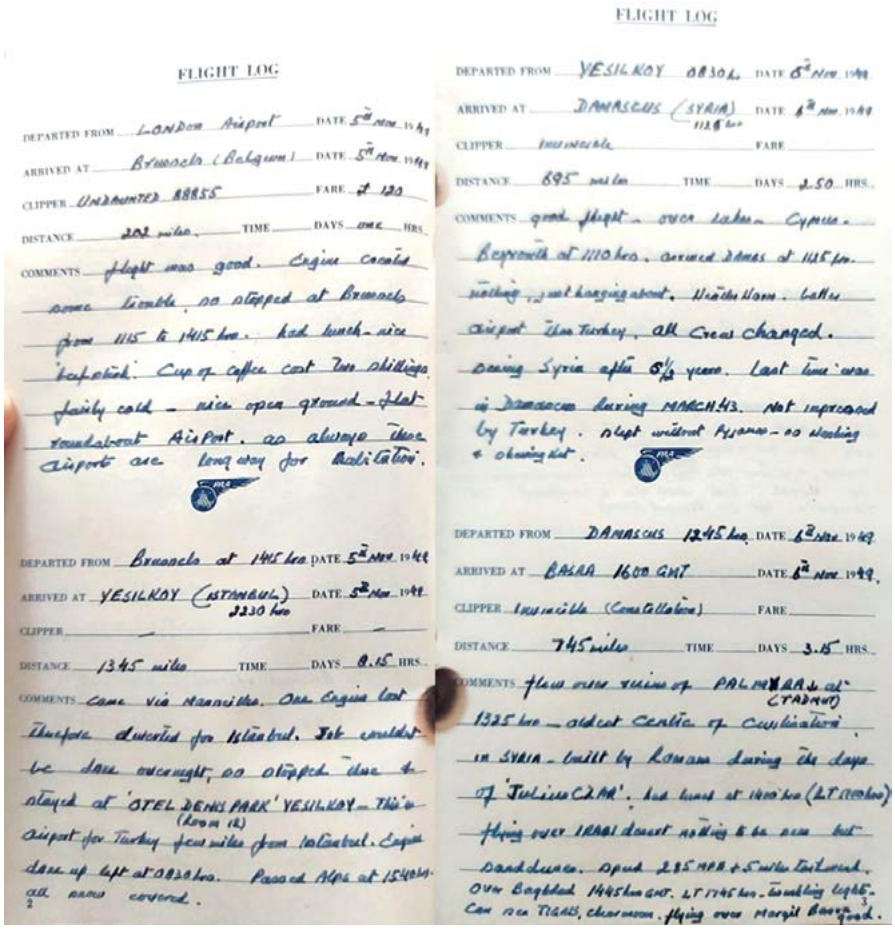
Pure resistance is contested by theories of subjectivity which stress that it is a culmination of conflicting ideological structures and subject formation. That being said, resistances are also determined by power itself and it strives to withhold them. Resistance is a landscape of contradictions and it dwells 'guilty', inside and between the systems. This realisation can proclaim that third-world resistance writing is dual in its existence between both worlds yet contextually situated within first-world politics. This contests

centered and influential first-world postcolonial critical theory. By choosing to keep this document unsigned my grandfather refuses to abide by the coloniser's narrative and authority. This act silently contests the colonial endeavour to release themselves of charges that reveal the tyrannical nature of the imperial war that he served in. This not-signing may serve as a form of resistance that interjects the power narrative to establish an agency within the colonial setting.

Homi Bhabha's ideas in his essay "Signs Taken for Wonders" (2003) resonate with the urgency of my grandfather's archive. I argue that this unsigned document in his journal is a sign, an act and a form of resistance itself. Bhabha explains the realm of transparency as a signifier of an expansive resolution and the modern authoritative voice – yet this authority and its rules arrive with the baggage of socio-cultural texts and nationalist ideology which are resistant in the colonial context. This resistance is precarious and not just rooted in political disagreement — its precarity is generated within the focal discourse of colonial power which aligns the symbols of cultural difference with colonial hierarchy.

This ambivalence stands out in the case of my grandfather's British Military Authority unsigned document. He chooses to deny responsibility for his death while serving in the colonial war. This act and document can be seen as an intervention in colonial power and its fluctuating presence. This document's presence in Ghaziuddin Hyder's war journal arrives as a form of resistance. It silently instigates disability in the colonialist rule and challenges their control. It reveals the conflicted spirit of colonialist power and its urgency or tactics to assert authority through practices of discrimination or escape from accountability.

Authority relies on the unanimous validation of its knowledge centers and sources, which must be in full visibility. This requirement for proof creates an uncertainty of those in power. Bhabha argues the evidence and signs which signify authority can be recognised as hollow tactics and strategies — but they can still perform whatever is expected of them.



FLIGHT LOG

DEPARTED FROM LONDON Airport DATE 5th Nov 1949
ARRIVED AT Brussels (Belgium) DATE 5th Nov 1949
CLIPPER UNDAUNTED 88855 FARE £ 120
DISTANCE 202 miles TIME DAYS one HRS
COMMENTS flight was good. Engine cowling came loose, so stopped at Brussels from 1115 to 1415 hrs. had lunch - nice 'kafetink'. Cup of coffee cost two shillings. fairly cold - nice open ground - flat roundabout Airport. as always these Airports are long way for Radiation.

DEPARTED FROM Brussels at 1415 hrs DATE 5th Nov 1949
ARRIVED AT YESILKOY (ISTANBUL) 3230 hrs DATE 5th Nov 1949
CLIPPER FARE
DISTANCE 1345 miles TIME DAYS 8.15 HRS
COMMENTS Came via Marseilles. One Engine lost therefore diverted for Istanbul. Job couldn't be done overnight, so stopped there & stayed at 'OTEL DENIS PARK' (Room 12) YESILKOY - This is Airport for Turkey few miles from Istanbul. Engine done up 4pt at 0830 hrs. Passed Alps at 15400 all snow covered.

FLIGHT LOG

DEPARTED FROM YESILKOY 0830 L DATE 6th Nov 1949
ARRIVED AT DAMASCUS (SYRIA) 1128 hrs DATE 6th Nov 1949
CLIPPER FARE
DISTANCE 895 miles TIME DAYS 2.50 HRS
COMMENTS good flight - over lakes - Cyprus. Reported at 1110 hrs. arrived Damas at 1115 hrs. nothing - just hanging about. Weather Warm. Left Airport Ilsa Turkey. All Crews changed. leaving Syria after 8½ years. Last time was in Damascus during MARCH 43. Not impressed by Turkey. Kept without Visas - no landing & showing dat.

DEPARTED FROM DAMASCUS 1245 hrs DATE 6th Nov 1949
ARRIVED AT BASRA 1600 GMT DATE 6th Nov 1949
CLIPPER Marseille (Constellation) FARE
DISTANCE 745 miles TIME DAYS 3.15 HRS
COMMENTS flew over ruins of PALMYRA (TADMUR) at 1325 hrs - oldest Castle of Civilisation in SYRIA - built by Romans during the days of 'Julius CZAR'. had lunch at 1400 hrs (LT 1700 hrs) flying over IRAQ desert nothing to be seen but Sandstorms. Speed 285 MPH + 5 miles Tailwind. Over Baghdad 1445 hrs GMT. LT 1745 hrs. Twinkling lights. Can see TIGRIS, characteristic flying over Marsh Areas good.

Figure 5. R.G Hyder's travel feedback cards from his journal, travelling back to London in 1949 for an anniversary and celebration event, dinner for the veterans of the Battle of Alamein. R.G Hyder's WWII Journal

Figure 6. Ticket and inside of the Alamein Anniversary Invite. R.G Hyder's WWII Journal

Scrap 0.4
An Interlude

Ghazi's Amanat

Ghazi's Diary (23rd February 1946)

I wake up, Salonika's light doesn't hold any trace of this war that I have come here to fight, it peeks through the curtain. I had been dreaming of the Dal lake in Kashmir where I went with J for our honeymoon last year over the one-week leave to get married and be with her, I write to her every day, I dreamt that the Shikara (houseboat) from Kashmir had sailed to the Mediterranean and somehow war felt like peace for a blink — there is no drill today, our officer told us that this weekend will be off for the regiment — it's a Sunday — I reach out to grab the Statesman on Sunday that should have been kept next to my bed by my friend Ram Del who knows that the first thing I like to do on Sunday mornings is to read the Soldier's Corner by Bhai, especially here in Greece for a few of us who savour it. This is published in Calcutta and Bhai writes it for my British colleagues who are in my homeland, India, right now. My friend Stott has asked me several times why I read this column if it's meant to be for the British soldiers and being Indian, he presumes that I already know India well enough… I smile… there are two things or more, no one can ever know India well enough, secondly, Bhai (Urdu/Hindi word for brother) is a brother writing for his brothers and how can I not join in, and thirdly, when Bhai thinks and shares about Monsoon and Eid, mosques and temples, Paan, art and poetry, I feel

closer to home…

I had woken up early, so I walked to the Kappani market for a fresh espresso. Ram Del followed me and said I had received a package from London. This parcel package that I received today has been sent from Lahore. I open it, my hands touch it and it has a softness that reminds me of being in love, of the specs of gold that envelope the atmosphere in the fertile season of wheatfields in my village in Punjab or the mane of a newborn horse that I dreamt of running my fingers through or maybe, when a slice of the sun would mellow down and choose… to sit… inside your eyeballs — it is unexplainable, I held on to this cashmere yellow scarf with no sense of time, unfolded it and wrapped it around my neck.

