



WHITE  
PAPER

PILOT STUDY ON THE CONTRIBUTION OF  
IMMERSIVE ART TO WORKER WELLNESS

REFLECTIONS AND EXPLORATIONS

WITH THE SUPPORT OF **beneva**

# VITAMINE IMMERSIVE







**La Vitamine immersive** aims to measure the impact of immersive experiences at the emotional and cognitive levels and examine the relationship between audiovisual immersion and the individual, particularly within the context of workplace-related stress and anxiety.

In the long run, we also hope to offer Quebec’s cultural landscape a wealth of reliable data from which local creatives can draw inspiration.

THIS WHITE PAPER OCCUPIES A SORT OF INTERMEDIARY POSITION.

IT EXISTS HALFWAY BETWEEN INTUITION  
AND PROVEN FACT.

THE INFLECTION POINT BETWEEN BEFORE AND AFTER,  
IDEA AND ACTION, STORY AND VISION.

KEYWORDS

IMMERSION  
DIGITAL ARTS  
RESEARCH  
WELLNESS  
SENSORY  
ANXIETY

INNOVATION  
INTERACTIVITY  
EXHIBITION  
JOURNEY  
WORK  
EXPERIENTIAL





# TABLE OF CONTENTS

00	SUMMARY	P.2	03	IMMERSIVE ART	P.16
01	PREAMBLE	P.4	3.1	TYPES OF APPLICATIONS	P.17
1.1	A WORD FROM DENYS LAVIGNE	P.5	3.2	VARIETY AND SPECIFICITIES OF EXPERIENCES	P.18
1.2	A WORD FROM DELPHINE BEAUCHAMP	P.6	3.3	AN UNDERLYING TREND	P.20
1.3	A WORD FROM JEAN-FRANÇOIS CHALIFOUX	P.7	04	THE EXPERIMENT	P.23
02	SETTING THE SCENE	P.8	4.1	PHASE 1	P.24
2.1	PROJECT ROADMAP	P.9	4.2	DATA COLLECTION	P.28
2.2	A PIVOTAL MOMENT FOR THE LABOUR MARKET	P.12	4.3	PHASE 2	P.30
			05	CONCLUSION	P.31
			06	APPENDICES	P.33



# 01

# PREAMBLE



1.1	A WORD FROM DENYS LAVIGNE
1.2	A WORD FROM DELPHINE BEAUCHAMP
1.3	A WORD FROM JEAN-FRANÇOIS CHALIFOUX





1.1

A WORD FROM  
DENYS LAVIGNE

PRESIDENT AND CO-FOUNDER,  
OASIS IMMERSION



There are moments in life when everything comes together. Two years into our efforts to launch the OASIS immersion project, a cultural destination dedicated to immersive digital art, the pandemic struck. Though we were shaken by this unprecedented event, the mission we had set for ourselves proved a powerful motivator, and we were able to see the project through. We had imagined OASIS as a place of respite, a comforting humanistic environment with a decidedly optimistic bent that evolves with the times. In our eyes, this was the most promising path forward—creating immersive art to soothe and inspire in a world rocked by the impact of the digital revolution, political tensions, social upheaval, and climate crises.

CREATIVE INDUSTRIES ADDRESSING  
SOCIETAL ISSUES

The global pandemic inspired a great deal of reflection on the role of art in modern society and where our project fit in, on the importance of art and creativity as a vehicle for meaning and hope, and as a unifying force. In February 2021, museums were allowed to reopen, and we were finally able to open our doors to the public. Culture and art had become an almost therapeutic tool in the government’s crisis management strategy, and we wanted to be part of the solution. As offices began reopening in

downtown Montreal, Delphine Beauchamp, executive director of La Piscine, urged us to develop a project to help alleviate stress and anxiety. She wanted to explore how this emerging medium could help address economic, societal, and public health issues. Once again, everything was lining up. Thus was born **La Vitamine immersive**.

MULTIMEDIA AND WELLNESS

At its core, **La Vitamine immersive** aims to better understand the relationship between immersive art and the individual. Could using audio and video as a transformative platform, as a wellness space, be a utopian vision? The exploration phase revealed promising initial findings regarding the experience’s positive contribution at both the emotional and cognitive levels; an overview of these results is presented in the appendix of this document. Thanks to the valuable collaboration of the Relief research chair and our consultants and researchers, we will be able to explore these avenues in greater depth and push this exciting experiment further, particularly in terms of individual wellness.

AN ENHANCED PERSPECTIVE

Nearly one year after its launch, this initiative has already proven transformative for us

as the hosts and developers of the project. We will always be grateful for how it has enhanced our appreciation for the medium and strengthened our sense of responsibility toward our visitors. **La Vitamine immersive** has also mobilized a community of creatives from Quebec and around the world to join the cause and even spawned an immersive exhibition that was hugely successful at OASIS (**RECHARGER/Unwind**). On behalf of the entire team, we would like to thank all our colleagues, and especially La Piscine and our partner Beneva, for making this project possible. Thank you for supporting our creative industries and for your commitment to the wellness of all Quebecers.





# 1.2

## A WORD FROM DELPHINE BEAUCHAMP

EXECUTIVE DIRECTOR,  
LA PISCINE

In 2022, La Piscine celebrated seven years of serving the creative and cultural industries. A recent review revealed that every single one of our initiatives furthers our mission of providing support to innovative cultural and creative entrepreneurs of all stripes and maximizing the potential of the creative economy in Montreal and Quebec.

Looking back on this journey, a common thread runs through our support programs and the events of our creative hub. This thread weaves together the concepts of **efficiency, competitiveness, growth, development, entrepreneurship, art, culture, and creativity.**

We often hesitate to group these terms, and some even disagree with them.

However, La Piscine made the conscious decision to embrace and integrate them on the basis of excellence, in the interest of developing businesses in all cultural and creative sectors.

### CREATIVITY AND INNOVATION

We made this decision in light of two observations:

There are many strong, competitive companies and startups in a variety of sectors—publishing, music, design, digital arts, etc.—that have the potential to become leaders in Quebec. The diversity that lies at the heart of culture and creativity is a provincial asset.

We firmly believe that all creative sectors drive sustainable and inclusive innovation; that they contribute to the social wealth of Quebec and the definition of a new, more applied, contributory, and—yes—essential role.

Though at times it can be difficult to reconcile seemingly opposing ideas like culture and efficiency, we must not stop trying. Rather, we must consider them side by side with nuance, ambition, and a keen understanding of artistic and creative talents and expertise.

This is what we do every day in our organization as we work to support innovation from idea to commercialization, raise the international profile of Quebec companies, and encourage creatives to leverage their cutting-edge expertise, collaborate with other industries, and propose concrete solutions to tomorrow’s societal issues.



### A COLLABORATIVE APPROACH

We believe that creative businesses can and should leverage their unique skill sets to pursue new opportunities, and that by doing so, they will help develop a new innovation paradigm for Quebec’s creative economy.

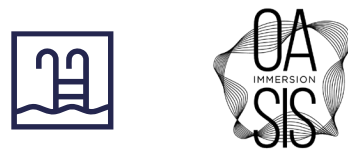
We couldn’t accomplish this without support, and I would like to thank all the partners that contribute to La Piscine’s initiatives. We truly appreciate you.

Our collaboration with OASIS Immersion, the Relief research chair, and our presenting partner, Beneva, is entirely in keeping with the type of productive relationships we strive

to cultivate in order to develop promising and innovative projects. The first **La Vitamine immersive** pilot project was born from a collaborative impulse and triggered the emergence of an experimental dynamic. We are confident that the future will bring more opportunities for development, research, and exchange.

The second iteration of this project, which is currently under development, is part of a more structured approach based on more clearly defined questions. Building on a solid knowledge base, we will deepen our exploration of immersive art’s potential by continuing to build bridges between creativity and new business models and by raising awareness in creative communities about opportunities at the intersection of culture, science, and society that will make the creative economy not just an asset, but one of Quebec's integral strengths.





# 1.3

## A WORD FROM JEAN-FRANÇOIS CHALIFOUX

PRESIDENT AND CEO, BENEVA

At Beneva, people are at the heart of everything we do. We want to humanize insurance by making it simpler, more accessible, and more relevant to everyday people and what they value most. Of course, we have business objectives, but we hope that in pursuing them, we can help create a world where diversity and differences are celebrated and collective wellness is a priority.

Our mutualist values have always informed our social commitment. For years, psychological health and wellness has been a particular concern for us. The arrival of the pandemic, and with it an increase in uncertainty, prompted us to reflect on and refine our philanthropic vision.

We quickly realized that we should focus our efforts on anxiety prevention, as a simple examination of the situation made it clear that anxiety is a serious problem that affects all levels of society. Those with the condition suffer from excessive and sometimes chronic fear that causes them distress and prevents them from fully participating in society.

Of course, anxiety-related problems have existed since the dawn of time, but recent events have made mental health problems more acute: a pandemic, the threat of widespread armed conflict in Europe, economic instability, and climatic events are all real causes for concern.

### WELLNESS AND WORK

Add to that the many invisible yet omnipresent forces that shape our society—the pressure to perform and succeed, beauty standards, the influence of social media—and you have the perfect conditions for the development of a collective malaise and, for many of us, the onset of anxiety or depression.

That was enough to convince us to make anxiety prevention our primary cause. We want to tackle it, one concrete step at a time, using a multifaceted approach that includes raising awareness, supporting research, and supporting organizations that are dedicated to helping people with anxiety. We also want to back initiatives that aim to prevent and manage anxiety.

### ENGAGEMENT AND CREATIVITY

With this in mind, the immersive exhibition **RECHARGER/Unwind** emerged as one of those rare initiatives that combine culture and innovation to offer people concrete



and original ways to boost their wellness and reduce their anxiety. Even better, it included a research component in the form of **La Vitamine immersive**. We quickly signed on as a partner of both components.

This collaboration aims to explore the impact of immersive art on wellness and mental health issues and opens the door to a promising potential means of treating anxiety. In this white paper, you will find a wealth of information on the effects of the **RECHARGER/Unwind** experience, as well as the results of phase 1 of the **La Vitamine immersive** research project.

Thank you to everyone who made this event and this white paper possible. Happy reading!





# 02

# SETTING THE SCENE

2.1

PROJECT ROADMAP

2.2

A PIVOTAL MOMENT FOR  
THE LABOUR MARKET





## 2.1

# PROJECT ROADMAP

“THE INFORMATION WE HAVE NOW ABOUT THE IMPACT OF COVID-19 ON THE WORLD’S MENTAL HEALTH IS JUST THE TIP OF THE ICEBERG.”

—  
DR. TEDROS ADHANOM GHEBREYESUS,  
WHO DIRECTOR-GENERAL

### OASIS IMMERSION AND THE HEALTH CRISIS

OASIS immersion was scheduled to make its debut in June 2020 after months (and years) of hard work. Of course, no one could have anticipated the pandemic and the disruption that followed.

This unprecedented health crisis, the ramifications and consequences<sup>1</sup> of which we are still trying to fully comprehend, suddenly redefined the way we build relationships, connect, and socialize.

However, the enormous upheaval triggered by the pandemic served to cement OASIS immersion’s raison d’être.

In the face of this once-in-a-generation crisis, our society came together.<sup>2</sup> At a time when the notion of essential services was a frequent subject of public debate, OASIS immersion chose to examine two fundamental questions:

1. Are culture and the arts optional or essential?
2. How can immersive art contribute to this discussion?

### LA PISCINE’S INNOVATION LABORATORY ON THE FUTURE OF WORK

At the same time, La Piscine, an accelerator and incubator that supports cultural and creative entrepreneurs in their growth, was laying the groundwork for a new project: a laboratory focused on the inevitable reimagining of the workplace and what its sector’s expertise could contribute to the conversation.

During a meeting between the two organizations, one observation emerged: there were still many questions and unexplored avenues when it came to the connection between immersive art and mental wellness.

OASIS immersion and La Piscine decided to get the ball rolling on a process of reflection, research, and exploration.

Our joint efforts quickly converged into an initial exploration phase that began in the fall of 2021. The results will be detailed in the following chapters.

## La Vitamine immersive was born.



<sup>1</sup> <https://www.who.int/en/news/item/02-03-2022-covid-19-pandemic-triggers-25-increase-in-prevalence-of-anxiety-and-depression-worldwide>

<sup>2</sup> <https://www.cairn.info/quel-monde-associatif-demain--9782749270425-page-93.htm>





PROJECT GOALS

Our first goal is as follows:

DEVELOP A WAY TO  
MEASURE THE IMPACT  
OF IMMERSIVE  
CREATIVE SPACES ON  
INDIVIDUAL WELLNESS

This white paper also aims to substantiate our vision of the work ahead and the people we need to bring on board.

To guide our efforts, we will focus our initial phases on the state of worker wellness, particularly in the context of a post-pandemic return to the office. The era we are entering already presents many challenges to mental health, and we strongly believe that we will need to be bold and creative in responding to them.

Beyond simple hypotheses, we are seeking to identify how to craft a reliable, evidence-based, and rigorous methodology that can be used to assess whether immersive art can play a part in increasing wellness.

In the long term, the insights drawn from this experiment will also prove valuable to Quebec’s creative industries. We want to demonstrate and legitimize the economic and social impact of digital—and in particular immersive—arts. Can the expertise of these fields be leveraged to develop practical solutions?

In light of this, our second goal is as follows:

NURTURE QUEBEC’S  
IMMERSIVE ARTS  
ECOSYSTEM WITH  
INNOVATIVE BUSINESS  
MODELS

And, more than anything, a thriving ecosystem requires the ability to bring talented people together around common goals.





### UNITING TALENT AND EXPERTISE

We leveraged this capacity beginning in phase 1 by teaming up with the Palais des congrès de Montréal, international artists, and the Quebec company RE-AK Technologies. And this is just the beginning.

More broadly, we wish to showcase the multifaceted expertise of local creative businesses and how this expertise can be harnessed to address a variety of major societal issues.

The project has already succeeded in bringing together a number of actors from different backgrounds to carry out our mission. Our approach is intended to be collaborative and cooperative, drawing on the expertise of all involved to meet the challenges ahead.

### A SPACE OF SERENITY

Since its conception, **La Vitamine immersive** has been intended to serve as a kind of morning sanctuary for downtown workers that is accessible free of charge and destined to evolve as we experiment.

The objective is to give office workers the opportunity to recharge their batteries, mentally refocus, or simply enjoy a quiet moment before starting their work day.

We see this project, a tranquil stopover devoted to calm and wellness, as a sandbox for mapping the benefits of immersive art.





## 2.2

# A PIVOTAL MOMENT FOR THE LABOUR MARKET

On March 13, 2020, after months of alarming news about a devastating new virus, the government of Quebec declared a health emergency. A barrage of measures followed, including lockdowns and mandatory remote work.

After more than two years of witnessing the aftermath of this unprecedented crisis, the working world has undergone a dramatic transformation.

There was a before and there will be an after. In fact, we are already seeing signs—some obvious, some less so—that the post-pandemic era is taking shape. The widespread adoption of remote work, at least for office jobs, is the most salient example, but not all the knock-on effects of the pandemic have become apparent.







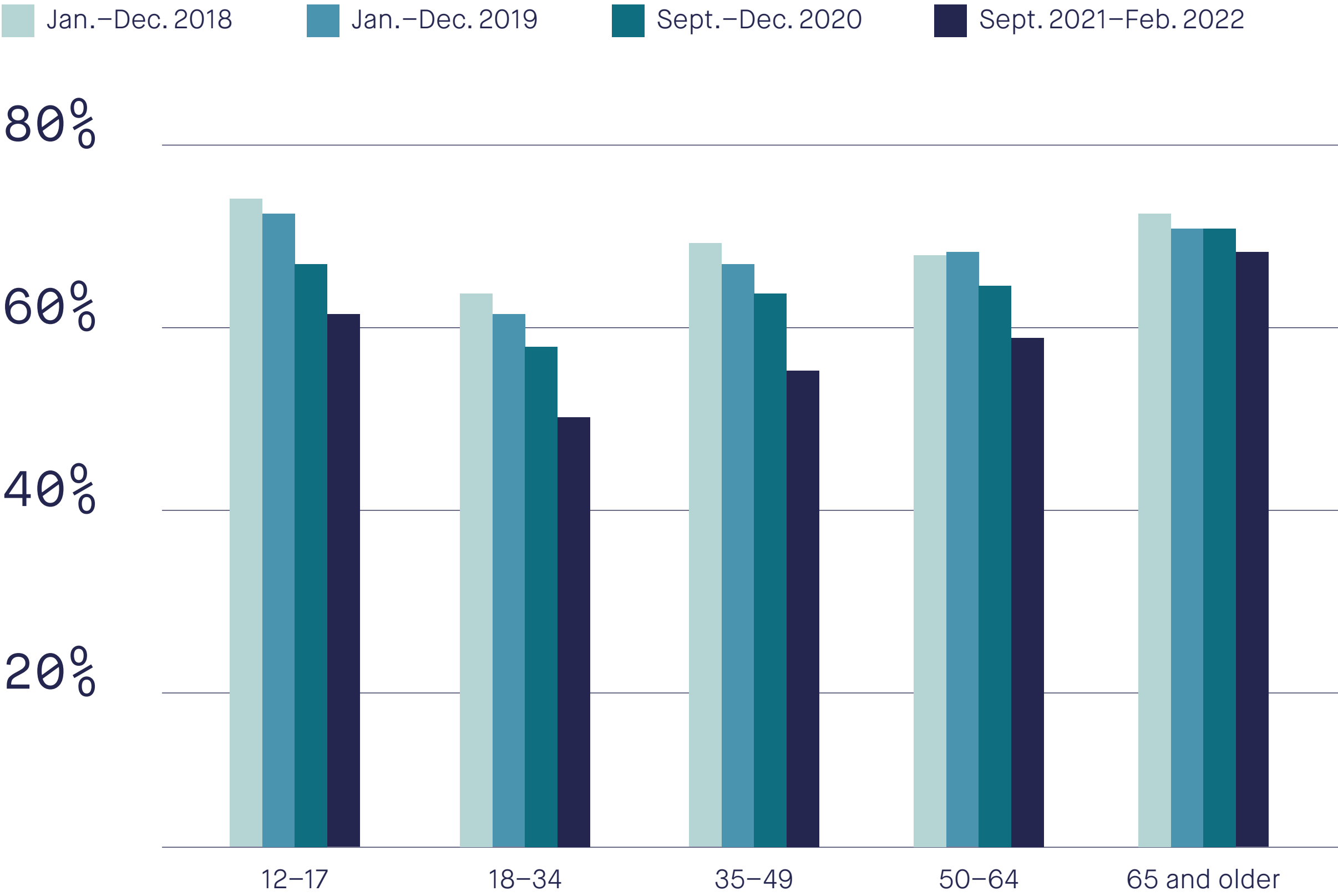
WELLNESS AND MENTAL HEALTH

One of the repercussions we are well aware of is the mental health crisis. This topic has been gaining momentum in the public discourse for several years now, and younger generations are breaking down the last taboos.

In early 2021, the Quebec government declared a second lockdown, but this time with a curfew. The morale of the team—and the population as a whole—took a huge hit.

In fact, a Statistics Canada survey on mental health conducted at the beginning of the pandemic found that 22% of Canadians rated their mental health as fair or poor. According to a later survey conducted in May 2021 for the Mental Health Commission of Canada, almost 44% of Canadians felt that their mental health had worsened over the previous year and a half of the pandemic.

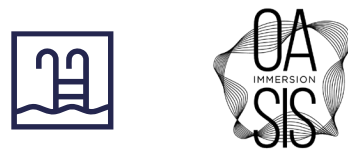
CANADIANS' MENTAL HEALTH  
CHANGE IN PERCENTAGE OF CANADIANS WHO REPORT HAVING GOOD MENTAL HEALTH, BY AGE GROUP



SOURCE - Statistics Canada:  
<https://www.lapresse.ca/actualites/sante/2022-06-08/donnees-de-statistique-canada/la-sante-mentale-des-canadiens-s-est-degradee-dans-tous-les-groupes-d-age.php>







# ART + TECHNOLOGY IN THE SERVICE OF WELLNESS

Recently, this topic has become a major social priority. Both the public and private systems are struggling to meet the demand for psychosocial care,<sup>3</sup> while waiting lists are growing and sales of antidepressants continue to rise.<sup>4</sup>

What if the answer to this challenge involved more than just traditional health care providers? What if the answer lay in taking a holistic approach involving every aspect of society? Art and culture are promising avenues to explore. In many circles, it is now recognized that art can serve the community, and increasing numbers of creatives and scientists are breaking the ice and building bridges while developing a common vocabulary.

With the **Vitamine** project, we propose continuing this important process of reflection by incorporating immersive technology that helps create new forms of mediation between the individual and the environment.

## WORK ENVIRONMENT

In addition to the mental health crisis, we are witnessing a shift in the way we occupy space. The advent of widespread remote

work has had a profound impact on inter- and intra-urban transport flows.

For two years, offices were emptied of their workers, of their hustle and bustle, of their purpose. The pandemic has reshaped our relationship with office work to the point where these environments need to change radically. Once densely populated, neighbourhoods with a high concentration of workers are especially feeling the effects of this shift.

Workplaces of the future should be inspired by the most dynamic neighbourhoods, where diverse, supportive, vibrant, and energetic communities thrive. These dynamic spaces are meeting places par excellence, where the members of a society intermingle and give rise to a vibrant cultural, economic, and civic life.

In contrast to the static and rigid spaces long exemplified by cold, austere cubicles, work environments can become synonymous with flexibility, diversity, and versatility!

<sup>3</sup> <https://www.ledevoir.com/societe/sante/600044/sante-mentale-la-liste-d-attente-s-allonge>

<sup>4</sup> <https://www.journaldequebec.com/2022/02/07/lusage-dantidepresseurs-en-forte-hausse-chez-les-jeunes>





“A BETTER VISION FOR A WORKPLACE IS A COMMUNITY—A PLACE WHERE PEOPLE BOND AROUND SHARED VALUES, FEEL VALUED AS HUMAN BEINGS, AND HAVE A VOICE IN DECISIONS THAT AFFECT THEM.”<sup>5</sup>

—  
ADAM GRANT, PSYCHOLOGIST AND AUTHOR

OASIS immersion is located in the heart of a major business hub: the Palais des congrès de Montréal. Every day, thousands of people are gradually returning to the workplace, curious to see what hybrid work will actually look like. Now more than ever, employers must find reasons to justify a return to in-person work and, more importantly, ways to entice employees to come back to the office.

To achieve this, tomorrow’s work environments will have to put employee wellness

at the centre of their concerns. And we believe that immersive art could play a major role.



SOURCE: NOHLAB, OASIS IMMERSION RECHARGER/UNWIND © GRIDSPACE

<sup>5</sup> [https://www.steelcase.com/content/uploads/2022/06/Spring-Summer-2022-Magazine\\_Digital-Jun23.pdf](https://www.steelcase.com/content/uploads/2022/06/Spring-Summer-2022-Magazine_Digital-Jun23.pdf)



# O3

# IMMERSIVE ART

3.1

VARIETY AND SPECIFICITIES  
OF IMMERSIVE EXPERIENCES

3.2

APPLICATIONS OF IMMERSIVE ART  
CENTRED ON WELLNESS

3.3

AN UNDERLYING TREND





## 3.1 VARIETY AND SPECIFICITIES OF IMMERSIVE EXPERIENCES

The proliferation of art installations and so-called experiential art can be observed in every major city in the world. And in Montreal, as in many European and North American metropolises, experiential art increasingly goes hand in hand with immersive art.

Immersion is a word that is sometimes used to pique the interest of people who are eager to try out the latest technological innovations. However, this term refers to a multitude of different experiences that place the spectator in the centre of a work while blurring the boundary between the individual and the environment.

These include virtual reality (facilitated by a headset), augmented reality, projection domes, auditory immersion, and even in situ immersion, which we will focus on here.

### IN SITU IMMERSION

In situ (literally “in place”) immersion refers to works that take into account the place where they are installed. In the world of immersive art, the most common settings are large spaces whose surfaces are brought to life through the use of multiple high-precision projectors.

For immersive artists working with this medium, the way their work is consumed obviously has an impact on the creative process.

“AT OASIS, YOU CAN MAKE PEOPLE FORGET WHERE THEY ARE. YOU CAN EVEN CREATE A STORY BEHIND THE WALLS WITH VISUAL ILLUSIONS. THE SPACE IS A BLANK SLATE, A WHITE CANVAS THAT LENDS ITSELF TO ANY SUBJECT.”

—  
ALEX LE GUILLOU, IMMERSIVE VISUAL ARTIST

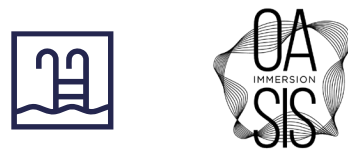


SOURCE: NOHLAB, OASIS IMMERSION RECHARGER/UNWIND © GRIDSPACE

“IT’S A BIT LIKE BEING ON A SPACESHIP. YOU HAVE NO CHOICE BUT TO GO ALONG WITH THE RIDE. THIS BRINGS WITH IT A GREAT RESPONSIBILITY TO THE AUDIENCE.”

—  
JONATHAN FITAS, ARTIST AND COMPOSER





One of the advantages of an immersive environment like OASIS immersion is that sharing the space with other viewers adds another dimension to the experience. In addition to the notion of scale, people start to react to the work, which creates a ripple effect and sometimes even an element of disinhibition, especially when children are present.

In situ immersion is a medium at the confluence between art, environment, and architecture. Could it have the potential to contribute to well-being through movement and its ambulatory nature, by reconnecting individuals with each other and with themselves?

### 3.2

## APPLICATIONS OF IMMERSIVE ART CENTRED ON WELLNESS

In recent years, multimedia technologies have proliferated and are rapidly improving, resulting in increased public exposure to a variety of public installations with an immersive component. Typically, these are more playful or decorative in nature, with the goal of entertaining the audience or showcasing a space.

But like many other projects in the world, **La Vitamine immersive** seeks to reimagine immersive art in ways that serve collective vitality and wellness, particularly in the context of work.

For example, New York City was hit hard by the COVID-19 pandemic. Health care workers were tending to the sick, but who was tending to them? Studio Elsewhere, an interactive design firm, decided to lend a hand. In collaboration with Mount Sinai Hospital, the

studio developed Recharge Rooms that use light, sound, and scent to create mixed and augmented reality environments.<sup>6</sup>

<sup>6</sup> <https://neo.life/2021/05/immersive-environments-to-the-rescue/>





A STUDY LATER FOUND THAT SPENDING JUST 15 MINUTES IN THE IMMERSIVE, MULTI-SENSORY RECHARGE ROOM REDUCED STRESS BY 60%. EVEN MORE ENCOURAGING RESULTS HAVE EMERGED FROM GROUP THERAPY.<sup>7</sup>

Marc Glimcher, president of the Pace Gallery, sees the therapeutic potential of immersive art as a strength of the medium. “We evolved over millions of years in this incredible environment, and then, over the last hundred, two hundred years, we’ve closed ourselves in, into these cities that erase nature.”

According to Glimcher, people are “hungry for transcendence; churches are emptying.”<sup>8</sup>



SOURCE: VITAMINE IMMERSIVE © ANAIS DURAND

<sup>7</sup> <https://www.frontiersin.org/articles/10.3389/fpsyg.2020.560833/full>  
<sup>8</sup> <https://www.newyorker.com/news/letter-from-silicon-valley/the-rise-and-rise-of-immersive-art>





### 3.3

## AN UNDERLYING TREND

In a society that is increasingly digitalizing entire facets of modern life, no sector will be spared: education, training, and the working world are all moving in this direction. Our daily lives are being digitalized at a rapid pace.

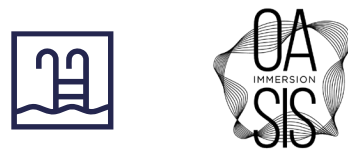
In recent years, we've seen the emergence of an umbrella term reminiscent of science fiction: the metaverse.

Though the term is often derided, it reflects a deep awareness that society is on the cusp of a dramatic structural shift in the way we interact with each other.

Some observers are eagerly awaiting this new paradigm, while others remain circumspect. The truth is that no one is currently able to accurately predict the scope of this digitalization, nor what direction it will take.

Today, words like virtual reality, NFT, and blockchain have suddenly entered our collective lexicon, but they're just the tip of the iceberg. The technological evolution of recent years has created a host of new cross-sector contact points as the digital world's sphere of influence expands.





One thing is certain: immersion will play a key role in this much anticipated near future.



THIS WORK BY OLAFUR ELIASSON, INSTALLED AT THE TATE MUSEUM IN 2003, WAS RELATIVELY SIMPLE FROM A TECHNICAL STANDPOINT, BUT PRODUCED AN ALMOST IMMEDIATE IMMERSIVE EXPERIENCE. VISITORS QUICKLY ENTERED A MEDITATIVE, ALMOST AWESTRUCK STATE. THE WORK’S POWERFUL IMPACT GREATLY INFLUENCED THE WAY INDIVIDUALS INTERACTED WITH THE TURBINE HALL, ALONE OR IN GROUPS. FOR ME, THIS WORK IS A REFERENCE AND A SOURCE OF INSPIRATION WHEN REFLECTING ON THE POTENTIAL IMPACT OF IMMERSIVE WORKS.

—  
DELPHINE BEAUCHAMP, EXECUTIVE DIRECTOR  
OF LA PISCINE

This trend is reflected in the proliferation of spaces dedicated to digital and immersive arts in the world’s major capitals. These venues now host major immersive shows that tour the world, such as Carne Y Arena and The Infinite.

In fact, the Quebec ecosystem has much to envy. There is already a group of artisans and professionals at the intersection of art and technology who are dedicated to innovation.

Many of our cultural and creative industries (CCIs) are recognized worldwide. In the video game, visual effects, and circus arts sectors—to name but a few—Quebec’s expertise helps to promote our culture.





CCIS

The term cultural and creative industries (CCIs) refers to industries that draw on individual creativity, skills, and talent and have a strong potential for growth and employment through the production and exploitation of intellectual property. This generally includes the art, video game, digital experience, audiovisual, media, architecture, design, creative communication, and fashion industries.<sup>9</sup>

LA VITAMINE IMMERSIVE  
AND OASIS IMMERSION AS  
A WHOLE AIM TO SERVE  
AS INTERMEDIARIES AND  
CATALYSTS TO ENCOURAGE  
THESE COMPANIES TO  
EXPLORE NEW HORIZONS.