Sehr (28th December 2023)

The air smelled of a Lahori December sunlight and the scent of cardamom and garam (hot) chai — the piles of wool, leather, patterns and colours on this infinite horizontal army of withered wooden carts that lived behind an invisible curtain of this chai haze, almost felt like a blurred filter. Whenever I go to the Landa bazaar to excavate unknown treasures for my wardrobe or life, I feel no different than the clusters and commotion of all the leftover material in this bazaar. How am I any different than the piles of Prada, Gucci, Adidas jumpers, or Italian leather jackets that were made in Pakistan, India or Bangladesh, travelled globally for export, rejected on some quality assurance checklist and travelled back through sea and air in Lahore's Landa Bazar, largest western brand dump wholesale export market?, stitch, form, shape, colour, pattern, trend, be it colonial, textual, state, national, colour, race, maybe I carry and have been engendered as a leftover by leftovers — "Oh! Enough of your madness Sehr, what an obscene parallel" I thought to myself— walking in-between and past the narrow passage between street food vendors on their cycle carts on one side and the chai haze with piles of clothes on the other, my favourite old, weaved, crochet basket bag got disrupted and stuck into the corner of a cart. As I hurriedly and intently separated and untangled my bag from this wooden corner with metal rims, the softness of yellow cashmere beamed into my heart from the corner of my eye, my hand immediately leapt into the pile to whisk it out, it melted into my skin, there was something about this piece, a scarf, yellow, so fresh in all the yellow and age it carried that I had no choice to

part with it “how much for this ?” “You have an eye, this is vintage miss.” That is always a marketing technique I thought but this time it was different, the scarf had an eye for me, it had chosen me, “where do you think this is from, the tag is faded and almost torn off…” I said while looking closely at its edges on all four sides. “We don’t know, but it will never age, as you can see. It grows more beautiful with time.” I imagined someone wearing it while having an espresso in some part of the world, years ago, how did it get here I thought? From Victorian lace curtains to vintage cameras and typewriters, I had found and encountered hidden gems here for years through my excavations. This was different, it was not curated chaos or exoticised or over-priced vintage like some wholesale vintage or import and export dump markets I’ve been to in London and around the world — it happened on its own — shop upon shop, cart upon cart, and pile upon pile and we became one with the objects, they found me while I looked around in oblivion.

Ghazi (5th June 1946)

This scarf was sent by J, her cousin got it as a gift for her from Italy and she writes that she felt that it was meant for me. I wore it every day, sometimes I imagined it around my neck over the regimental Central India Horse uniform. It had become a part of my body and being, everyday ‘wear’ didn’t wear it out, I couldn’t understand, there was something in it…maybe its yellow spirit, which didn’t let it wear out or age…

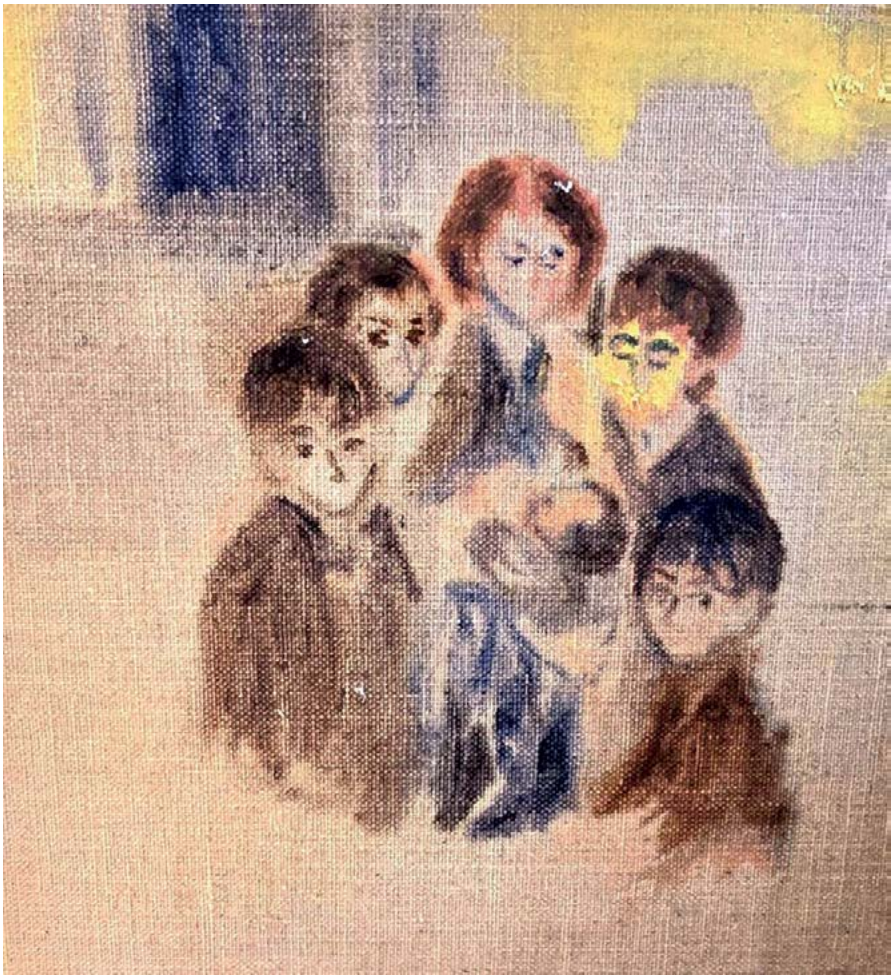


Figure 7. J with Sehr and the boys 1987, March 2024 / oil washes on linen board

Scrap 0.5
Corners? Between Bhai, Soldiers, and Me

British Library and how I got to it (entering the institutions).

I arrived in London in September 2021 with copies and digital files, scans and ‘photographs of photographs’, of a World War II Muslim Indian Soldier’s (nana Abu, my maternal grandfather) banal and everyday scrapbooking and photo album of his time and movements serving as an Indian colonial soldier. I wasn’t prepared for the magnetic or inherent power and pull of the institutions on my arrival but the images and ‘memory’ I brought along were inevitably pulled toward structures of power and knowledge gatekeeping

and production such as the Imperial War Museum and the British Library. I entered or I desire to say 'the archive entered these spaces' with a sense of surge to join some dots in the 'out-of-jointness of time' (Scott, D. 2014). The journal and album had sufficed and survived intergenerational and geographical movements, upheavals, familial tragedies, losses, hopes and joys from the 1940s to the present, it was introduced to me by my uncle in 2016 due to my deep interest or curiosity in familial memory, paraphernalia or documentation. Most of my generation isn't interested and my uncle never expected interest, he only shared if he identified it or was requested. Also, it is important to share that safekeeping of familial histories, albums and paraphernalia is an anomaly in South Asian households, as mentioned repetitively by Ghee Bowmen in his book The Indian Contingent (2020) or Raghu Kurnad in the fictional autobiography, The Furthest Field (2015), WWII does not exist at all as a collective memory in South Asia — post-colonial, national textbook histories have never included the 2.5 million soldiers who served in the British Indian Army and any familial documentary proof of them on a larger scale has been compromised to damp or forgotten storage spaces, silverfish or movement, as the new generations remained unaware of them. My uncle has shared his dismay with me over many occasions; other relatives, and forefathers who served in WWII have no accounts, recollection or memory of their services left with their younger generations, so the recollections I encountered were singularly the result of 'one' individual's effort due to his devotion to knowledge, history, memory and love and appreciation for his father.

Who is Bhai?

In the first column on Sunday, June 14th 1942, Bhai introduces the Soldier's column stating that India is a place that is meant to charm and perplex its visitors. He shares that the white British soldiers have a temporary home in India and that in their expeditions between witnessing different sights and villages, they need to understand and live within the climate and language. He also shares that an exchange of each other's stories will update the people in India with the pastimes of the youth in Britain and vice versa. Bhai claims that his weekly feature will also nurture new bonds of friendship between Indian sailor soldiers, airmen of the empire, and allies now in the country. He further explains that the purpose of this column is for the soldiers to understand India inwardly beyond the stereotypical perceptions of being

an ancient civilization, Kipling's Kim (in the novel), or a region of problems/ discrepancies. He shares that India is beyond this, in span it is a country almost as big as Europe, with agricultural and rural life at the forefront.