<sup>9</sup> <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiLuO6pulf6AhVXpIkEHXM0AQ0QFnoECBcQAQ&url=https%3A%2F%2Fwww.cmm.ca%2F~%2Fmedia%2FFiles%2FNews%2F2020%2FPlan-action-IndCreatives-EN.pdf%3F%3Den&usg=AOvVaw3CMIqOQP0LWyX1W0Ijt7HJ>, p. 20



# 04

# THE EXPERIMENT

4.1

PHASE 1

4.2

DATA COLLECTION

4.3

PHASE 2

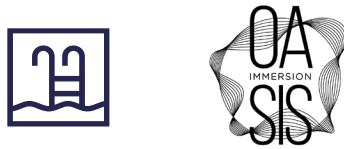


# 4.1

## PHASE 1

This pilot phase was designed and developed as an experiment. Its goal was to create a preliminary framework and test methods and mechanisms of collaboration between actors with different specializations from a variety of sectors.

This project is an excellent practical demonstration of our mission: to bring together creative entrepreneurs and catalyze their impact, offer them a framework and means to experiment in the field, and reflect on new business models or even new companies.



**La Vitamine immersive** is an experiment designed and led by La Piscine and OASIS immersion in collaboration with numerous partners in the framework of a future of work lab.

Our ambition is to study the relationship between immersive art and wellness. This pilot phase focuses on workers returning to the office post-pandemic.

We offered participants an immersive morning ritual within the OASIS immersive space. Over the course of several weeks, participants moved through the space while wearing biometric technology that measures certain physiological indicators. The biometric data capture was complemented by the collection of qualitative data through the use of surveys conducted at regular intervals throughout the process.

### DEVELOPING A METHODOLOGY

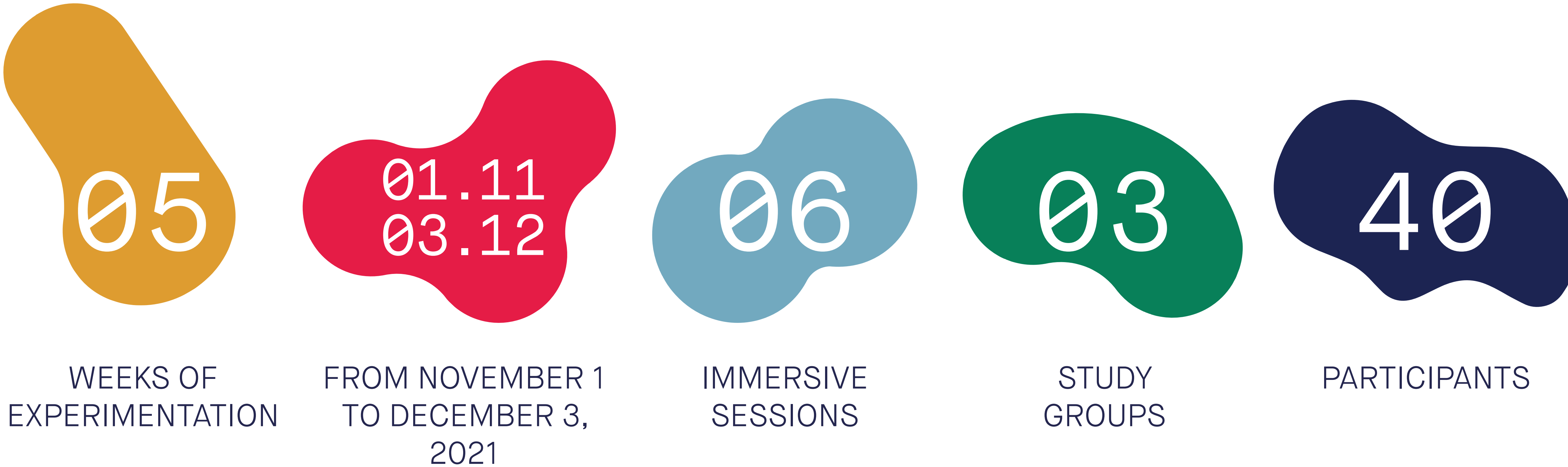
The objective of this first pilot study was to allow us to lay the foundations of a common methodology in order to develop appropriate experimental protocols for our study context.





COURSE OF ACTION

KEY INFORMATION







OUR STUDY GROUPS

Three different study groups were defined before the study began:



GROUP 1

Participated in the quantitative (sessions) and qualitative (surveys) analysis, composed of people who did not know each other before the study.



GROUP 2

Participated in the quantitative (sessions) and qualitative (surveys) analysis, composed of members of the same work team who already knew each other in order to study whether **La Vitamine immersive** has an impact on the maintenance or development of interpersonal relationships in a team. We had the pleasure of collaborating with a team from the Palais des congrès de Montréal.



GROUP 3

The control group, which did not participate in the immersive experience, but still completed the weekly wellness questionnaire.

Due to the pandemic, we had to restrict the number of participants in order to ensure that the social distancing guidelines were respected. A total of 40 people participated in this pilot study: 20 people in groups 1 and 2, and 20 people in the control group.

SELECTION CRITERIA

A set of criteria was established for recruiting and selecting participants:

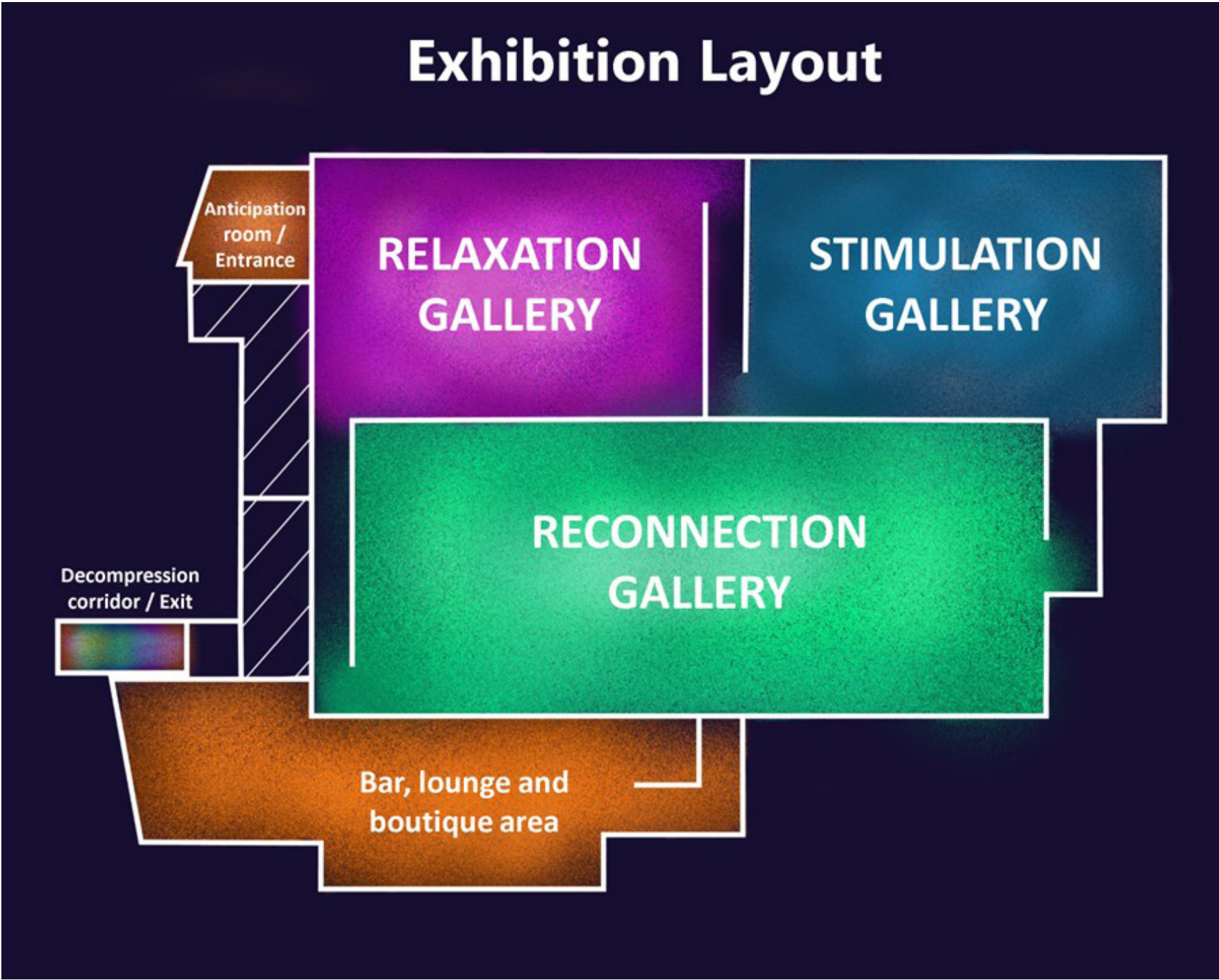
- Be a worker between the ages of 25 and 55
- Have transitioned from a primarily in-office role to a remote role at the start of the pandemic
- Be navigating a return to in-person work since the loosening of restrictions (summer 2021)
- Not have experienced any long work interruptions or work stoppages in the last 2 years





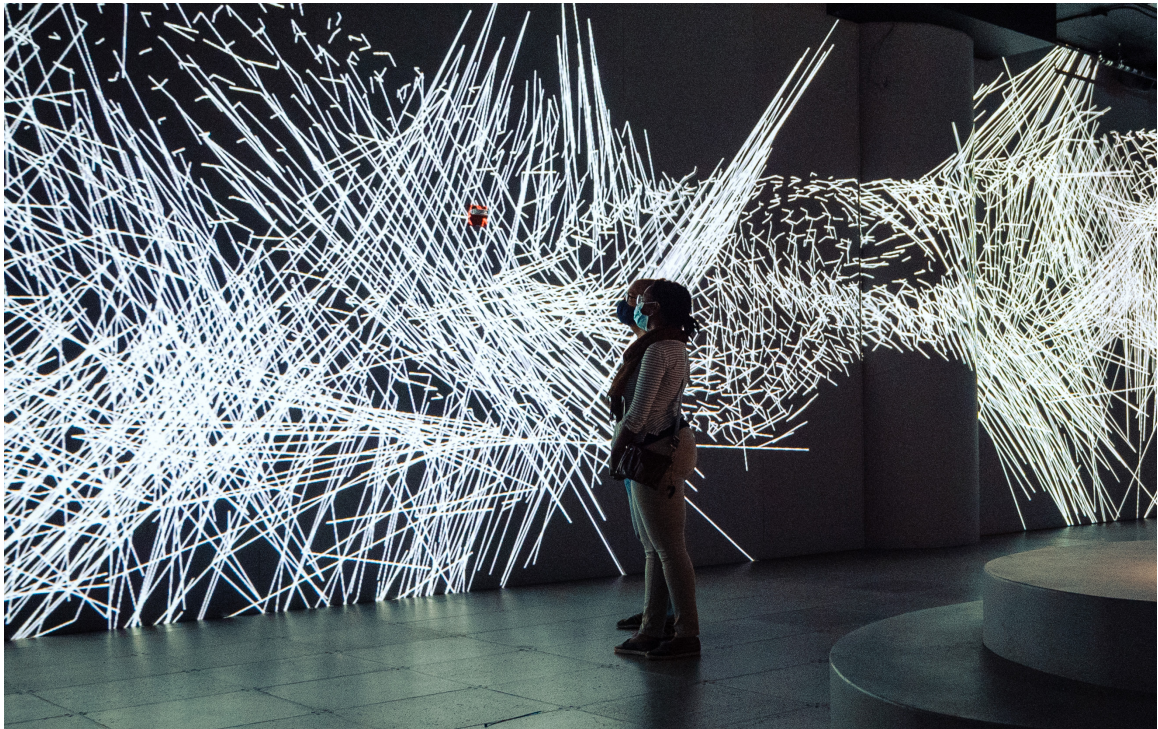
THE RECHARGER/UNWIND EXHIBITION

**La Vitamine immersive** is a pilot study that examines the relationship between immersive art and wellness. To accomplish this, participants were exposed to the first OASIS immersion exhibition, titled **RECHARGER/Unwind**.



Participants moved through 3 galleries and were exposed to the following 4 generative works:

**RELAXATION**  
CORE, ADRIEN M. AND CLAIRE B. FRANCE



**STIMULATION**  
HORIZON, ALEX LE GUILLOU AND JONATHAN FITAS FRANCE



**RECONNECTION**  
NEW LAND, ALEX LE GUILLOU AND JONATHAN FITAS FRANCE



**RECONNECTION**  
THE QUIET POND, ODAIBE STUDIO POLAND



The immersive works left a significant part of the creative process to the machine. The sequence offered a contemplative landscape, a journey encouraging changes in posture and attention and inviting the participant to inhabit the space differently.



## 4.2 DATA COLLECTION

The first **La Vitamine immersive** pilot study relied on two data collection methods: biometric data capture and qualitative surveys.

The biometric capture was carried out using the Nucleus-Hermès, a unique solution for emotional and cognitive analysis developed by RE-AK Technologies. The device takes the form of a headset with sensors that are placed on the head and face, along with sensors worn on the fingers.

The headset makes it possible to analyze participants' experience by capturing various biomarkers:

- Brain waves (electroencephalogram)
- Facial muscle activity (electromyogram)
- Heart rate (photoplethysmography)
- Sweating (electrodermal activity)

In addition to this biometric data, participants were asked to complete a follow-up survey on their wellness and mental health eight times. The survey measured a collection of indices:

- Wellness
- Stress and anxiety
- Social dysfunction
- Self-confidence
- Job satisfaction



RE-AK NUCLEUS HEADSET





QUANTIFYING A PARTICIPANT’S STATE OF MIND  
BY CAPTURING BIOMETRIC DATA

The biometric approach allowed us to measure the state of mind of the participants (the human experience) along a wandering path, thus offering new perspectives of analysis on the relationship between immersive art and spatiality. Biometric capture is already used in cinema, video games, and neuromarketing and is gradually being integrated into the event industry.

Source: Semiha Ergan, A.M.ASCE; Ahmed Radwan; Zhengbo Zou, S.M.ASCE; Hua-an Tseng; and Xue Han. Quantifying Human Experience in Architectural Spaces with Integrated Virtual Reality and Body Sensor Networks.

MAIN BIOMETRIC SENSORS USED FOR THE ANALYSIS  
OF THE HUMAN EXPERIENCE OF A SPACE

SENSOR	DATA ENTERED	VALENCE OR AROUSAL	FOCUS
EEG	Brain activity	Valence and arousal	Electrical brain activity
GSR	Skin conductance	Arousal	Skin conductivity
PPG	Cardiac activity	Arousal	Heart rate variability
F-EMG	Facial muscle reactions	Valence and arousal	Facial reactions
EYE-TRACKING	Eye movement	Valence and arousal	Focus points and points of interest
FMRI	Brain activity	Valence and arousal	Cerebral blood flow
ELECTROCARDIOGRAM	Cardiac activity	Arousal	Heart rate variability and pulse
MEG	Brain activity	Valence and arousal	Magnetic neuronal activity





The availability of lighter sensors that allow for the design of ambulatory equipment has made it much easier to capture a wide variety of physiological, emotional, and cognitive data related to the human experience of various spaces.

The relationship between physical environments and human reactivity, and the way in which built spaces (such as immersive spaces) can contribute to increasing our performance or wellness (health care or learning environments, for example), are not trivial when we consider the number of hours we spend indoors in our society. This exploration will guide future developments of **La Vitamine immersive**.

## 4.3

### PHASE 2

#### DATA COLLECTION

In the first phase of this pilot study, we observed significant variability in the collection of different biometric data (Appendix A). However, a major challenge in the advancement of this type of research is ensuring the availability of controlled testing environments. These are crucial for accurately identifying unbiased correlations between variations in physiological indicators and a subject’s state of mind.

As intended, our first steps have piqued the interest of new players, who are now joining the process to allow us to develop our research and lay the foundations for a new generation of even stronger experiments.

The second phase of **La Vitamine immersive** will be launched soon.

#### COLLABORATING WITH RESEARCH

For several months, the Chaire de recherche Relief en santé mentale, autogestion et travail of the Université Laval Faculty of Social Sciences, under the direction of Simon Coulombe, has been contributing to the development of the second phase of

the research project by helping to refine the definition of key concepts related to wellness states of mind and conducting a comprehensive literature review to better map the current state of research at the intersection of wellness and immersive technologies. They will also contribute to the development of the experimental protocol for the second pilot study.

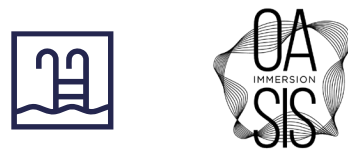




05

# CONCLUSION





# 05

## CONCLUSION

Towards the end of the 1990s, the concepts of the creative economy and the creative city emerged. Culture was viewed as a tool for revitalizing urban centres, with potential economic benefits.

Today we want to go further.

Given the social challenges we are constantly confronted with—climate change, health, growing cities, instabilities of all kinds—art and culture are rarely at the top of the list of priority sectors.

And yet . . .

If we take a closer look, creative sectors play an active role as catalysts in a number of development and innovation dynamics, notably by helping to transfer ideas, knowledge, and skills to other industries (spillover effect).

Thus, it is possible to imagine how our cultural framework must be reshaped to promote collective wellness and vitality.

OASIS immersion and La Piscine have have committed themselves to this project and mobilized a variety of actors (tourism infrastructure, higher education and research institutions, private and public organizations) in an iterative approach. The first phase of

La Vitamine immersive is part of an international movement that is exploring and interrogating the predominant role of creative expertise in response to the modern challenges we face. This approach requires us to rethink our preconceptions and envision new opportunities for collaboration.

this project gave us a glimpse of a potential transformation led by the creative sector. Mental health and wellness are complex and holistic global realities that require reflection and intervention beyond the scope of the health sector. Bringing together multidisciplinary creatives, scientists, and entrepreneurs to explore this issue is a process that aligns with this vision.

The second phase of **La Vitamine immersive** will interrogate and explore the range of possibilities in greater depth, bring in a wider range of experts, and develop better practices for experimentation. This second phase will also focus on further defining the impact that this initiative aims to have on the working world. What specific and contextual aspects of workers does **Vitamine** best address, and for what purposes? Along the way, new multidisciplinary players will emerge and help deepen the understanding and discourse around this project.

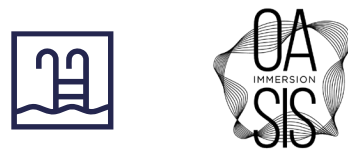




# 06

# APPENDICES





# A.1

## HEART RATE VARIABILITY (HRV)

What did we observe?

What is it?

Heart rate variability measures the balance between the two branches of the nervous system that control the heart: the para-sympathetic nervous system and the sympathetic nervous system. High heart rate variability is an indicator of emotional resilience, i.e., a better ability to regulate emotions, especially negative emotions. It is also associated with a positive mood.

Although it has been shown that HRV is not in itself a predictor of wellness, the general hypothesis is that the inducement of a good mood, which is predicted by a higher HRV, is a mediator of overall wellness.

HRV AT THE BEGINNING OF A PRESENTATION IS

31% HIGHER

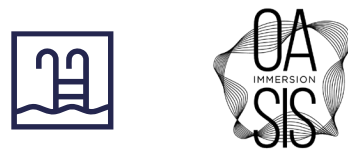


HRV FOR WEEK 1 IS

25% HIGHER







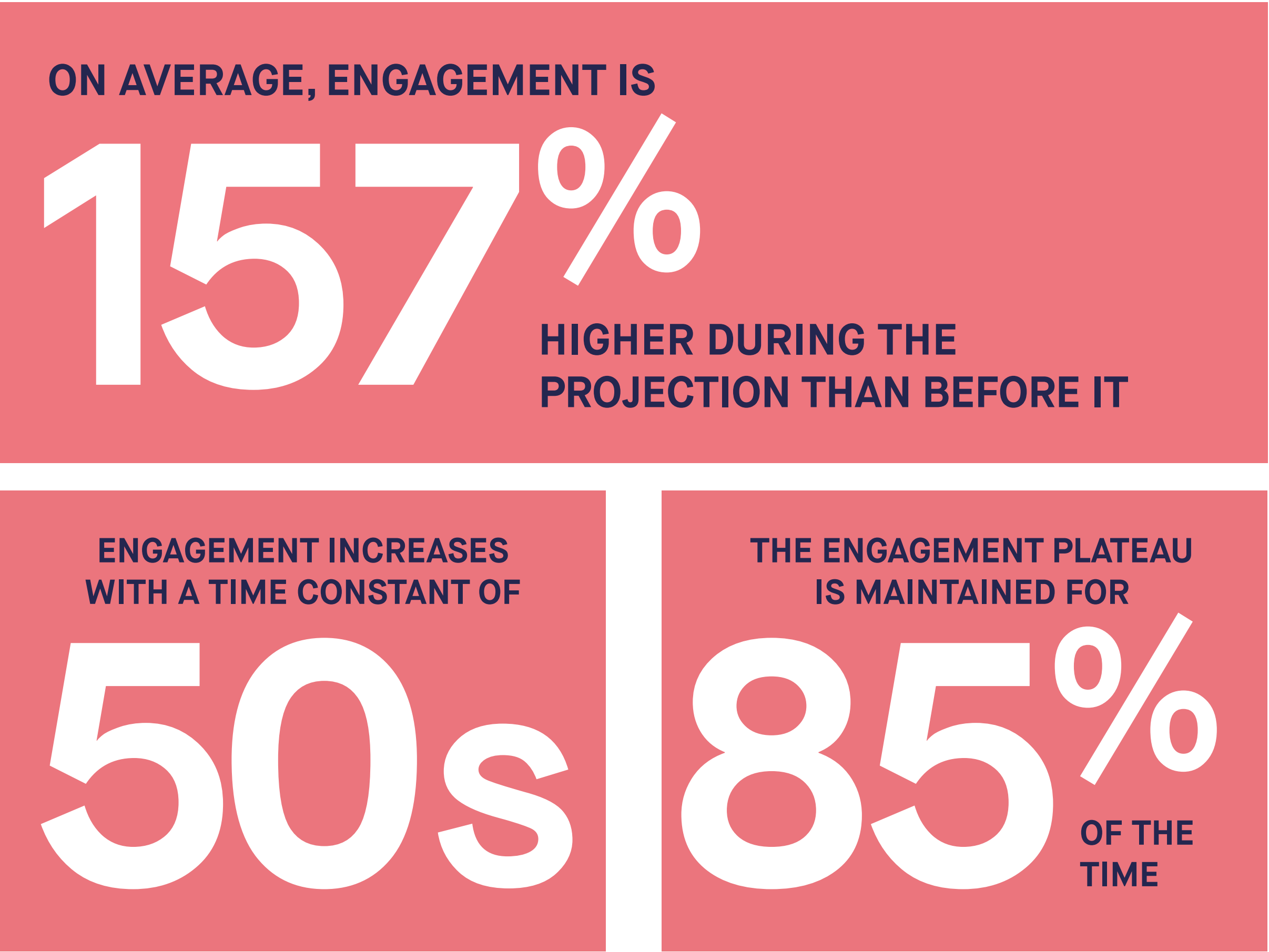
# A.2

## ENGAGEMENT

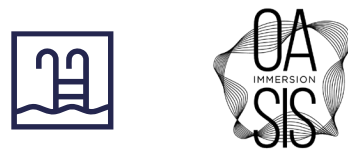
What did we observe?

### What is it?

Engagement, coupled with attention, measures how invested a participant is in the experience and how connected they are to it. It is a measure that expresses a participant’s state of flow or level of focus and that reflects a positive experience.







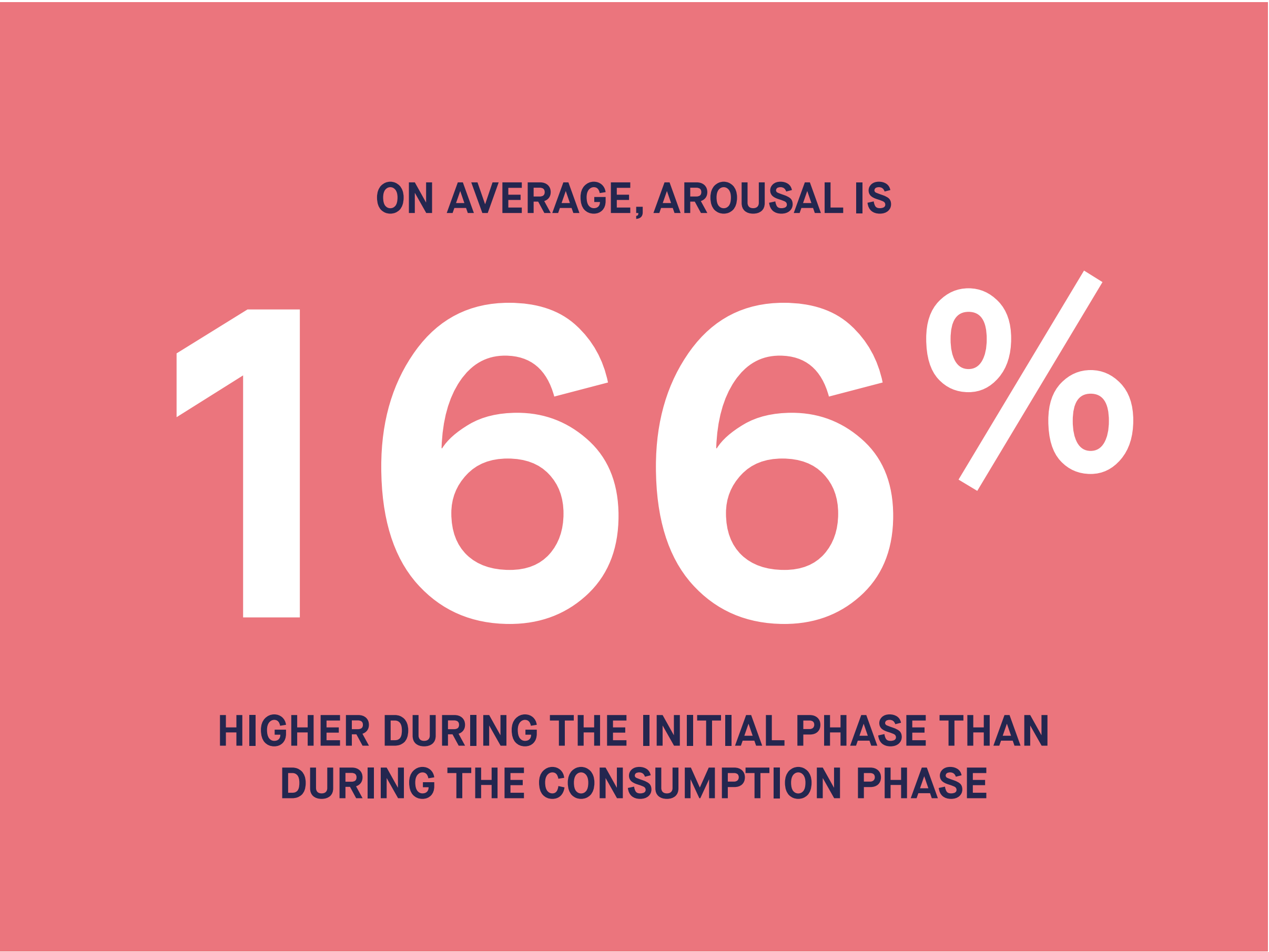
# A.3

## AROUSAL

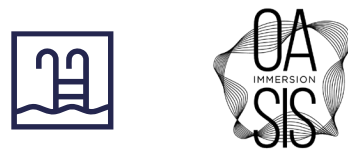
What did we observe?

What is it?

This measure is an indicator of physiological arousal, the level of activity of the autonomic nervous system. This indicator is calculated based on electrodermal activity, which is a measure of the activity of the sweat glands. Scientific research shows that electrodermal activity is correlated with the level of chaos and/or novelty present in the environment and is negatively correlated with cognitive engagement.







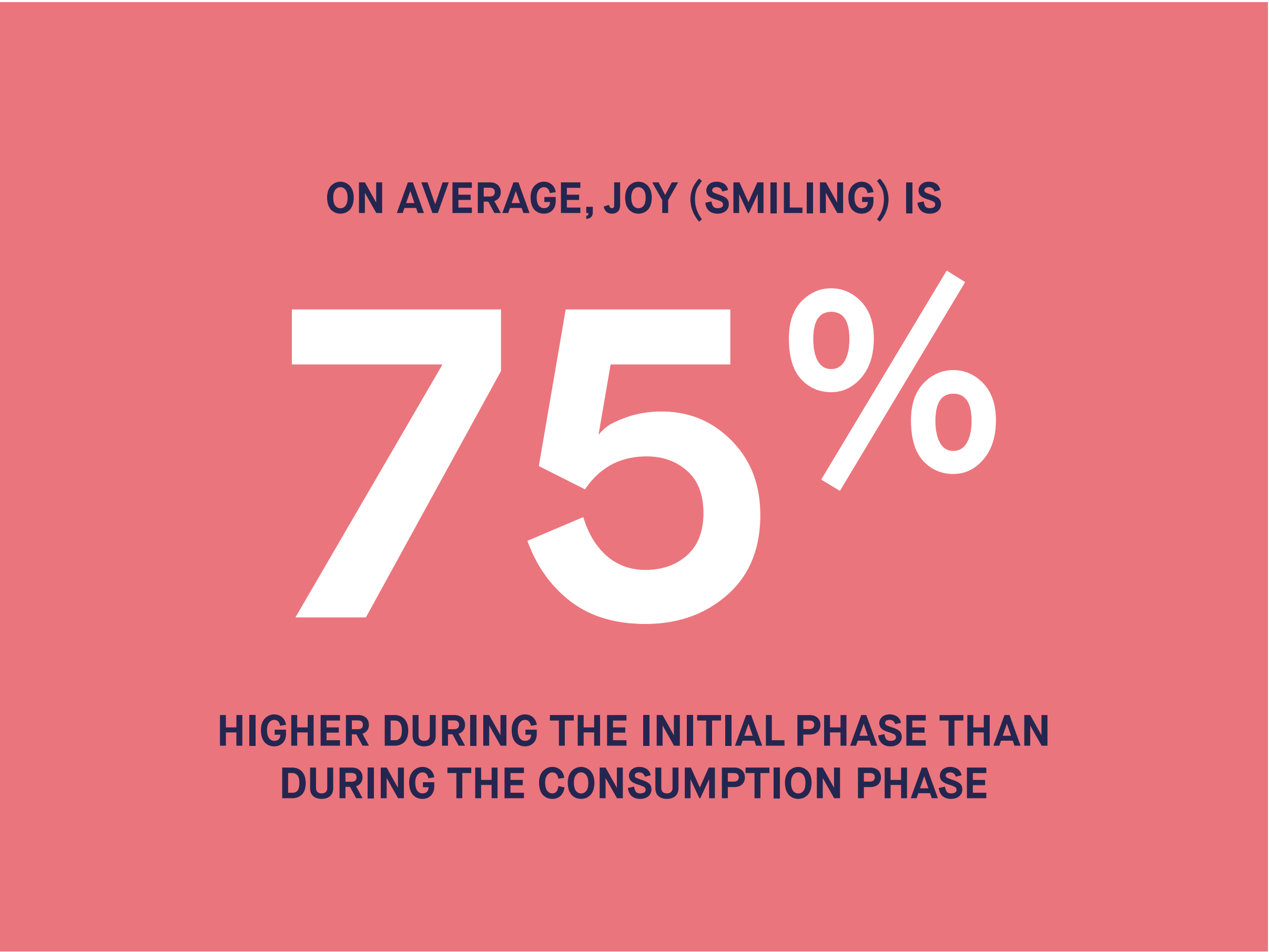
# A.4 SMILING

What did we observe?