He explains that within this history and climate India is currently in a favourable position of a balanced economy, as opposed to the 'Western modern world' who are sufferers "of a surfeit of a modern civilization" (Bhai, 1942)). India's soil and culture are grand in their offerings, its visitors will find a haven from speed, mass production and its complexities — they can watch the countryside and Indian panorama to contemplate and relax. For Bhai, the column will also be a window to generate common interests such as new games and sports. He states that friendliness is one of the main characteristics of Indian people and that the weather changes their temperament and governs life in India for instance short tempers are a result of the scorching sun while rain in the countryside awakens new spirits, brings people together and forms new friendships, the rainy monsoon season is all about good vibes. He shares a grapevine from a village where the soldiers were witnessed giving swimming lessons to the village children, while the children shared a trick or two as well. Both sides couldn't communicate with language, but direct communication, respect, trust and mutual regard made it happen. References and scraps of the everyday and the leisurely such as theatre tickets, laundry bills and brochures in my grandfather's scrapbook and album intuitively led me to Bhai's column and the discussions within it. Such paraphernalia may seem out of place within a war context, but it offers a more profound understanding of the co-existence of leisure and war, where there were moments of joy and relaxation found amidst the hardships of war. This survey of my grandfather's experiences reveal how joy and comfort helped one cope with the stress, longing and trauma that came with the war. This deeply resonates with Bhai's project, where a leisurely Sunday column that familiarises the white British soldiers to India and its way of life, uncovers stories of race, class, challenges and colonial violences.

Scraping off an autobiography of colonial times zones - between me, my grandfather and the soldier's corner.

The soldier's corner, my grandfather in the war and me in London (2021 till present), form this imaginative corner space between trans-generational, colonial, and post-colonial pulls and spaces. I arrive and settle in this

cornered space of ‘colonial time zones’ to scrutinise and reflect on the insurgence, tension, post-colonial dilemmas and the everydayness that creates and informs my identity and my existence in the now.

I am in the space between my grandfather’s World War II journal/archive and my own post- colonial existence as a South Asian Pakistani Muslim woman in London. The autobiographical genre has a core role in this undertaking as it permits me to approach the Indian Subcontinent and its ideology within the framework of religious groups, caste, and kinship networks i.e. a landscape where powerful cultural and social domains aid agency and personal identity. On the contrary, engagement with my grandfather’s life history helps me to instigate a dialogue between society and the self. I explore how his life and experiences as a soldier from a colony interject with underlying societal and historical narratives.

Anshu Malhotra, and Siobhan Lambert-Hurley (2015) stress how important it is to acknowledge that the idea of a free and unified identity or self has been repeatedly identified as a myth, especially in black, feminist, American critiques and postmodern thought. Selves are a culmination of cultural norms and power technologies that are forced by the state — and this makes them relational in their understanding. Therefore, I engage with my grandfather’s archive not only for personal identity but also to understand how his experiences were shaped by overarching contexts of history and culture — and how they continue to shape my own.

Figure 8. A still from Colonel and Begum Hyder, a Video Performance, February 2023

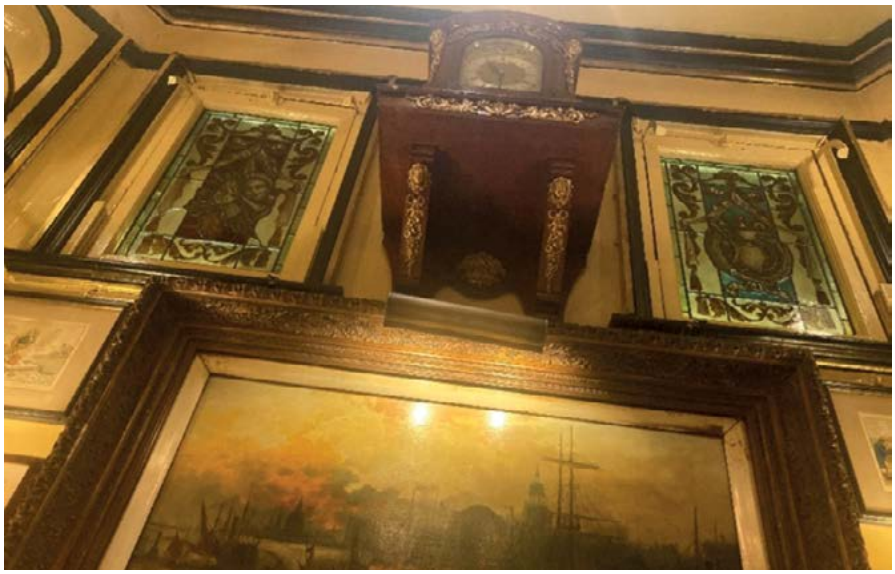


Figure 9. A still from Colonel and Begum Hyder, a Video Performance, February 2023

4 Note: I have been guided by scraps of memory, time and experiences from my grandfather's WW2 journal to my time and encounters within London institutions and atmospheres. The journal /scrapbook is a regular everyday register that my grandfather Raja Ghaziuddin Hyder, an Indian

Muslim soldier (pre-Indo-Pak partition) who served in and fought the imperial WWII used for making his notes and pasting important or ordinary newspaper clippings, photographs, brochures, tickets, and bills along with them. The scraps here emerge as an assemblage - as disruptions, interventions, and/or provocations in a hope to resist all

Figure 10. A still from Colonel and Begum Hyder, a Video Performance, February 2023

Scrap[4] 0.6
Folding and unfolding

London 2021–23...25…

Colonel and Begum Hyder

"I fold this banarsee deep maroon pure silk saree back into my bag, I wrapped it loosely onto a dainty black net dress that I bought online from a second-hand clothing app… I arrived here in this restaurant to perform and document an artwork that I had envisioned, but now… I didn't enter wearing this sari, elegant and tall with heels, but it was kept folded inside my bag as it had to be a secret. The reason is the same old: permissions… permissions to enter, permissions to do, permissions to be… I went to the restroom and let the sari fall and dance loose over me and the black dress. The act felt regal yet meagre, the folding and unfolding before and after is

a camouflage…”

(A narration excerpt from the Video Performance Colonel and Begum Hyder)

or any canonical
and prescribed
sense of order.

References

Anshu Malhotra, & Lambert-Hurley, S. (2015). Speaking of the self: gender, performance, and autobiography in South Asia (p. 8). Duke University Press.

Slemon, S. (2003). Unsettling the Empire - Resistance Theory for the Second World. In The Post-Colonial Studies Reader (ch. 16, pg 104 - 110), Routledge.Taylor & Francis e-Library.

Bhabha, H. (2003). Signs taken for wonders. In The Post- Colonial Studies Reader (ch. 4, pg 29 - 35). Routledge.Taylor & Francis e-Library.

Bhai, 'Statesman on Sunday, Soldiers Corner' (14 June 1942), British Library Manuscripts - Newsroom Microfilm reel.

Bowman, G. (2020). The Indian contingent: the forgotten Muslim soldiers of the battle of Dunkirk. Macmillan.

'Central India Horse', WW2Talk, accessed 12 June 2023, http://ww2talk.com/index.php?threads/central- india-horse.48930/.

CWGC, 'Sangro River War Cemetery | Cemetery Details', CWGC, accessed 5 January 2023, https://www.cwgc.org/visit-us/find-cemeteries-memorials/cemetery-details/2021204/sangro-river-war- cemetery/.

National Archives, 'War Diary' (December 1940), Central India Horse (21 King George V's Own Horse), RC6603189.

Raghu Karnad. (2015). Farthest Field: An Indian Story of the Second World War. W.W. Norton & Company.

Scott, D. (2014). Omens of adversity: tragedy, time, memory, justice (pp. 7, prologue). Duke University Press, Cop.