## What is it?

A smile indicates that a participant is enjoying the moment. People express little emotion when engaged. Monitoring emotional measures during dips in engagement can determine whether a participant enjoyed the moment that just ended.

Our smile index is an index based on the activity of the zygomaticus muscle and accounts for activity of both sides of the face.







# A.5

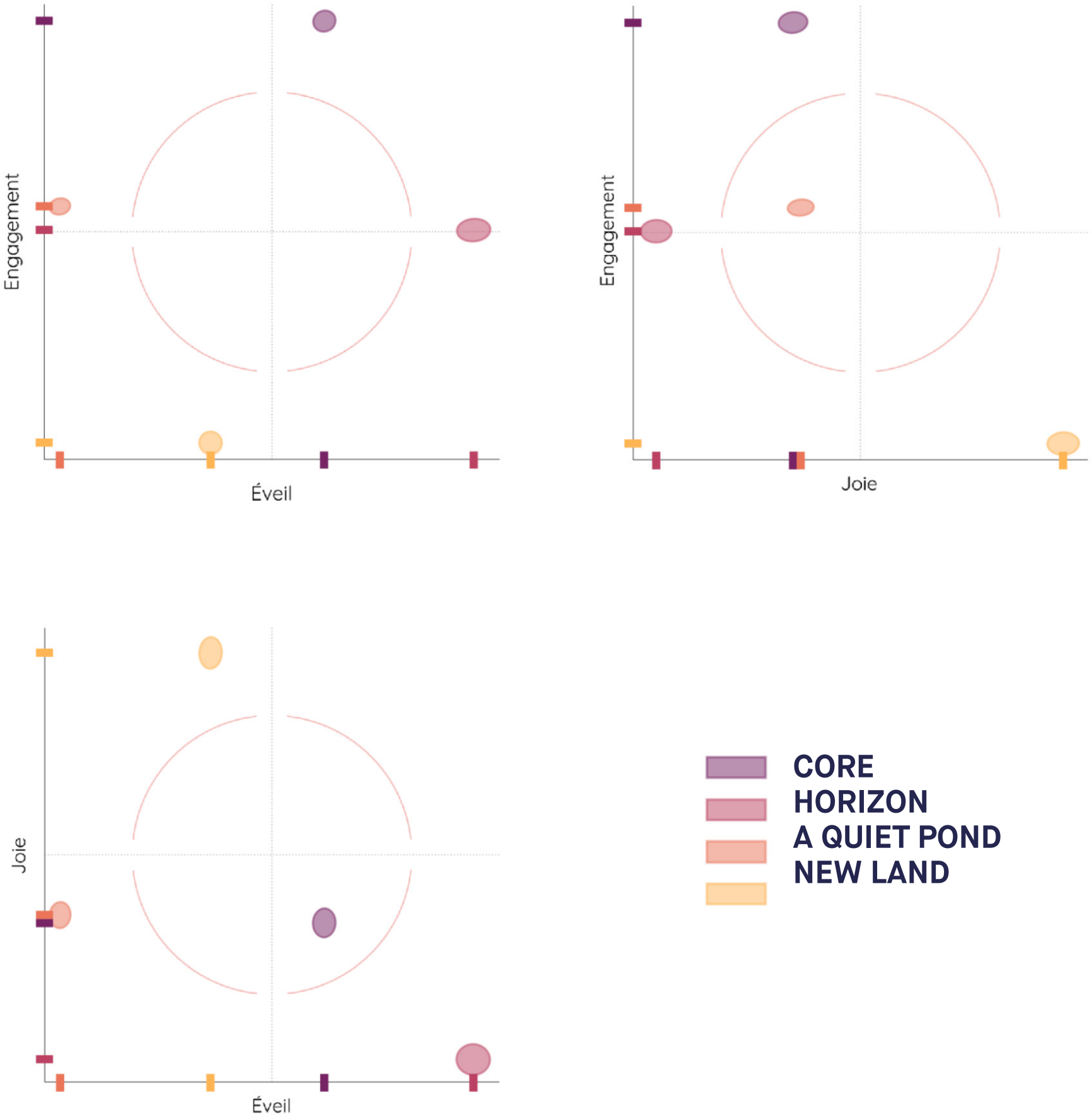
## BIOMETRIC MEASUREMENTS

### Positioning of the works

On the engagement-arousal graph, the four works occupy the cardinal positions, which indicates a good degree of diversity.

The engagement-joy graph indicates that NEW LAND is the most emotional. It's normal for engagement to decrease as emotional expression increases.

Note that in the joy-arousal graph, no work occupies the upper joy-arousal quadrant.







# A.5

## BIOMETRIC MEASUREMENTS

### Breaking down the works

**a) Adoption (0:30 - 0:50)**

Early in the experiment, engagement and HRV increase slowly, while arousal drops rapidly. This process accelerates in the last week of the experiment.

**b) Beginning of immersion (1:20 - 1:40)**

As the work becomes more complex, engagement increases and arousal drops further. HRV reaches its peak.

**c) Relaxing segment (1:50 - 2:30)**

In the middle of the projection, participants are in a state of balance between engagement and HRV, the nominal state of the experiment.

**d) Music portion (2:50 - 3:20)**

As the music segment begins, engagement increases even more.

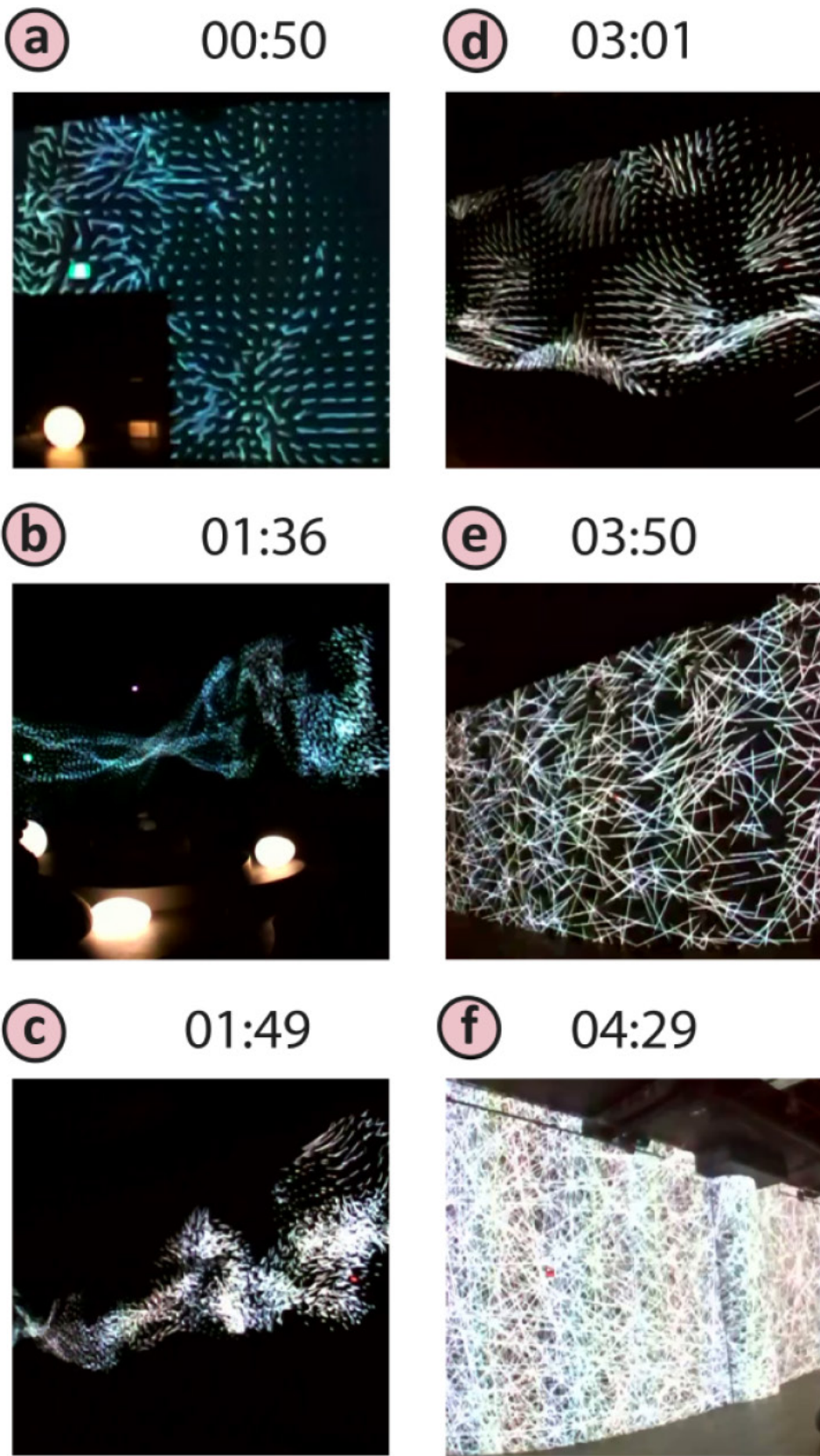
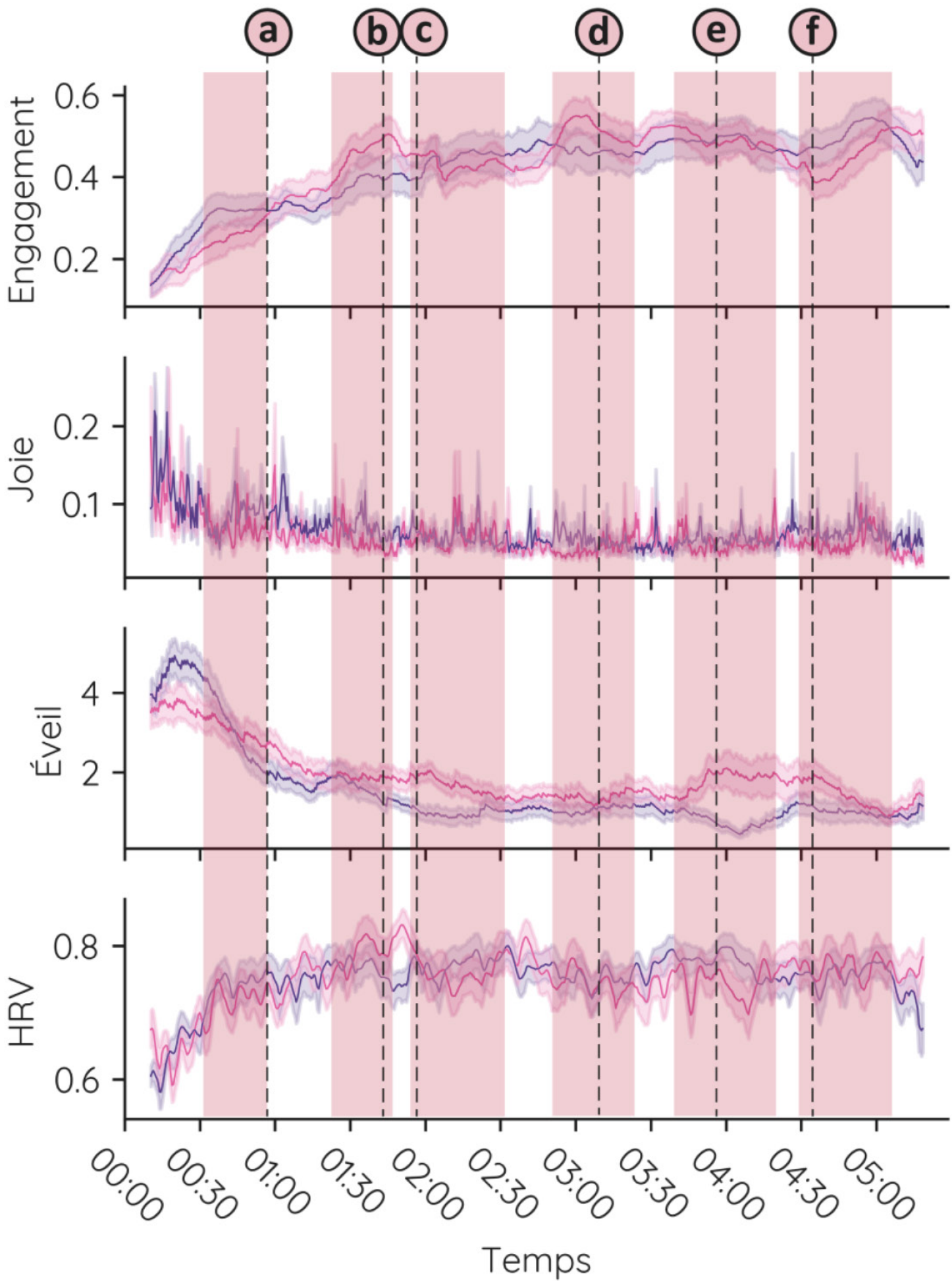
**e) Chaotic portion (3:40 - 4:20)**

This sequence introduces random noise. This change increased arousal at the first exposure, but this effect diminished after repetition over multiple weeks.

**f) Light-filled finale (4:30 - 5:00)**

The finale features very bright lights, which had a negative impact on engagement during the first few presentations, but later in the experiment, engagement peaked at this point.

CORE







# A.5

## BIOMETRIC MEASUREMENTS

### Breaking down the works

**a) Adoption (0:30 - 0:45)**

At the beginning of the experiment, engagement and HRV increase rapidly, while arousal drops. During the first week, arousal was high (excitement), but decreased as the experiment progressed (habituation).

**b) Colours (1:10 - 1:35)**

The appearance of colours had a positive effect on excitement; all measures increased.

**c) Coloured planets (1:43)**

Participants found it particularly exciting when the colours began to take the shape of planets. However, excitation decreased at the end of the experiment.

**d) Ocean imagery (1:59)**

The dynamics of this scene differ between the first and last week. It is experienced as exciting at the beginning, then engaging and relaxing at the end.

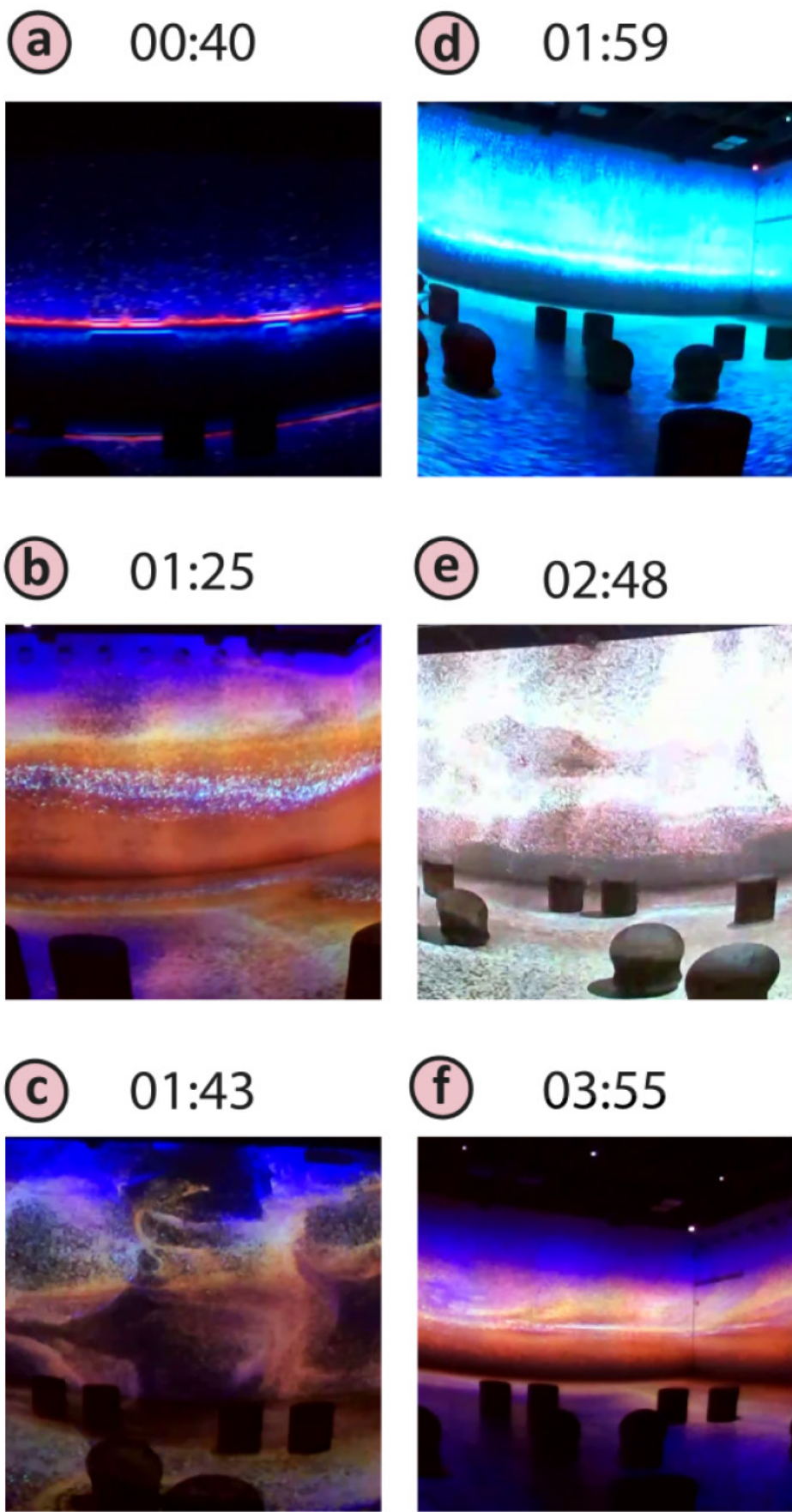
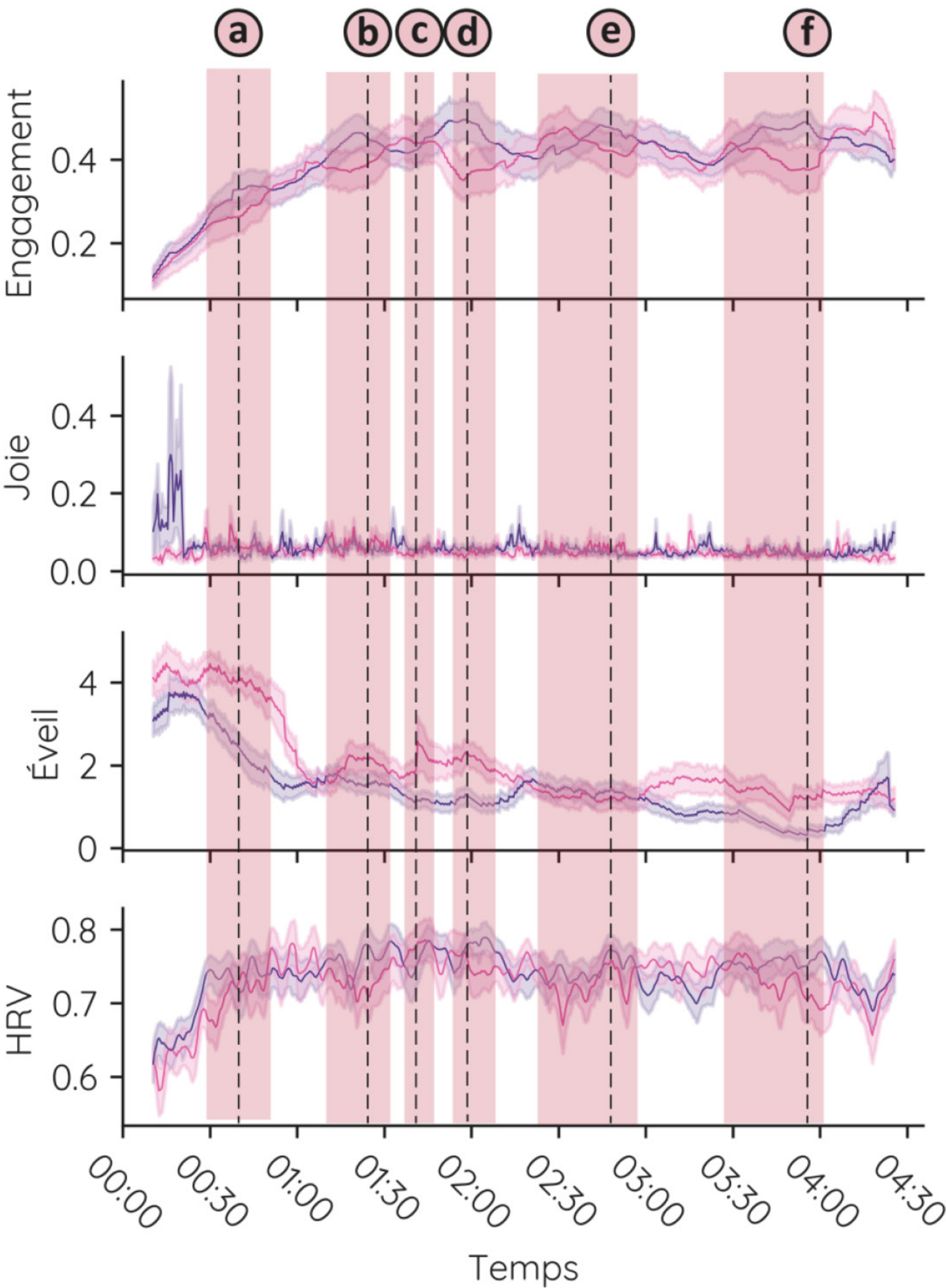
**e) Climax (2:25 - 2:55)**

Audiovisual intensity resulted in a high level of engagement and an index associated with sustained well-being. Arousal is low.

**f) Finale (3:30 - 4:30)**

In the first week, arousal remained relatively high during the finale, but engagement and heart variability dominated in the final week.

HORIZON







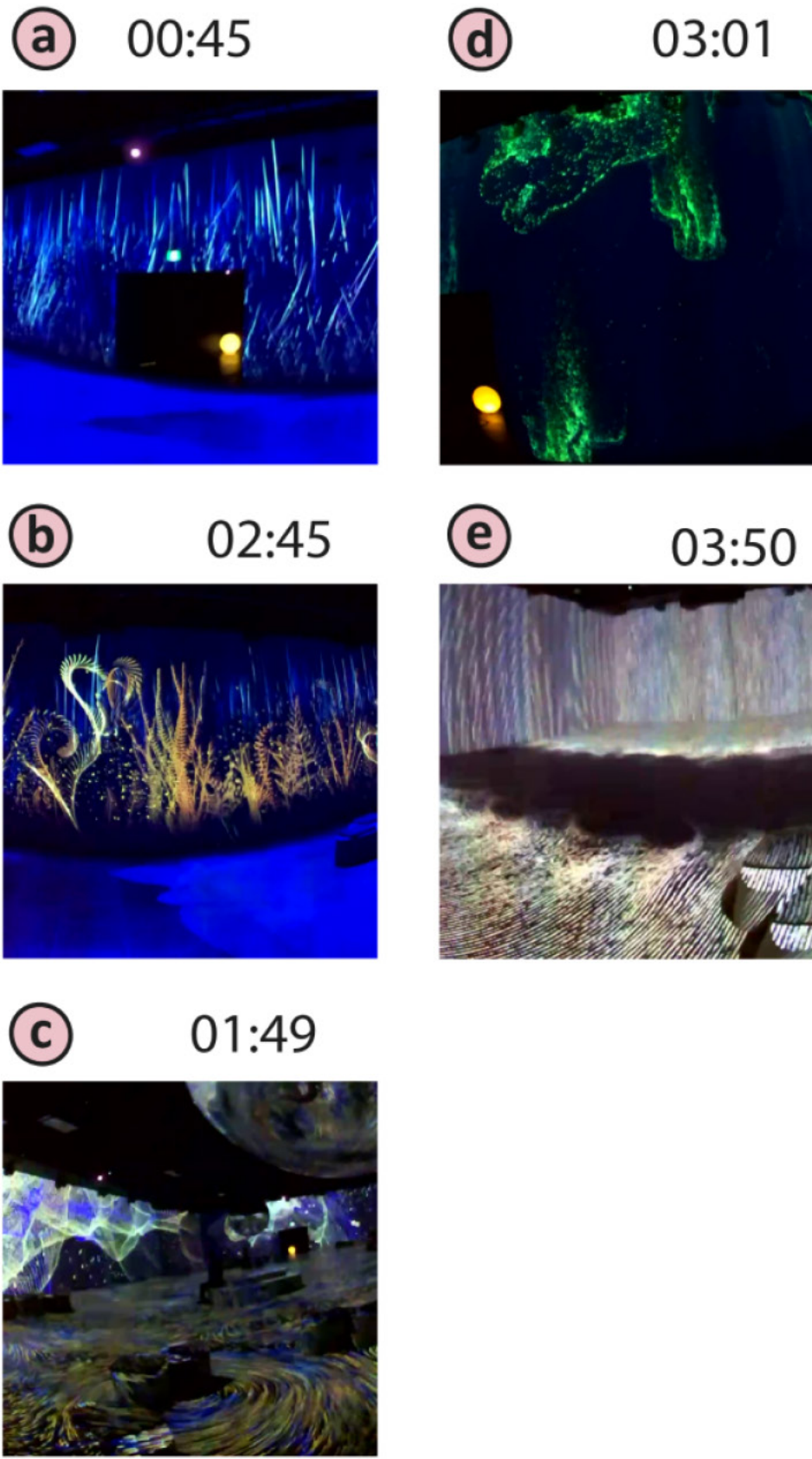
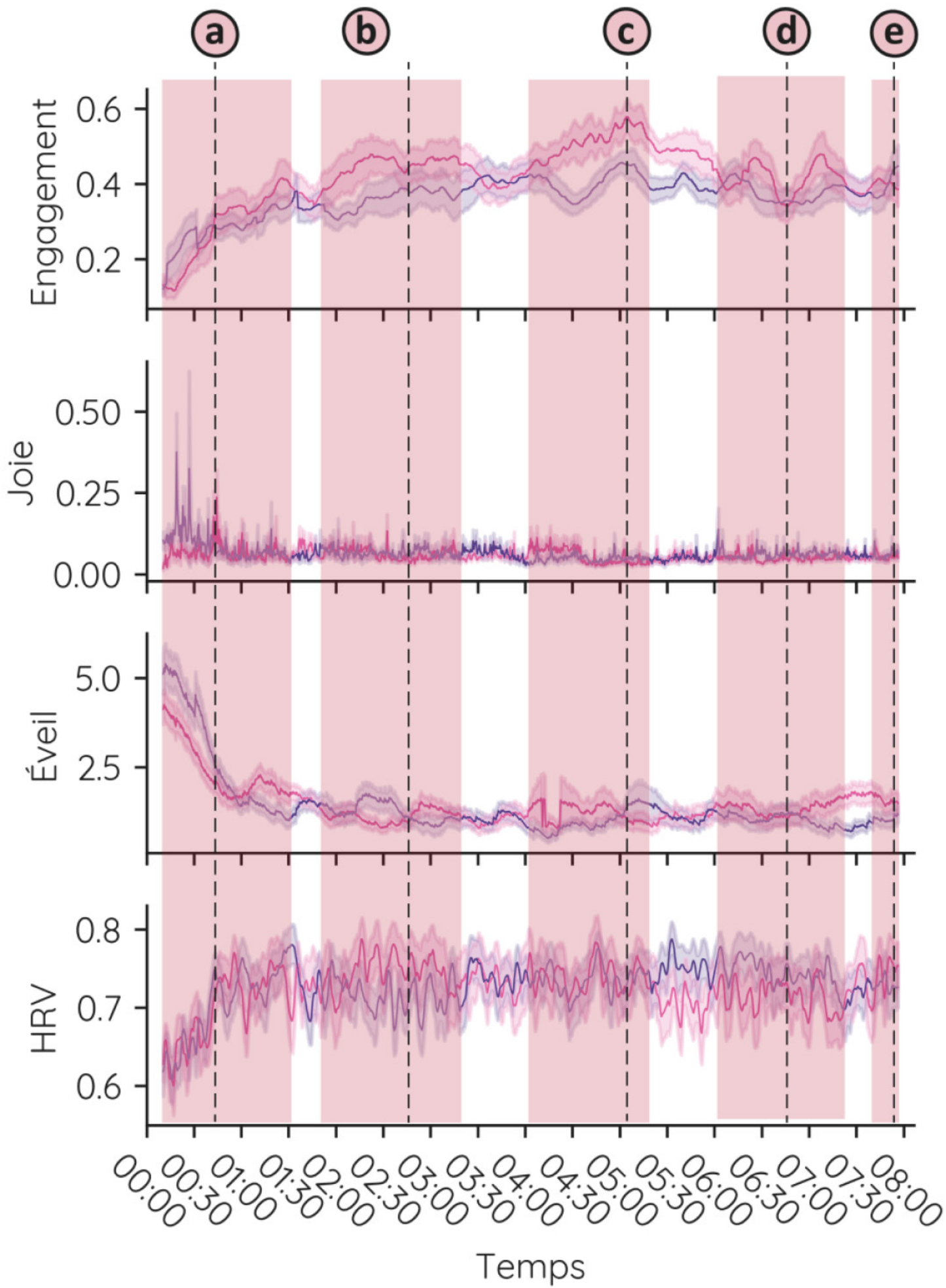
# A.5

## BIOMETRIC MEASUREMENTS

### Breaking down the works

- a) Adoption (0:30 - 1:30)**  
Increase in engagement and HRV, reduction in arousal.
- b) Calming plant images (1:50 - 3:20)**  
Engagement increased sharply during the first week, but rose significantly less during the last week. HRV decreased slightly in the final weeks.
- c) Swirling colours (4:00 - 5:15)**  
As the colours flooded the floor, there was an increase in all metrics. This is the most stimulating segment of the work. Engagement and arousal are negatively affected by repetition.
- d) Dark segment (4:00 - 7:25)**  
During the first week, engagement and HRV dropped during this section.
- e) Exciting finish (7:40 - 8:10)**  
The finale featuring a wall of light increased engagement in the final week.