Scott, D. (2014). The Temporality of Generations: Dialogue, Tradition, Criticism. New Literary History, 45(2), 157–181. https://doi.org/10.1353/nlh.2014.0017

The Wet Zone Revisited: Ploymathy in the Age of Bio Media

Morten Søndergaard

Abstract: This article revisits the exhibition Biotopia- Art in the Wet Zone (that the author curated in 2010 for the Utzon Centre in Aalborg, Denmark) and the companion essay "Bio Media Art: Art in the Wet Zone" (presented as a keynote at UCLA Art & Science Lab) (2011) to propose a renewed conception of polymathy suited to negotiate the ecological, political and epistemic challenges of the (effects of the) Anthropocene. Drawing on Bruno Latour's Politics of Nature and Gaia framework, as well as Michel Serres's notion of the parasite, the paper argues that expertise is no longer the province of solitary "Renaissance" geniuses but a joint effort of emergent collective forms of practice distributed across human and non-human actors. The analysis traces how the exhibition's living installations blurred disciplinary borders, fostered distributed authorship and foregrounded ethical negotiations around biosafety, care and agency. It then shows how the 2011 essay translated those curatorial insights into a call for "art in the wet zone," inspired by Roy Ascott, where the medium's vitality continually disrupts neat categories of art, science and politics. By situating these two projects within intersectional debates—especially those informed by feminist and de-colonial critiques—the article contends that polymathy must become inclusive, reflexive and responsive to structural inequities. Ultimately, the paper advances a model of "disruptive collectivity" in which parasitic interruptions, Gaian entanglements and community laboratories co-produce knowledge, aesthetics and ethics. Such a model, the article concludes, is indispensable for addressing techno-scientific controversies, ecological precarity and the urgent need for democratised, participatory forms of expertise.

Keywords: Bio art; Polymathy; Bruno Latour; Michel Serres; Politics of Nature; Gaia; The Parasite; Intersectionality; Collective practice; Anthropocene

1. Introduction

In 2010, the exhibition Biotopia marked a vivid intersection of artistic inquiry, biological experimentation, and cultural commentary. It offered an environment that invited audiences to question their assumptions about the "natural" world, about scientific interventions, and about the blurred boundaries between the organic and the technological. A year later, the essay "Bio Media Art: Art in the Wet Zone" (Leonardo Electronic Almanac, 2011) extended the conceptual underpinnings of the exhibition into a written framework. Together, the show and the essay mapped out a distinct approach to artistic practice that embraced the complexities of living systems, the unpredictability of biological processes, and the entangled relationships that shape how we perceive life and non-life.

Over a decade later, this paper revisits both Biotopia and "Bio Media Art: Art in the Wet Zone," but from a somewhat different vantage point. It reflects upon how such bio-artistic and techno-scientific works can be understood within broader socio-political and philosophical currents, particularly with respect to the concept (and practice) of polymathy. By polymathy, I refer to the cultivation of knowledge across multiple disciplines, skill sets, and epistemic frameworks, but also to the willingness to traverse disciplinary silos and even established power structures that traditionally determine what counts as "expertise". This polymathic impulse resonates with the fluid, hybrid, and cross-disciplinary nature of bio art, where artists find themselves engaged with laboratory procedures, philosophical debates, ecological activism, anthropological fieldwork, and diverse forms of collaboration that challenge the conventional boundaries between artist, scientist, curator, and the participating public.

In dialogue with polymathy, this essay also brings into the conversation two significant figures: Bruno Latour and Michel Serres. Latour's notion of the Politics of Nature and his later articulations of Gaia (as a rethinking of our planetary condition) radically reconsider the roles that different forms of knowledge and actors—human and nonhuman—play in shaping our collective existence. Michel Serres's The Parasite, on the other hand, destabilizes assumptions about communication, exchange, and power by foregrounding the role of the "parasite" as a figure that interrupts, reshapes, and creates new forms of meaning. While Latour encourages us to think

about how to integrate the voices of nonhuman agents into the political sphere, Serres points to the necessity of interruption and transformation in any system of information and exchange. Both philosophers help us question the conventional structures of mastery and highlight the importance of openness, multiplicity, and perpetual negotiation.

As I explore Biotopia and “Bio Media Art: Art in the Wet Zone” with these frameworks in mind, I aim to demonstrate that the essence of bio art—its fluid, evolving, and transdisciplinary character—has profound implications for rethinking expertise. The works and ideas born in these “wet zones” encourage us not only to collaborate across disciplines but also to question the very integrity of boundaries that define them. This in turn necessitates a deeper, more nuanced approach to polymathy, one that recognises expertise as neither solitary nor unchallenged, but as collective, dynamic, and deeply embedded in ecological and cultural contexts. Such a polymathy, I argue, is inclusive and intersectional: it acknowledges the need to listen to multiple viewpoints, including those of marginalised communities, to nonhuman actors, and to the disruptions that reveal structural inequities in our socio-political spheres.

Collectivity, inclusivity, and intersectionality become foundational pillars in this reimagining of polymathy. Traditional polymathy has often been associated with the “Renaissance man,” an archetype that invokes a particular historical and cultural lineage. Yet in a world of accelerating crises—ecological, political, and social—the notion of polymathy must evolve beyond the celebration of a solitary genius mind, pivoting toward forms of knowledge that are cooperative, fluid, and responsive to myriad voices. Artistic practice rooted in bio media further complicates this, reminding us that knowledge cannot be purely cerebral; it is also material, organic, and contingent upon life’s processes.

This essay, therefore, is structured around a desire to reflect upon Biotopia and Bio Media Art while weaving in the intellectual provocations of Latour and Serres. Following this introduction, I revisit the conceptual, artistic, and practical dimensions of Biotopia, assessing how it engendered a space for collaborative thinking and polymathic endeavors. I then recount key themes from “Bio Media Art: Art in the Wet Zone”, illustrating how those ideas resonate with and expand the conceptual scope

of the exhibition. Next, I delve into the concept of polymathy, interrogating it in light of contemporary demands for intersectionality and inclusivity. Building on these foundations, I highlight Latour's theories about the politics of nature and Gaia, as well as Serres's exploration of parasitic relations, to demonstrate how knowledge, power, and expertise might be reframed as dynamic, collaborative, and always open to disruption.

In the final sections, I argue for a more collective, intersectional, and inclusive approach to knowledge production, one that is deeply informed by the example of bio art and by the complexities of living systems. From this vantage point, we can see how efforts to expand or redefine our "expertise"—be it scientific, artistic, or otherwise—must embrace the "parasites" that question our assumptions and the nonhumans that demand representation. Indeed, if we are to thrive under Gaia's uncertain conditions, our polymathy must not only accept multiplicity but actively nurture it.

2. Revisiting Biotopia (2010)

When Biotopia opened in 2010, it emerged against a backdrop of growing international interest in bio art and the broader intersections of biology, ecology, and artistic practice. The exhibition's title suggested both a utopian and heterotopian dimension. On the one hand, it invoked the possibility of a space in which biological processes and human creativity might coexist symbiotically, providing a renewed sense of wonder at living matter. On the other hand, it carried an undertone of critique, as if to ask whether any humanly engineered biological environment could truly be described as "utopian," given the ecological crises already unfolding worldwide.

From the moment visitors entered the exhibition space, they were confronted with artworks that blurred the lines between living organisms, scientific apparatuses, and interactive media. Some installations invited viewers to observe or even manipulate microbial cultures, while others demonstrated the confluence of new media technology with organic matter. Through such experiences, audiences were invited not merely to look at art but to engage with the processes, transformations, and emergent behaviors inherent to living (and semi-living) systems. The emphasis on the "wet zone" of biology—the messy, moist, and generative realm of cells, fluids, tissues, and micro-organisms—was unmistakable.

In many ways, Biotopia was a curated environment intended to stimulate a form of direct, bodily experience and intellectual curiosity. Rather than presenting a series of static artworks, it aspired to be something akin to a laboratory, a living exhibition where the audience could witness, and sometimes even partake in, the manipulation of biological media. There was a certain radical openness in this approach: it welcomed contributions and interpretations from scientists, philosophers, ethicists, anthropologists, and members of the general public who might have little prior experience with laboratory protocols.

At the level of curation, one of the driving ideas was to illustrate that art grounded in biological materials transcends familiar definitions of installation, sculpture, or performance. Traditional aesthetic categories often fail to capture the ongoing, event-like quality of an artwork that literally grows or transforms in front of spectators. For instance, cultures of microorganisms introduced on the exhibition's opening day might look completely different a week later, allowing the artwork to morph over time and thus generating new layers of meaning. This aspect of continual becoming resonates with the notion that knowledge itself is never static: it evolves through interaction, questioning, and a kind of creative parasitism, where one discipline intrudes upon another.

This dynamic was evidenced by the dialogues that grew out of Biotopia. Scientists who were used to strictly controlled laboratory conditions found themselves in a more chaotic environment, where the aesthetic, conceptual, and experiential dimensions of biological experiments took precedence. Artists, on the other hand, realized that they were venturing into territory where specialized knowledge of techniques—microbiology, cell culture, genetic engineering—was necessary to realize their visions. The result was a blurring of roles, or at the very least a heightened awareness of how knowledge and skill flow across communities. It was not unusual to see lab technicians explaining experimental protocols to artists, who would then incorporate these new insights in playful or critical ways that might push the boundaries of what is ordinarily deemed acceptable or ethical. Conversely, the scientists encountered fresh perspectives on their tools and theories, perspectives influenced by aesthetic, ethical, and cultural questions that are often marginalised in a purely scientific context.

Biotopia thus became a microcosm for exploring the ways that knowledge is generated collaboratively. Traditional notions of expertise—wherein the scientist is the authority on biology, the artist is the authority on aesthetics, and so forth—were frequently undermined by new forms of shared discovery and improvised solutions. A visitor might witness an artist, a scientist, and a museum visitor collectively troubleshooting how to keep a microbe culture alive under unusual conditions. This improvisational quality underscored a key idea that would later be developed in "Bio Media Art: Art in the Wet Zone": biological media forces us to reckon with living processes that can defy our expectations and disrupt our categories, pushing us toward novel forms of engagement that transcend established silos of knowledge.

While Biotopia was undeniably an aesthetic experience, it also carried political, ethical, and ecological implications. At a time when synthetic biology was gaining traction and climate change was becoming ever more pressing, the exhibition served as a lens onto the socio-political ramifications of tinkering with life at the molecular level. How should we as a society navigate these emergent frontiers? Who has the authority, and on what basis, to decide which manipulations of life are permissible and which are not? The works in Biotopia did not necessarily provide definitive answers, but they made these questions visible and compelling, creating a space for conversation that could involve not only the specialized voices of scientists and ethicists but also laypeople, activists, and others.

Through this confluence of experiences, Biotopia epitomized an "art in the wet zone," one that demanded a polymathic sensibility from everyone involved. Curators had to be part scientist, part ethicist, part artist; artists had to navigate new scientific methods and materials, while scientists had to adapt their knowledge to the unpredictability of an art exhibition. Visitors, too, were invited to adopt a more inquisitive, transdisciplinary mindset. The seeds of this polymathic orientation, planted during Biotopia, would flourish in the textual articulation of these ideas in "Bio Media Art: Art in the Wet Zone."

3. Revisiting "Bio Media Art: Art in the Wet Zone" (2011)

If Biotopia functioned as a lived, immersive, and collaborative environment, "Bio Media Art: Art in the Wet Zone," published the following

year, provided an opportunity to systematize the insights gleaned from that experience. The essay delved into the theoretical and philosophical dimensions of working with living systems as art, articulating a vision of artistic practice that is necessarily interdisciplinary—and, crucially, intertwined with questions of ethics, ontology, and politics.

One of the central premises of “Bio Media Art: Art in the Wet Zone” was that art making with biological media cannot be reduced to the mere appropriation of scientific tools or protocols. Rather, the essay contended that such art undertakes a radical rethinking of media itself. In the realm of painting, sculpture, or even digital media, the notion of a “medium” tends to be associated with inert materials or software frameworks that the artist manipulates. In biological art, by contrast, the medium is alive. It possesses its own agency, potentialities, and vulnerabilities. This requires a profound shift in the artist’s stance: no longer a unilateral “creator,” the artist becomes a kind of co-creator, working alongside living matter that can respond, adapt, or perish, depending on conditions both internal to the artwork and external in the environment.

The essay further proposed that the use of living media brings issues of scale to the fore. Working at microscopic or molecular levels (e.g., bacterial cultures, cell lines, DNA) is not only technologically intricate but also epistemically challenging. It compels us to confront living systems that are invisible to the naked eye but deeply interwoven with our daily lives, from the bacteria in our gut to the viruses that can reshape global health. Artistic engagement at these scales thus becomes an investigation into the hidden infrastructures of life, an invitation to think critically about how we understand our own bodies and the ecological networks that sustain (and threaten) us.

Another major theme was the ethical dimension of bio art. “Bio Media Art: Art in the Wet Zone” pointed out that biological artistry cannot escape ethical scrutiny, since it inevitably engages with questions of life, death, and manipulation of organisms. The essay did not propose a one-size-fits-all ethical framework but rather highlighted the need for ongoing, reflexive dialogue among artists, scientists, ethicists, and the broader public. In other words, ethical considerations in bio art are not afterthoughts or external constraints—they are intrinsic to the artistic process itself.

This stance on ethics ties neatly into the polymathic approach that has now become a central concern of our revisitation. Ethical reflection in bio art requires knowledge of regulatory frameworks, insight into the biology of the organisms involved, understanding of public perceptions and cultural contexts, and an aesthetic sensitivity to how best to communicate these issues through the artwork. One cannot excel in one domain—say, scientific knowledge—while neglecting the others. The essay thus argued for an integrative approach to knowledge, one that not only crosses disciplinary lines but also maintains critical self-awareness of how power operates in different institutional settings (academia, biotech companies, cultural institutions, governmental bodies, and so forth).

Within that context, "Bio Media Art: Art in the Wet Zone" confronted the politics of representation in bio art. By working with living organisms, artists often found themselves unearthing or revealing power dynamics that structure how we treat nonhuman life. For instance, some works might critique the commodification of transgenic organisms, while others might highlight the precarious status of endangered species. By making these issues tangible—often through direct sensorial or emotional engagement—bio artists stimulated audiences to rethink their own roles and responsibilities in the ecological web. This again resonates with the notion that knowledge must be both broad-based and intersectional if it is to be truly transformative.

Finally, the essay considered the aesthetic dimension of bio art, acknowledging that, despite the urgent and sometimes disquieting content, these works remain part of a visual, sensory, and conceptual tradition that engages with beauty, awe, curiosity, and wonder. The wet zone is a zone of life in all its messy exuberance, and art can amplify the emotional impact of encountering that life. The ephemeral qualities, the visible transformations, and the sense of co-creative emergence endow bio art with a unique capacity to provoke profound affective responses. It is in this interplay of aesthetics, biology, technology, and ethics that the polymathic character of the practice becomes vividly apparent.

4. Polymathy in Creative and Artistic Practice

In popular imagination, the polymath is often invoked as an exceptional individual, typically exemplified by figures like Leonardo da Vinci or

Johann Wolfgang von Goethe, who attained mastery across multiple disciplines. This archetype carries a deeply ingrained cultural prestige. The "Renaissance man"—and it is almost always a man in these narratives—stands as a paragon of intellectual brilliance, creativity, and curiosity.
Yet, viewed through the lens of contemporary social and ecological crises, this individualized conception of polymathy has significant limitations. First and foremost, it tends to rest upon the assumption that knowledge exists in neatly bounded disciplines, and that the polymath's achievement lies in transcending those boundaries through personal genius. While it is true that some individuals do traverse multiple fields, this heroic framing can obscure the roles that collaboration, mentorship, and collective infrastructure play in shaping anyone's intellectual development. Indeed, as we saw in Biotopia, the fluid crossing of disciplinary lines did not hinge on a single heroic figure but rather on an environment designed to foster collaborative engagement. The aim was not to celebrate individual virtuosity but to create networks where knowledge could circulate in unexpected ways and yield emergent insights.

Moreover, the conventional image of the polymath can be elitist. Historically, it has been tied to those with access to extensive resources—time, capital, libraries, technologies, and social networks—that allow for sustained engagement with multiple domains of expertise. This leaves out individuals or communities that, due to socio-economic constraints, systemic prejudices, or geographic marginalization, do not have the same opportunities to cultivate varied interests or talents. In a world that increasingly calls for intersectional perspectives, a polymathy that centers a single privileged subject feels inadequate. It runs the risk of reinforcing existing hierarchies and ignoring the collective nature of knowledge building.

Bio art, offers a contrasting model of polymathy—one that is less about individual mastery and more about interdependent knowledge-making. The complex collaborations that took place among artists, scientists, technicians, curators, and visitors highlight a form of distributed expertise. Each participant brought unique insights or skills, and the real polymathic moment occurred not in a single genius's mind but in the collaborative interplay among multiple actors. This aligns with the perspective of Michel Serres in The Parasite: knowledge (and communication) is never a pristine, one-way transmission; it is always interrupted, re-routed, and reshaped by

various participants, all of whom act as “parasites” to one another. Far from being a negative phenomenon, these parasitic interruptions generate the creative spark that pushes collective understanding forward.

Another relevant factor in rethinking polymathy is the temporal dimension. In the era of rapid technological and social change, the “completeness” of one’s mastery in any single discipline is increasingly short-lived. Knowledge proliferates at breakneck speed, complicating any attempt to remain an expert in one’s chosen field—let alone multiple fields. A polymathy suited to today’s world must be adaptive, flexible, and ever open to learning and unlearning. It might be better understood as a set of dispositions—curiosity, humility, collaborative spirit, willingness to risk failure—than as a body of knowledge or a personal attribute. In this sense, the “art in the wet zone” becomes a metaphor for the intellectual fluidity and openness required to navigate an evolving knowledge ecosystem.