### A QUIET POND







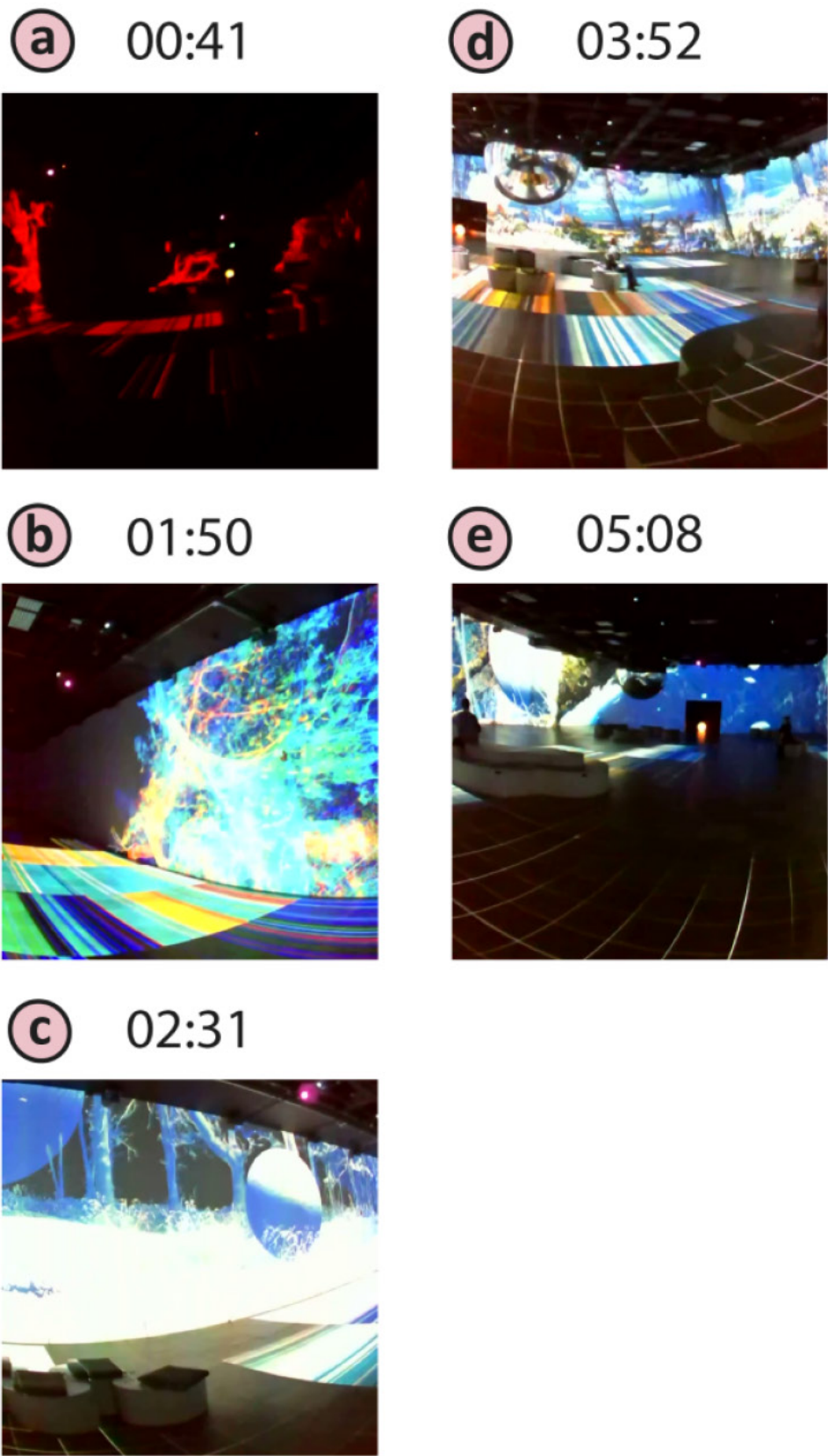
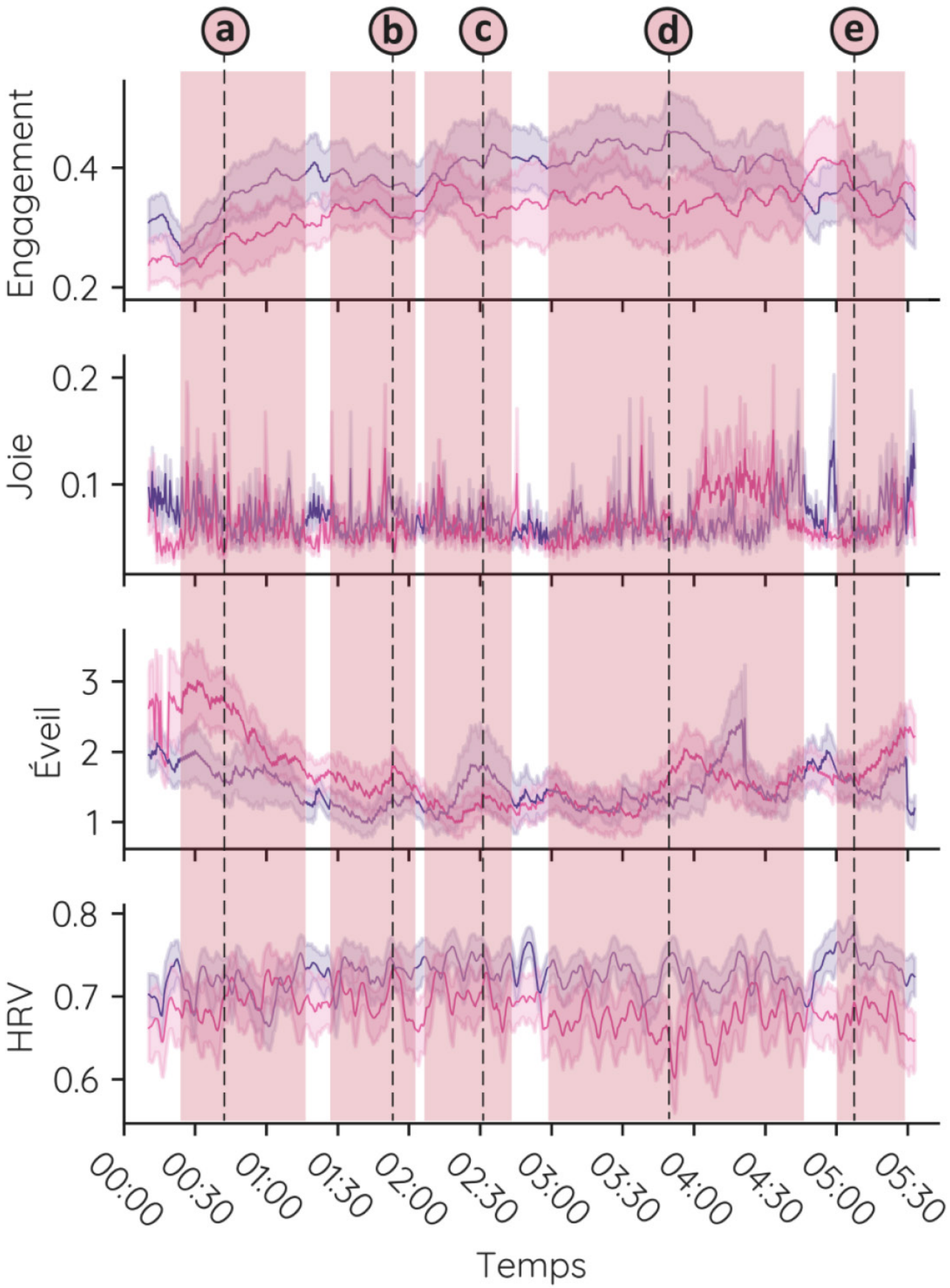
# A.5

## BIOMETRIC MEASUREMENTS

### Breaking down the works

- a) Adoption (0:30 - 0:50)**  
Early in the experiment, engagement increases and arousal slowly decreases. This change accelerated in the final week.
- b) Artistic and colourful segment (1:30 - 2:00)**  
This section featured abstract stimuli and light music. Engagement remained stable, but arousal dropped to its lowest point.
- c) Naturalistic stimuli (2:05 - 2:55)**  
The work presents naturalistic stimuli, and engagement and arousal (excitement) increase with each repetition.
- d) Musical crescendo (3:00 - 4:45)**  
During this segment, audiovisual intensity slowly increases. Engagement reaches its highest point. We observe spikes of joy and arousal. Engagement and HRV increase significantly with each repetition.
- e) Relaxation (5:05 - 5:30)**  
The experience decrescendos, and there is a corresponding drop in engagement. In the final week, HRV reaches its peak and remains elevated until the end of the experiment.

#### NEW LAND







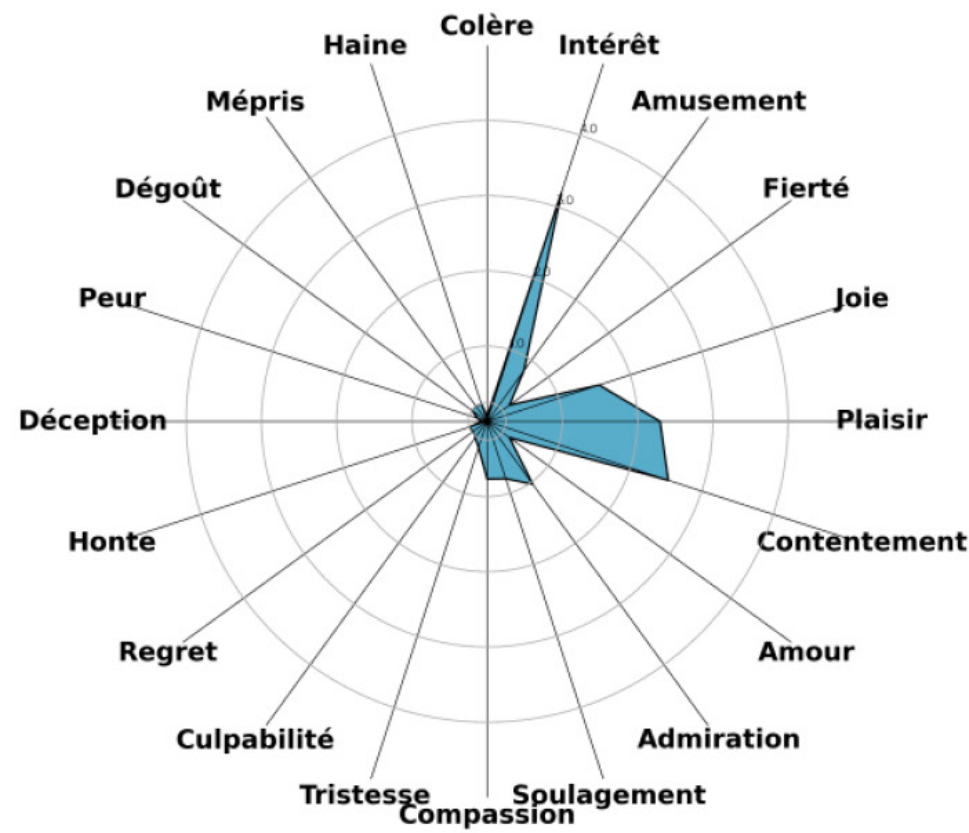
# A.6 REPORTING METHOD

## Reported emotions

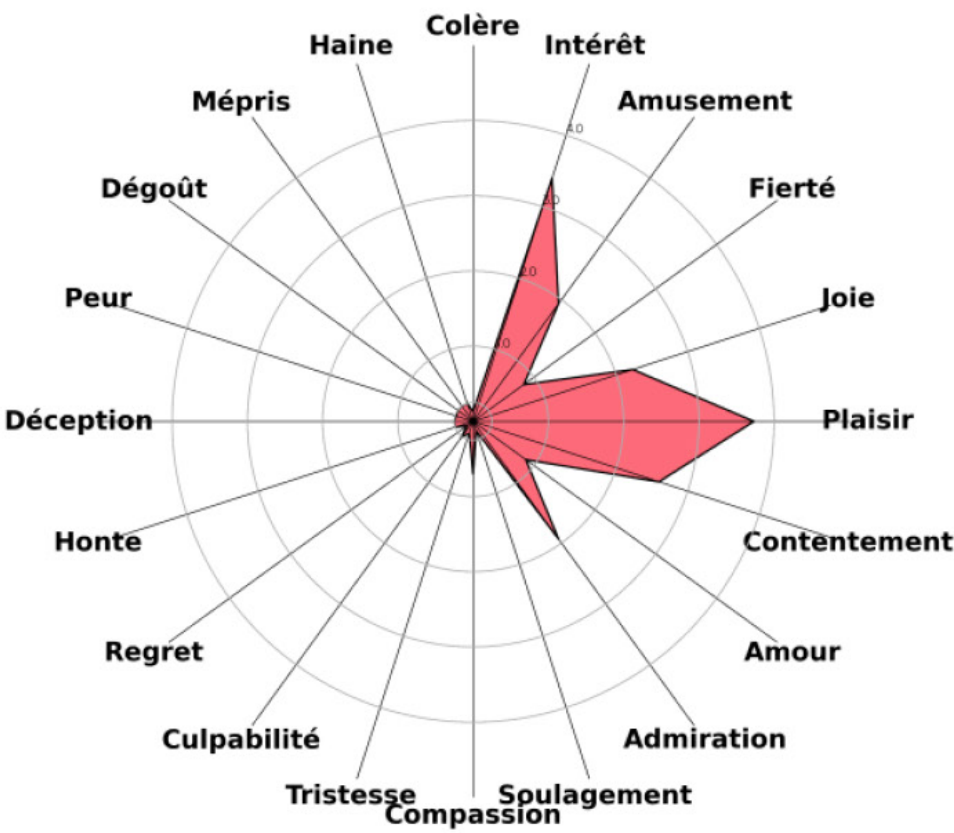
After participating in the experiment, participants were asked to share the intensity of the feelings they experienced (see emotion wheels at left).

It is interesting, but not unexpected, to note that the works were mainly associated with positive emotions. These responses confirm that the selection of works supports the mission of **La Vitamine immersive**.