At the same time, we must also recognise that a polymathic approach can facilitate creative solutions to global crises. By drawing on methods and perspectives from diverse fields—ecology, microbiology, design, cultural studies, activism—artists and scientists can craft responses that are both technically robust and culturally resonant. The synergy arising from these cross-pollinations is vital if we are to grapple with challenges like climate change, pandemics, and social injustice. What bio art shows is that these solutions cannot be top-down, nor can they be the product of disciplinary insularity. They demand a mode of inquiry that is situated in real-world conditions—ecological, social, cultural—and that acknowledges the myriad factors shaping complex systems.

Finally, a contemporary polymathy must also grapple with ethical and political questions. Engaging multiple domains of knowledge means encountering multiple value systems, power structures, and potential points of conflict. For instance, the laboratory ethics of a research scientist might clash with the creative license of an artist, or a corporate funding model might raise concerns about commodification of life forms. Navigating these tensions requires more than just intellectual breadth; it calls for robust mechanisms of accountability, a willingness to question one’s own assumptions, and an ethos of care that extends beyond the human.

Thus, by revisiting Biotopia and “Bio Media Art: Art in the Wet Zone,” we see how bio art not only encourages but arguably necessitates such a polymathic stance. It fosters spaces of co-learning in which participants from various backgrounds engage in ongoing dialogue about scientific methods, ethical considerations, public communication, aesthetic expression, and ecological impact. This is a living example of how polymathy can be practiced collectively, thereby challenging the stereotype of the solitary genius and opening new avenues for inclusive, intersectional knowledge production.

In summary, this rethinking of polymathy—spurred by the experiences of Biotopia, the theoretical insights of “Bio Media Art: Art in the Wet Zone,” and the creative disruptions that characterize bio art—points us toward a future in which expertise is shared, fluid, and deeply contextual. In the subsequent sections, I will bring Bruno Latour’s “Politics of Nature” and Gaia, as well as Michel Serres’s concept of the parasite, into direct conversation with these ideas. This theoretical cross-fertilization will help elucidate how polymathy can further challenge traditional frameworks of knowledge, embrace the nonhuman, and cultivate ethical and collective forms of inquiry.

5. Bruno Latour’s Politics of Nature and Gaia

To deepen our rethinking of polymathy—especially in the realm of bio art and the “wet zone”—we now turn to the work of Bruno Latour, whose contributions to science and technology studies (STS), actor-network theory, and political ecology have reshaped how we consider the entanglements of humans, nonhumans, and knowledge. Latour has long challenged the notion that nature and culture are separate realms. Instead, he insists we recognise that what we call “nature” is neither a stable background nor a mere resource; rather, it is a dynamic partner in ongoing negotiations. This premise is especially relevant to the transdisciplinary ethos we have been exploring, in which the boundaries of expertise and the partition between “art” and “science” are perpetually in flux.

5.1. Politics of Nature: Moving Beyond the Fact/Value Divide

In his seminal work Politics of Nature, Latour questions the modernist assumption that we can cordon off facts (the domain of science) from values

(the domain of politics). According to this line of thought, scientists are entrusted with discovering objective truths about nature, while politicians and other social actors deal with subjective issues of governance. Latour calls for the dismantling of this fact/value divide, arguing that all knowledge is, in a sense, political because it shapes and is shaped by human and nonhuman alliances.

Such an outlook resonates strongly with the experiences recounted in Biotopia and "Bio Media Art: Art in the Wet Zone." In these contexts, an artist tinkering with living cells is not just engaging in aesthetics; they are also engaging in a political act that foregrounds how we treat living beings, how we authorize certain manipulations over others, and how we invite or exclude various stakeholders from the conversation. A petri dish, it turns out, is never just a petri dish; it is also an arena of ethical, ecological, and societal negotiation. By collapsing the fact/value dichotomy, Latour's Politics of Nature compels us to see these negotiations as constitutive of our collective reality, rather than as optional ethical footnotes.

Latour also critiques the traditional idea of "nature" as something external that must be discovered and represented by specialists. Instead, he envisions a more democratic process in which all those affected by environmental or scientific controversies—human and nonhuman alike—should have a voice. This expanded political arena is where we see the seeds of a broader, more inclusive polymathy taking shape. If we accept that living organisms, ecosystems, machines, and cultural norms are actors with distinct forms of agency, then our concept of expertise must adapt. Traditional expert roles, while not obsolete, become part of a larger repertoire of voices. The vantage point of an artist or a curator might be as crucial to understanding a biological experiment as that of a microbiologist. Indeed, the microbe itself, in its behaviors and life processes, contributes vital insights, albeit in a "language" we must learn to interpret.

5.2. Gaia as a Collective: Rethinking Planetary Conditions

Latour's later writings, especially in Facing Gaia, delve even more deeply into ecological and planetary concerns. Borrowing from James Lovelock's Gaia hypothesis—though not without critical modifications—Latour speaks of Gaia as a name for the complex, entangled system that includes but is

not limited to the Earth's biosphere. Gaia is neither a goddess nor a stable equilibrium; rather, it is a name for the precarious, interdependent set of processes that sustain life on Earth. Far from a unifying, harmonious vision, Gaia represents a set of dynamic tensions and feedback loops in which humans play a conspicuous, and often disruptive, role.

In this sense, Gaia is not an inert backdrop to human activity; it is an active participant in planetary politics. Climate change, biodiversity loss, and the spread of emerging pathogens illustrate that Gaia is "reacting" to anthropogenic pressures—though not necessarily in a deliberate or moralistic way. Latour's point is that humans are no longer external observers; we have become geological agents shaping Gaia's processes. This new condition, sometimes called the Anthropocene, demands a reorganization of our political and epistemological frameworks. Polymathy, thus reimagined, must include not only multiple domains of human knowledge but also an acknowledgment that nonhuman actants are intrinsic to what we call "politics," "society," or "culture."

Biotopia and the broader practice of bio media art foreshadow this Gaian turn by placing living matter at the heart of artistic inquiry. The ephemeral, evolving, and occasionally uncontrollable nature of biological media forces us to confront the reality that we are not separate from or above the living systems we study, display, or manipulate. The idea of Gaia extends this recognition to the planetary scale, reminding us that an exhibition or artwork is a microcosm of wider interactions that ripple through soils, oceans, climates, microbial communities, and human societies.

Latour's emphasis on the entanglement of science, politics, and ecology suggests that we approach knowledge-making as a collective negotiation among heterogeneous actors. This underpins a rethinking of polymathy that is not about amassing expertise in multiple subjects within a single mind but about developing interdisciplinary and interspecies dialogues that enable more holistic, responsive, and ethically grounded understandings of the world. While historically the polymath might have been seen as a singular intellect synthesizing knowledge from various libraries, the new polymathic ethos in the age of Gaia might be better described as a networked practice, one that welcomes partial perspectives from scientists, artists, microbes, ecosystems, and more.

6. Michel Serres and The Parasite

Complementing Latour's call for an inclusive politics of nature, Michel Serres's philosophical oeuvre injects a radical sense of disruption and novelty into our conceptions of communication, knowledge, and social relations. In The Parasite, Serres explores the figure of the "parasite" as a key to understanding how systems function—or fail to function. The parasite interrupts, diverts, and rearranges; it feeds off hosts while simultaneously instigating new forms of organization. This notion parallels the unpredictable, transgressive energy present in bio art, where the intrusion of living matter into the realm of gallery or museum space continuously reconfigures expectations.

6.1. The Parasite as a Mode of Invention

Traditionally, the term "parasite" carries negative connotations: an organism or entity that lives off another, offering nothing of value in return. Serres, however, destabilizes this simplistic picture. He notes that parasitism is ubiquitous in natural, technological, and social systems. From viruses infecting cells to social actors "interrupting" a conversation, parasitic relations are inevitable. The parasite is not just an opportunistic freeloader but also a creative force, one that disrupts established orders and compels systems to adapt or reconfigure.

This insight can illuminate the polymathic collaboration witnessed in Biotopia. When artists invade laboratory spaces—or when scientists insert their instruments into an art installation—there is an element of parasitism: each discipline is "using" the other's resources (concepts, networks, funding, legitimacy) for its own ends. Yet this parasitism can generate novel connections that neither discipline would arrive at alone. The interplay of different languages—visual, scientific, conceptual—can yield innovative approaches to thinking about living media. Far from being a detrimental phenomenon, these mutual interruptions become catalysts for discovery, the impetus for new forms of knowing that cut across established boundaries.

6.2. Noise, Translation, and Collective Understanding

Central to Serres's argument is the role of noise in communication. In conventional terms, noise is seen as a disturbance that corrupts a signal. But Serres suggests that noise is also the source of transformation, a creative friction that forces communicators to adjust and invent new modes of expression. In a complex system—be it an ecosystem or a collaborative research group—noise can lead to mistakes, but those mistakes sometimes open doors to unexpected pathways of thought or practice.

For instance, in the context of bio art, the unpredictability of working with living cells might introduce "noise" into artistic production: microbial cultures may die unexpectedly, mutate in ways the artist did not anticipate, or respond to subtle environmental shifts. Each disruption can be a moment of translation, prompting the artist to reinterpret the work or to alter the conditions of display. Similarly, a scientist offering a protocol to an artist might find the protocol "misused," leading to outcomes that traditional lab procedures would have avoided. Far from being purely detrimental, such deviations can broaden the horizon of possibility.

From the perspective of polymathy, this suggests that multiple forms of expertise need not always collaborate harmoniously in a carefully orchestrated plan. Rather, they collide, clash, and sometimes hinder each other. Yet these hurdles force participants to adapt, reframe their assumptions, and expand their conceptual toolkits. Serres's parasitic model thereby underscores how creative breakthroughs often require an element of chaos or disturbance. The resulting "collective understanding" is never final or complete; it is perpetually in flux, co-evolving with the actors and contexts that shape it.

6.3. The Parasite and Ethical Complexity

Alongside its generative capacity, parasitism also carries moral and ethical complexity. When is parasitism a form of exploitation, and when is it a necessary disturbance for systemic renewal? In Biotopia, for instance, living organisms were placed in environments that served the aesthetic or conceptual aims of artists. One might argue that the organisms were being "used" for human cultural ends. Conversely, the presence of microbes might

have “used” the exhibition to reach new ecological niches, or to highlight the vulnerability of certain life forms to human intervention. These dynamics raise questions about accountability, reciprocity, and care—questions that are never fully resolved but that must be persistently revisited.

Serres’s parasitic framework thus reminds us that transdisciplinary collaborations are not merely about harmony or synergy; they are also about negotiation, power differentials, and potential exploitation. A polymathic model that acknowledges parasitism embraces a productive tension: it recognises that new knowledge arises from friction and that ethical considerations must be woven into the very fabric of collaboration. This is particularly pertinent when living entities are involved, whether they are microorganisms in a petri dish or entire ecosystems struggling for balance under anthropogenic stress.

7. The Intersection of Latour and Serres: Toward a Disruptive Collectivity

Bringing Latour and Serres into dialogue enriches our understanding of how knowledge is produced in contexts like Biotopia or bio media art more broadly. Latour’s emphasis on a collective political ecology suggests that all actors, human and nonhuman, deserve a seat at the table. Serres’s conception of the parasite highlights that this collective is not peaceful or orderly but rife with interruptions that can spawn both creativity and conflict. Together, they map out a vision of knowledge-making in which no single actor can claim sovereignty.

7.1. Collective Assemblies and Fragile Networks

Latour’s Politics of Nature calls for a “parliament of things,” a democratic assembly in which scientific facts and social values are negotiated in tandem. Yet, as Serres might remind us, no parliament can guarantee perfect communication. Every conversation is riddled with static, partial translations, and potential misunderstandings. In the realm of bio art, these difficulties are intensified by the participation of living organisms that do not speak in human language. Their “votes”—manifested in survival, growth, mutation, or decay—are frequently unpredictable. We might see, for instance, a bacterial colony refusing to thrive in an installation, thereby

"vetoing" the artist's initial vision.

What emerges is a fragile network that must be constantly maintained and reconfigured. This fragility is not necessarily a weakness. It can also be a source of resilience, as it forces participants to remain vigilant, flexible, and responsive to new inputs or perturbations. The fluid, iterative collaboration that characterizes the wet zone thrives on this precariousness, fostering an environment where unexpected alliances can form among humans, microbes, chemicals, and technologies.

7.2. Disruption as a Form of Care

It may seem counterintuitive to link "disruption" with "care," yet Serres's notion of parasitism and Latour's emphasis on assembling diverse actors both point to a new understanding of how care operates in knowledge networks. Disruption can be caring insofar as it reveals blind spots, compels adaptation, and ensures that no single perspective becomes tyrannical. In a polymathic environment, disruptions keep the conversation open-ended, preventing the ossification of ideas.

For example, a molecular biologist might "disrupt" an artist's plan by insisting on ethical guidelines for handling certain cell lines. This intervention might seem restrictive initially, but it can lead to a more thoughtful artwork, one that acknowledges and incorporates moral and scientific nuances. Conversely, an artist might disrupt the scientist's lab procedures by introducing conceptual or aesthetic elements that do not align with standard protocols. The scientist is thereby encouraged to look at the experimental setup from a fresh vantage point, possibly discovering overlooked variables or new creative approaches. Such reciprocal care, born of friction, transforms "expertise" into a shared ethical endeavor, rather than an isolated domain of authority.

7.3. Multivocality and Intersectionality

When we speak of collectivity in knowledge production, we also need to address intersectionality—the acknowledgment that social identity categories (such as race, gender, class, ability) intersect to produce overlapping systems of disadvantage or privilege. Latour's and Serres's frameworks can be extended to account for these human social complexities.

Although neither philosopher focuses primarily on intersectional issues, their emphasis on inclusion and disruption dovetails with the demands of intersectional thought: to question who has access to certain spaces, who is excluded, and how knowledge-making is shaped by power imbalances.

In a Biotopia-like setting, intersectionality might manifest in practical questions: Who gets to decide which organisms are used in the exhibition? Whose cultural perspectives on life and nonhuman agency are validated, and whose are ignored? How are labor and expertise recognised or compensated, especially for those whose contributions do not fit neatly into established professional categories? Polymathy, in this sense, cannot be an intellectual exercise alone; it must be deeply intertwined with social justice, ensuring that the friction of new ideas does not merely replicate existing hierarchies but actively challenges them.

8. Polymathy and Collective Practice in the Anthropocene

The Anthropocene, marked by human-induced climate change and ecological disruption, intensifies the need for transdisciplinary and interspecies collaboration. As global crises proliferate—ranging from pandemics to mass extinction events—the stakes of knowledge production have never been higher. Polymathy must evolve from a celebration of individual genius to a joint effort of emergent collective forms of practice distributed across human and non-human actors capable of addressing systemic challenges. Bio art, especially as exemplified by Biotopia, provides a microcosm for how such a joint effort of emergent collective forms of practice might operate.

8.1. The Limits of Specialization

While deep expertise is undoubtedly valuable, the interlinked nature of climate, health, economics, and culture often requires broader, more integrative approaches. Specialists trained in narrow domains may struggle to see the bigger picture or to translate their findings into actionable strategies that resonate with diverse communities. Polymathy—understood as a collective rather than individual capacity—enables us to piece together these disparate insights, forging holistic responses that can tackle root causes rather than merely treating symptoms.

Bio art, as we have seen, exemplifies this integrated mode of operation. Artists working with living systems must become conversant not only in biological techniques but also in regulatory frameworks, ethical debates, and aesthetic philosophies. They often collaborate with molecular biologists, ecologists, sociologists, and community organizers. In doing so, they create a living laboratory of interdisciplinary synergy that models how we might respond to broader environmental and social dilemmas.

8.2. Community Laboratories and Open Science

A further development in recent years is the rise of community laboratories, also known as “biohacker spaces” or “makerspaces,” where amateurs, artists, and scientists gather to explore biotechnology in open and collaborative ways. These spaces often adopt a DIY (do-it-yourself) or DIWO (do-it-with-others) ethic, deliberately blurring the line between professional and amateur expertise. This not only democratizes access to scientific tools but also promotes a polymathic culture in which participants learn from each other and experiment collectively.

Such community labs resonate with Latour’s call for more inclusive democratic forums of knowledge production and with Serres’ emphasis on the generative power of interruption. In a DIY bio lab, an amateur might propose an unorthodox approach that momentarily disrupts established procedures, leading the group to consider solutions that professional scientists might overlook. At the same time, the amateurs benefit from the scientific rigor brought by trained professionals. The outcome is not a unidirectional transfer of knowledge but a mutual exchange that can spark both innovation and socially conscious applications of biotechnology. These grassroots initiatives underscore the potential for polymathy when resources, tools, and knowledge are shared across conventional boundaries of discipline and social hierarchy.

8.3. Ethical and Regulatory Challenges

Of course, these open, collective approaches to knowledge-making also face substantial challenges. Biohacker spaces, for example, must navigate regulatory environments that vary widely by jurisdiction and may not be well adapted to citizen science. Moreover, the do-it-yourself ethos can

sometimes clash with legitimate concerns about biosafety and biosecurity. Such tensions mirror the ethical challenges in Biotopia, where the creative freedoms of artists intersected with the need for responsible stewardship of living organisms.

A collective polymathy thus involves not only the integration of multiple skill sets but also the co-development of ethical frameworks that can address the complexities of contemporary biotechnologies. This means building reflexive spaces of dialogue, creating guidelines that are neither top-down nor entirely laissez-faire, and ensuring that marginalised voices are included in the debate. In other words, the practice of polymathy in the Anthropocene must be regulative as well as innovative, continually evolving in response to emerging scientific and political developments.