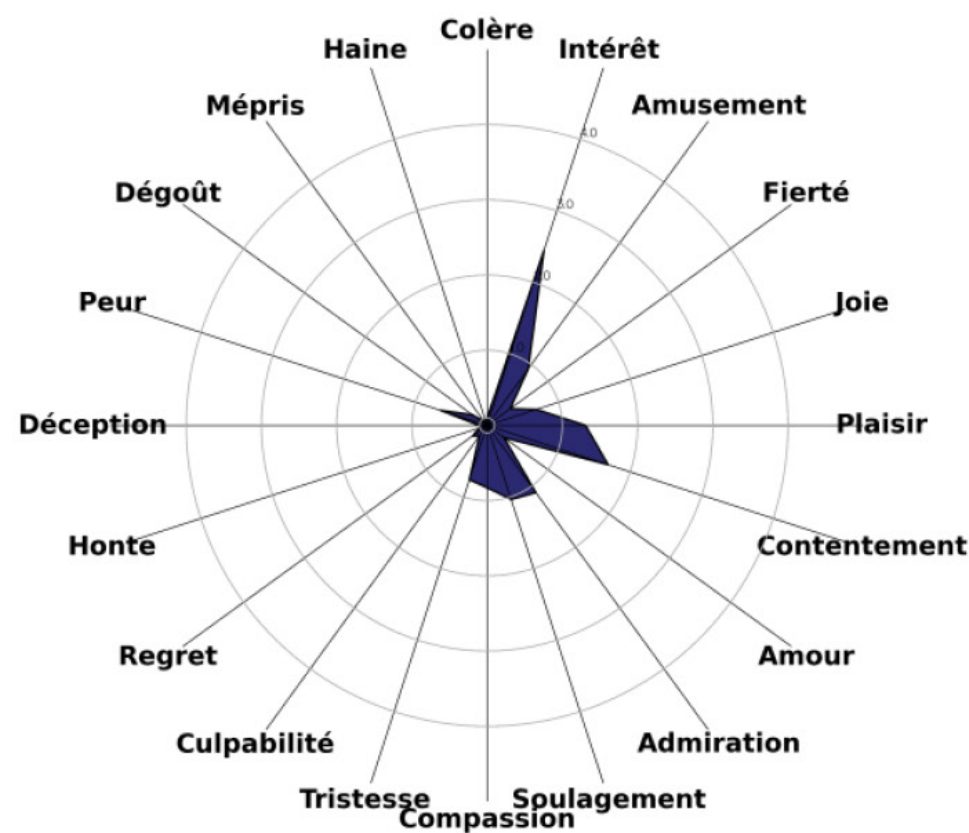
CORE



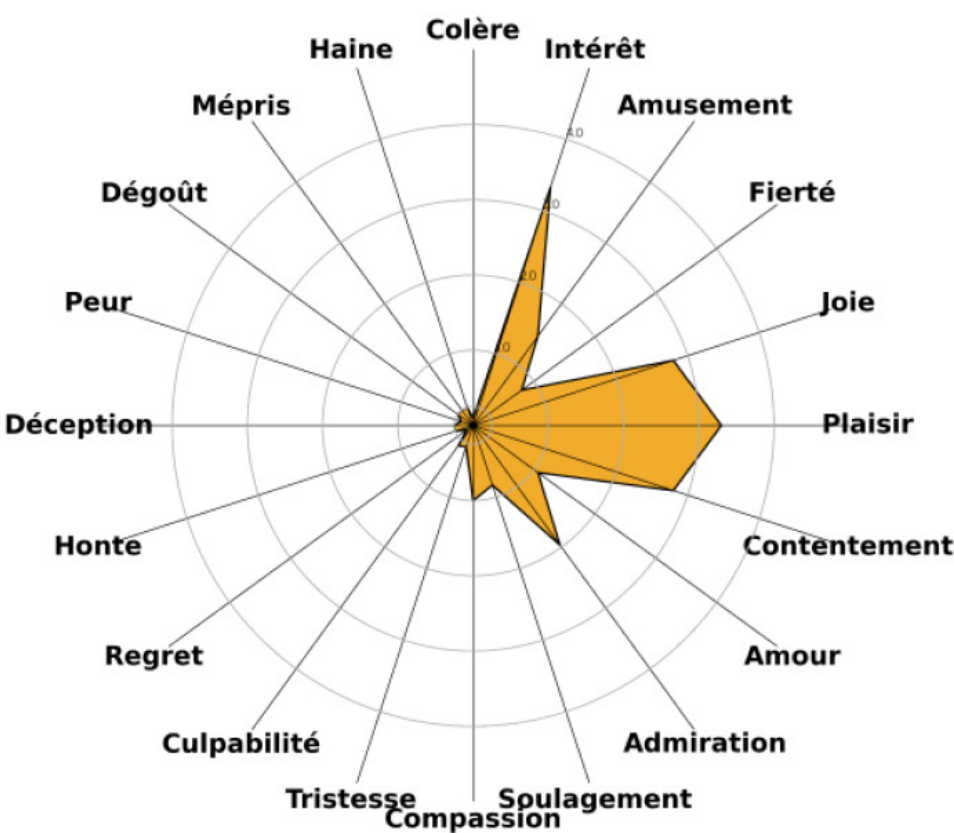
HORIZON



A QUIET POND



NEW LAND





# A.6

## REPORTING METHOD

### Indices associated with wellness

Study participants completed a questionnaire over the course of several weeks, which was then used to estimate a set of indices related to wellness. Below are the results for the following indices:

WHO-5: Assesses subjective wellness<sup>1</sup>

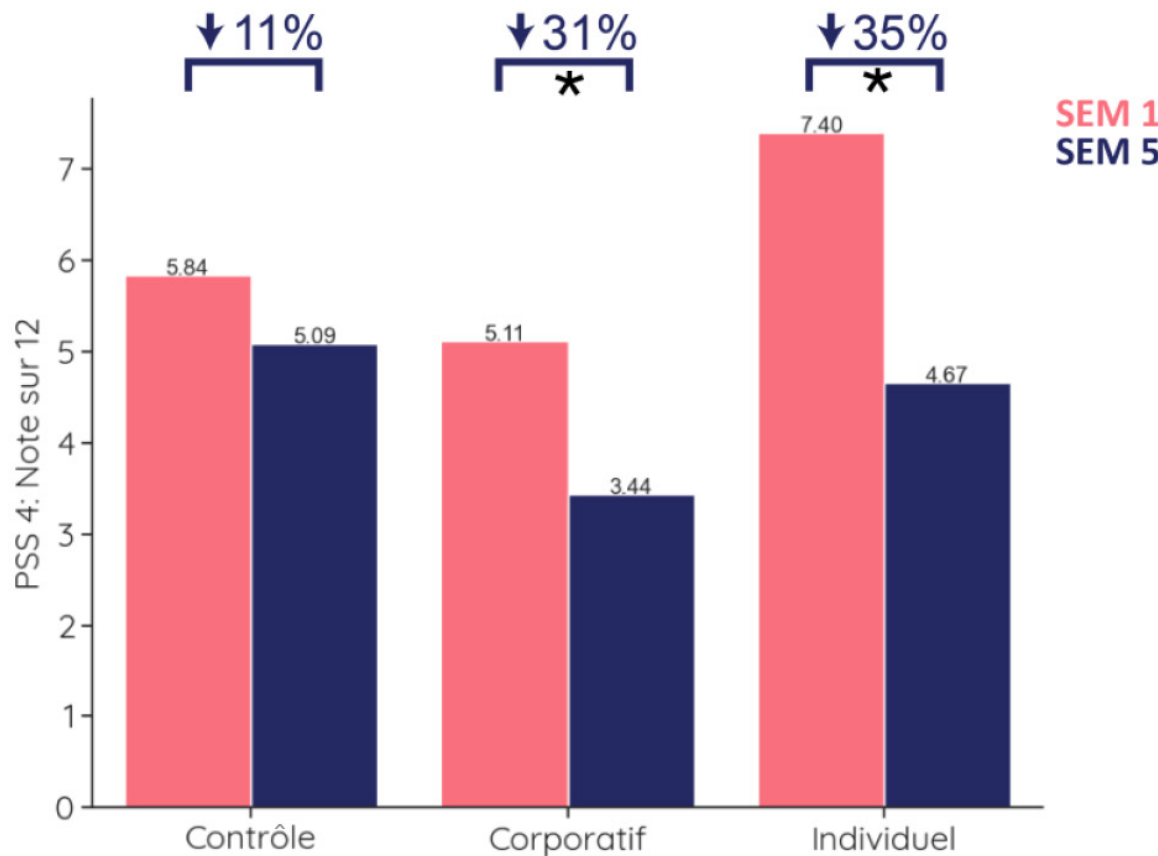
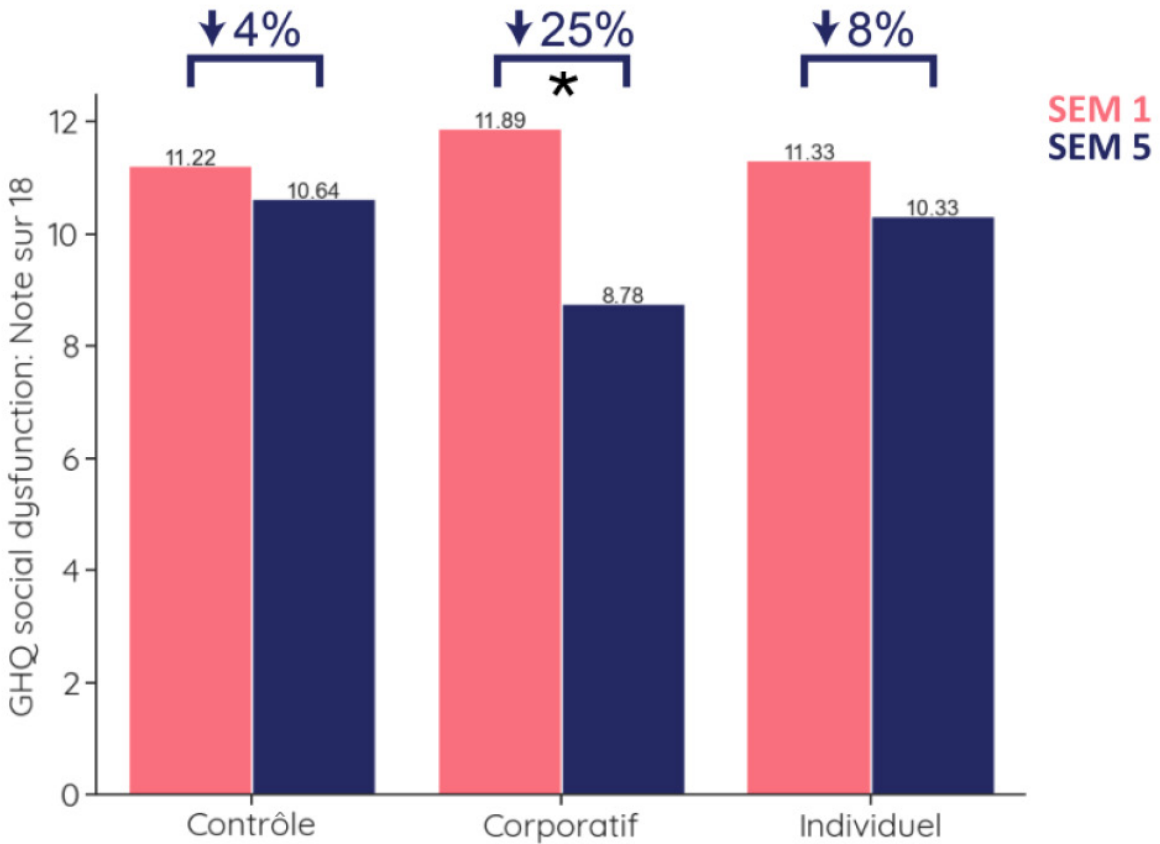
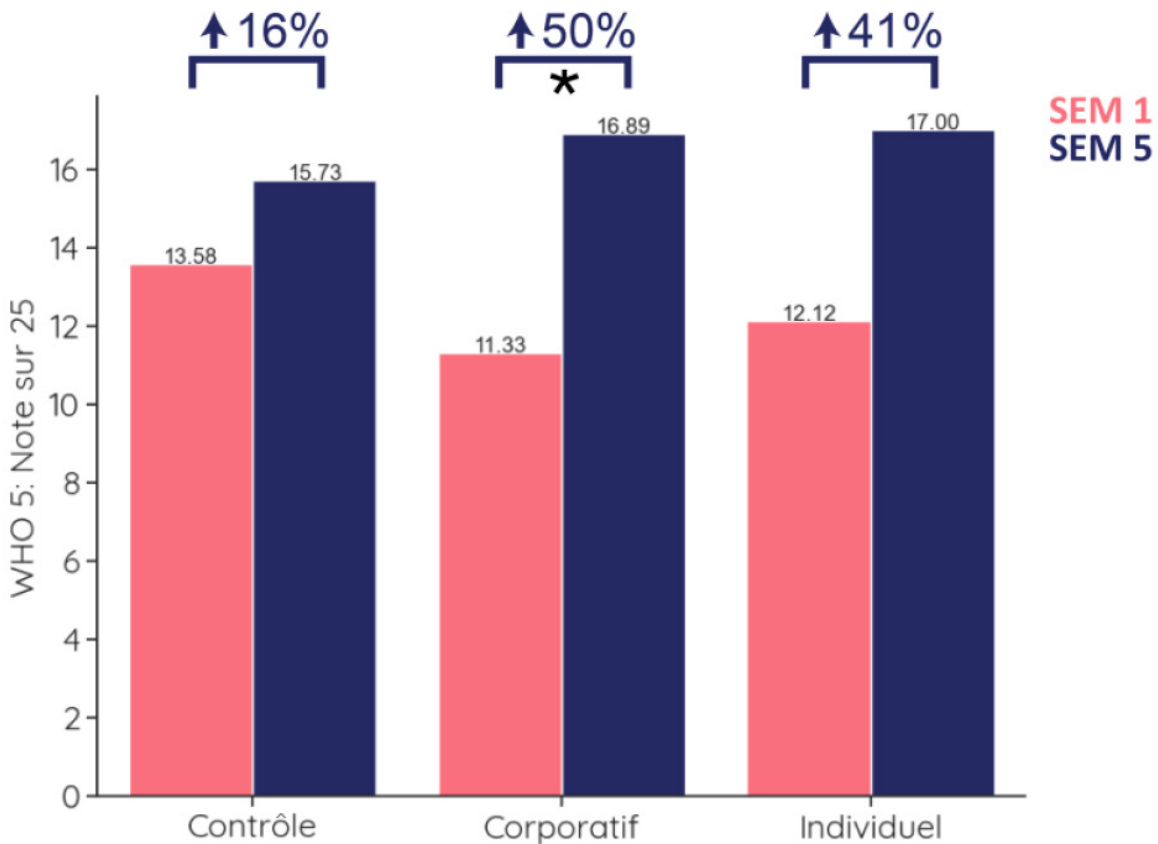
GHQ-12: Assesses psychological distress<sup>2</sup>

PSS-4: Measures the degree of stress associated with a personal life situation<sup>3</sup>

<sup>1</sup> Topp, C. W., Østergaard, S. D., Søndergaard, S. & Bech, P. (2015). "The WHO-5 Well-Being Index: A systematic review of the literature." *Psychotherapy and Psychosomatics*, 84(3), 167–176. <https://doi.org/10.1159/000376585>

<sup>2</sup> Salama-Younes, M., Montazeri, A., Ismail, A. & Roncin, C. (2009). "Factor structure and internal consistency of the 12-item General Health Questionnaire (GHQ-12) and the Subjective Vitality Scale (VS), and the relationship between them: A study from France." *Health and Quality of Life Outcomes*, 7(1), 1–6.

<sup>3</sup> Lesage, F. X., Berjot, S. & Deschamps, F. (2012). "Psychometric properties of the French versions of the Perceived Stress Scale." *International Journal of Occupational Medicine and Environmental Health*, 25(2), 178–184. <https://doi.org/10.2478/S13382-012-0024-8>







WHITE  
PAPER

VITAMINE  
IMMERSIVE

# THANK YOU

TO THE LA PISCINE AND OASIS IMMERSION TEAMS,  
TO OUR COLLEAGUES, AND TO OUR PRESENTING  
PARTNER, BENEVA

RE-AK TECHNOLOGIES  
PALAIS DES CONGRÈS DE MONTRÉAL  
MARELLE COMMUNICATIONS  
CREATIVE CAPITAL  
SIMON COULOMBE