Finally, Revisiting Biotopia (2010) and the essay “Bio Media Art: Art in the Wet Zone” (2011) offers a lens through which to examine how artistic practice can evolve in collaboration with scientific inquiry, ethical reflection, and political action. In the “wet zone”—where living cells, tissues, and organisms become mediums of expression—we encounter a mode of creative production that necessitates ongoing negotiation among diverse forms of expertise and competences. It is here that we see an emerging polymathy that is collective, inclusive, and intersectional, rather than anchored in solitary genius or traditional disciplinary mastery. If polymathy is to be truly collective, it must integrate the concerns and knowledge systems of the positions of those who have historically been marginalised.

References

Søndergaard, M. (2010) Biotopia – Art in the Wet Zone. Curated by Morten Søndergaard. Utzon Center / PORT 2010, Aalborg, June-October, 2010.

Crenshaw, K. (1989) 'Demarginalizing the intersection of race and sex: a black feminist critique of antidiscrimination doctrine, feminist theory, and antiracist politics', University of Chicago Legal Forum, 1989(1), pp. 139–167.

Latour, B. (2004) Politics of Nature: How to Bring the Sciences into Democracy. Cambridge, MA: Harvard University Press.

Latour, B. (2017) Facing Gaia: Eight Lectures on the New Climatic Regime. Translated by C. Porter. Cambridge: Polity Press.

Lovelock, J. (1979) Gaia: A New Look at Life on Earth. Oxford: Oxford University Press.

Serres, M. (2007) The Parasite. Translated by L.R. Schehr. Minneapolis: University of Minnesota Press.

Søndergaard, M. (2011) 'Bio Media Art: Art in the Wet Zone'. Keynote Adress delivered at Art & Science Lab UCLA, US. Abstract published in Leonardo Electronic Almanac 2011.

Contributors BIOs

Sarah Hager

Doctoral Candidate at Humboldt University of Berlin

Sarah Hager brings knowledge and perspectives from historical epistemology and artistic research into interdisciplinary collaborations between art and science. A graduate of Oxford University in the UK and Federico II in Italy, Hager is a doctoral candidate at Humboldt University in Berlin.

Saira Ansari

Independent Researcher

Writer and editor Saira Ansari works across art, archives, and publishing, focusing on the slow, intentional production of critical texts, artist books, and alternative histories. She is currently developing a new publishing imprint.

Adnan Balcinovic

University of Applied Arts Vienna, Cross-Disciplinary Strategies

In his artistic practice, Adnan Balcinovic deals with sequential image production in the context of the moving image. Adnan works mainly with found materials and searches for concepts, structures and patterns. Important terms for his artistic practice are repetition, reproduction and presentation. As an educator and collaborator, he is interested in cross-disciplinary experimental teaching formats.

Amna Hashmi

COMSATS University Islamabad

Amna Hashmi's research focuses upon the linkages between Illuminated manuscripts with Japanese manga, in particular storytelling, myths, folklore and creating magical, collective imaginary spaces in modern digital contexts. Recent works have been shown at He Yuan Peace Garden Museum (2017), Tsinghua University Art Museum (2020) - and as Pak Khawateen Painting Club - Lahore Biennale 02 (2020), Jameel Art (2022), Sharjah Biennale '15 (2023). Hashmi is currently an Assistant Professor at Department of Art and

Design at COMSATS University, Islamabad.

Kazim Ali

University of Central Punjab

Kazim Ali is a Pattern Intelligence Specialist with core specialization in Experimental Cellular Automata (CA). He investigates Behavioral Patterns using CA in UX Design, AI, 3d Immersion and has more than 18 years experience in interdisciplinary application of ethical and inclusive practices in Education, UX Design, Art and Technology practices.

Sehr Jalil

Goldsmiths, University of London & National College of Arts, Lahore

Sehr Jalil is a multidisciplinary visual artist/researcher. She works with ideas and issues of memory, archive, intergenerational relationships, race, class, and post-colonial identity politics. She's a doctoral candidate at Goldsmiths, Department of Visual Cultures, University of London and a Lecturer in the Department of Cultural Studies, National College of Arts, Lahore. She is currently based in London and on leave for her PhD.

Morten Søndergaard

Aalborg University & Momentum Biennial

Morten Søndergaard is an internationally acclaimed Curator and Professor of Media and and Sound Art at Aalborg University, Denmark. He is the AAU academic director of the Erasmus Master of Excellence in Media Arts Cultures. On top of his own sound practice, he is presently engaged with sound curation at the Momentum Festival in Norway.

He is the founder of the conference series POM – Politics of the Machines (with Laura Beloff) (since 2017) and ISACS - International Sound Art Curating Symposia (w Peter Weibel) (2010-2017). He has published and curated several sound and media art exhibitions internationally, including Kiasma, ZKM, Rupertinum, Ars Electronica, Eyebeam NY, Utzon Center Aalborg, Kunsthal Aarhus, and Museum of Contemporary art in Roskilde.

Humna Naveed

Architect, Urban Designer, Independent Researcher in Berlin, Germany

Humna Naveed Architect, Urban designer, and an Educator with a focus in the field of Architecture, climate resilient Urban and Landscape Ecologies. She has a Master's in Architecture and Urban Design from Pratt Institute, as a Fulbright Scholar from Pakistan, and her work has been featured by the American Institute of Architects NY and the Venice Biennale. Her portfolio includes field work spanning across architectural practice, research assistantship and curation, a research publication, as well as academic work as a Lecturer and Moderator for international colloquium and architectural design studios previously at NUST, Pakistan.

M. Isfandyar Khan & Ahmad Waseem

Spacemen Architecture Design, Ohio University

M.Isfandyar Khan is a practicing architect, part-time academic researcher and a musician at heart. His research interests lie in Marxist theory, class struggle, and economic inequality, particularly in the Global South. His work also explores how music and poetry serve as sites of resistance and political consciousness. He is drawn to interdisciplinary approaches that connect cultural expression with critiques of power, capitalism, and social injustice. He heads his architecture practice called Spacemen Architecture Design and is the lead vocalist for his band, YarKhan. He resides in Lahore.

Ahmad Waseem is a Ph.D. candidate in Computer Science at Ohio University. His research investigates the simulation-to-reality (sim-to-real) transfer problem, specifically whether models trained on simulated flight data can reliably detect anomalies such as engine failures during real-world operations. They have presented their work at the notable conferences such as AIAA SciTech Forum and The Ohio Academy of Science, and have received numerous grants such as Ohio Original Work Grant, Ohio Travel Award, Student Enhancement Award, and the Stocker Fellowship to fund their graduate research.

Dr. Michaela Et al.

Dr. Michaela Honauer is a design research professor at Technische

Hochschule Nürnberg Georg Simon Ohm (Nuremberg Tech), Germany. She explores how AI-driven technologies (re)shape human relationships and strives for equity and accessibility to emerging technologies. Her work draws on participatory and embodied methods, speculative and performative interventions, and post-phenomenological theories.

Malou Beemer is a Dutch designer, artist and researcher who works on design innovation and textile interaction. Fascinated by human behaviour, she reshapes the relationship and interaction between us and our surroundings through textiles. With over 12 years of work experience within interdisciplinary projects, she has been operating in different domains of the creative industry and academic field.

Emil F.J.P. Gravier from Hamburg, Germany, is a Master's student in Interaction Technology at the University of Twente, with a Bachelor's degree in Creative Technology. He is passionate about electrical engineering, Arduino tinkering, programming, and interaction design. Besides his studies, he serves as secretary of the student ice hockey team "S.Y.H.V. The Slapping Studs.

Dennis Massar a deaf dancer, teacher and choreographer who works nationally and internationally in different projects. He has a big passion for dance inclusion. Dennis stands for a more diverse scale of dancers/ performers on stage. With this goal Dennis focusses on people with hearing impairments by combining Sign language and dance.

Laisvie A. Ochoa Gaevska is director of ConCuerpos, an inclusive dance company with a dual presence in Colombia and the Netherlands, working with dancers with and without disabilities in artistic, educational, and research projects. She studied Psychology and Multimedia Creation in Colombia and pursued a Master's in Choreography and the Embodied Life Art Program in the Netherlands.

Dr. M. Birna van Riemsdijk is associate professor Intimate Computing at University of Twente. Her research develops design methods and computational models for taking into account personal values and vulnerabilities in creating Intimate Technologies. She was awarded a Vidi personal grant and the Dutch Prize for Research in ICT 2014.

ISSN 3104-9931

unesco Chair

BNU

UNESCO CHAIR
ON INCLUSION THROUGH ART

MARIAM DAWOOD
SCHOOL OF VISUAL ARTS & DESIGN
BNU MDSVAD